DOCUMENT RESUME

ED 392 634 SE 057 951

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TITLE Environmental Education throughout FE. 1: Policy and Strategy. FEDA Paper.
INSTITUTION Further Education Development Agency, London (England).
REPORT NO ISSN-1361-9977
PUB DATE [95]
NOTE 35p.; For part 2, see SE 058 056.
AVAILABLE FROM Further Education Development Agency, Citadel Place, Tinworth Street, London, SE11 5EH, England, United Kingdom (6.50 British pounds).
PUB TYPE Reports - Descriptive (141) -- Collected Works - Serials (022)
JOURNAL CIT FE Matters; v1 n1 1995

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Adult Education; Conservation (Environment); *Curriculum Development; Educational Strategies; Environmental Education; Foreign Countries; *Natural Resources
IDENTIFIERS England; Further Education Unit (England)

ABSTRACT

In 1992 the Further Education Unit (FEU) published a guide to environmental action in Further Education colleges, "Colleges Going Green," that drew attention to the moral principle of sustainability that includes a duty of care for other people and forms of life and acknowledges the need to limit and to share the use of the earth's resources. This document is the first of two reports to update "Colleges Going Green." This report is aimed at all participants in further education curriculum development, including college management groups, course leaders, and teachers. It reports relevant national policy developments and initiatives and identifies approaches to developing the environmental dimension to the curriculum corresponding to the different levels of commitment to environmental responsibility. It also illustrates methods of delivering environmental education from examples sent by colleges in response to a circular letter from FEU and gives indicators for evaluating institutional and curriculum practice. Contains 21 references. (JRH)

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ED 392 634

FEDA

Environmental education throughout FE

1: Policy and strategy

FE MATTERS

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'Every FHE institution should adopt and implement an appropriately timetabled and prioritised strategy for the development of environmental education, and also a wider strategy for the improvement of all aspects of its environmental performance as an institution. These strategies should be based on full consultation within the institution, to ensure the widest possible commitment to their effective implementation.

'Each institution's policy for environmental education should include, in particular, a strategy for the promotion of environmental education across the curriculum, together with an action plan for its implementation.

'FHE has an important part to play in developing the environmental understanding of students whose courses are not specifically "environmental" in focus.

'Such "cross-curricular greening" may be concerned with work-related needs, or more broadly with the students' needs as citizens. In practice, much provision may address both sets of needs concurrently.

'Accordingly, we conclude by recommending that the Department for Education and the Welsh Office should commission, not later than the academic year 1995/96, a national appraisal of the progress which FHE has made in the development of environmental education against the background of this Report and should consider the need for further action at national level in the light of this appraisal.'

Extract from *Environmental Responsibility: An agenda for further and higher education*, DFE/Welsh Office, 1993

FEDA Further Education Development Agency

Environmental education throughout FE

1: Policy and strategy

Shirley Ali Khan and Christopher Parkin

FE MATTERS

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The Further Education Development Agency gratefully acknowledges:

- the contribution of Shirley Ali Khan, Associate Forum for the Future, and formerly Director, Centre for Environmental Responsibility at the University of Hertfordshire
- the colleges who responded to FEU circular letter: Askham Bryan College, Barnet College, Blackburn College, Bournemouth and Poole College, Brooksby College, City College Norwich, Darlington College of Technology, Derwentside College, Dewsbury College, Dunstable College, East Norfolk College, Gloucester College of Arts and Technology, Great Yarmouth College, Harlow College, Harrogate College, Lancaster and Morecambe College, Lewisham College, Mackworth College, Matthew Boulton College, New College, Durham, Northampton College, Northbrook College, North Trafford College, Northampton College, North Warwickshire College, Orpington College, Park Lane College, Plymouth College of Further Education, Reaseheath College, Sheffield College, South Devon College, South Thames College, Stourbridge College, Waltham Forest College, Warrington Collegiate Institute, West Herts College or who contributed assignments; Accrington and Rossendale College, Cannington College, Capel Manor College, Walsall College of Arts & Technology
- members of the project advisory group and team and especially Stewart Anthony, Tony Chamberlain, Peter Fearns, Mike Granger, Keith Higham, Allan Lawrence, Stephen Martin, Ewan McLeish, Ron Pritchard, Maria Rice, Nick Sakwa and Keith Turner

Thanks also to Hopwood Hall College for permission to reproduce the cover photograph.

This publication includes material written by Shirley Ali Khan which has also been published by the Council for Environmental Education and the WorldWide Fund UK in the overview to the series *Taking Responsibility, Promoting Sustainable Practice through Higher Education Curricula* (Pluto Press, 1995).

Registered charity number: 1044145

ISSN: 1361-9977

Price: £6.50

Cover design by Mike Pope

Template design by Mike Pope

Printed by Geerings, Ashford, Kent

This document has been printed on chlorine-free paper.

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Executive summary

- *Agenda 21*, the outcome of the United Nations Earth Summit, the European Community Resolution and the UK Government's *Strategy for Sustainable Development* all identify environmental education and training to be of crucial importance.
- The Department for Education's expert committee's report *Environmental Responsibility: An agenda for further and higher education* (also known as the Toyne Report, 1993) recommends that each institution adopts a policy for the development of environmental education and an action plan by 1995. In response to the report, the Further Education Funding Council (England) is taking environmental criteria into account in the assessment of applications for capital projects, and analysing colleges' strategic plans for indication of progress on developments.
- Several bodies, notably the Business and Technology Education Council, the Council for Environmental Education, the Further Education Unit (now FEDA) and the National Association for Adult and Continuing Education have identified key environmental learning outcomes and proposed content appropriate for the environmental education curriculum.
- A British Standard — Environmental Management Systems, BS7750 — is now available.
- The addition of units or modules to an existing programme, the incorporation of an environmental dimension in the development of a new course, or the development of assignments to include an environmental dimension can all contribute to the achievement of environmental education. But only when environmentally responsible citizenship is recognised as a key educational purpose, will the environmental education curriculum be truly effective.
- Successful environmental curriculum initiatives are characterised by partnerships. Integrated assignments enable a flexible approach to introducing environmental elements.
- Student involvement in a college's sustainable management practices, student exchanges and the development of student-centred learning resources can contribute significantly to achieving the intended environmental outcomes.
- The Council for Environmental Education has proposed a learning agenda for environmentally responsible citizenship, consisting of six learning outcomes relevant to all students.
- Environmental responsibility indicators are available against which institutional and curriculum practice should be measured.
- The way forward requires colleges to compare their curriculum practice with, for example, the proposed outcomes for environmental responsibility in this publication and the model in *Environmental education throughout FE 2. A model and unit of environmental learning outcomes.*

Introduction

In 1992, the Further Education Unit published a guide to environmental action in FE colleges — *Colleges Going Green*. In a list of key points, it drew attention to the moral principle of sustainability; this includes a duty of care for other people and forms of life, and acknowledges the need to limit and to share the use of the earth's resources. While recognising the need for the integration of appropriate environmental elements across the curriculum (curriculum greening), much of the guidance in *Colleges Going Green* relates to good housekeeping.

This is the first of two reports to update Colleges going Green. It does not repeat the advice given previously which remains relevant. The aim is to stimulate further curriculum development. While some colleges are implementing environmental policy statements and giving attention to including the environmental dimension in many (if not all) curricula, there is much to be done to meet the recommendations of the report from the Department for Education's expert committee *Environmental Responsibility: An agenda for further and higher education* (1993).

This report is aimed at all participants in FE curriculum development, including college management groups, course leaders and teachers. It reports relevant national policy developments and initiatives, and identifies approaches to developing the environmental dimension to the curriculum corresponding to the different levels of commitment to environmental responsibility. It also illustrates methods of delivering environmental education from examples sent by colleges in response to a circular letter from FEU and gives indicators for evaluating institutional and curriculum practice.

A second report, *Environmental education throughout FE 2. A model and unit of environmental outcomes*, can be used when implementing either a unit or modules of environmental education, or integrating environmental outcomes into vocational assignments.

The FE sector's task continues to be to develop in students the ability to recognise the implications of their personal and work-related choices and decisions, and a commitment to sustainability. A college response requires the participation of every member of the institution and might be addressed by new ways of spending existing budgets.

Feedback on the issues raised in this document would be welcomed. Please inform us of your progress in implementing environmental policies.

Christopher Parkin

FEDA Development Officer

1. Enabling policies and strategic initiatives

UK government policies and initiatives

The United Nations Conference on the Environment and Development Commitments

Agenda 21 is a key outcome of the United Nations Conference on Environment and Development, popularly known as the Earth Summit, held in Rio De Janeiro in June 1992. It is a comprehensive plan to guide sustainable development, to which the UK government is a signatory.

Chapter 36 para 3 (b) states, 'Governments should strive to update or prepare strategies aimed at integrating environment and development as a cross-cutting issue into education at all levels within the next three years [i.e. 1992-1995]...'

The importance of the contribution of the tertiary sector is also emphasised in Chapter 36 para 10 (d): 'Countries should stimulate educational establishments in all sectors, especially the tertiary sector, to contribute more to awareness building.'

A commission for sustainable development has been set up, under the aegis of the UN, to monitor progress in implementing the agreements reached in Rio and actions being taken to implement Agenda 21.

In January 1994, the UK government launched four strategy documents in response to commitments it made at the Earth Summit 1992. These were:

- *Sustainable Development: the UK strategy*
- *Biodiversity: the UK action plan*
- *Sustainable Forestry: the UK programme*
- *Climate Change: the UK programme*

Sustainable Development: the UK strategy states, 'Education and training are crucial to the achievement of sustainable development. They can provide the population, including the work force, with an understanding of how the environment relates to everyday issues and what action they can take personally to reduce their own impact on the environment at home, at work and in their leisure activities.' (Para 32.12, p209)

It also reported that 'The government is investigating the feasibility of establishing an Environmental Standards Forum whose objectives would include providing assistance on the "greening of standards" and helping with the future development of GNVQs.' (Para 33.30 p17).

The Government also established:

- a panel on sustainable development convened by Sir Crispin Tickell
- a round table to bring together representatives of the main sectors to build consensus
- a citizens' environment initiative (known as Going for Green) to carry the message to individuals and local communities

The Tickell Panel's remit is to monitor progress on sustainable development. It has identified environmental education as a priority action. In January 1995 it recommended that the Government should develop a comprehensive strategy for environmental education and training to cover both formal and informal education and to include the wide range of related activities by official and voluntary bodies, industry and commerce, and local communities.

The panel also recommends that the Government should establish a comprehensive database to draw attention to the many resources available, including written material, lecturers and facilities on offer from official and voluntary bodies, from industry and commerce, and in local communities.

European Community commitments

The European Community Resolution passed in May 1988 (88/C177/03) requires that each member state should 'promote environmental education in all sectors (i.e. primary, secondary

and tertiary education sectors)', the objective being 'to lay the foundations for a fully informed and active participation of the individual in the protection of the environment and the prudent and rational use of national resources'. The Community's Fifth Environmental Action Programme (1992) calls for the 'speeding up of substantive implementation of the Resolution'. It also identifies five sectors for particular attention — agriculture, industry, energy, transport and tourism — in recognition of their significant and damaging environmental impact.

The Environmental Responsibility Report

In October 1991, the then Department for Education (DFE) set up an expert committee to look at environmental education in the context of the needs of industry. This initiative stemmed from the Government White Paper on the Environment (Chapter 17.49). The Committee's report, *Environmental Responsibility: An Agenda for further and higher education* (1993) lays considerable emphasis on 'cross-curricular greening' which it describes as 'poorly developed'. Key points include:

- FHE has an important role to play in developing the environmental understanding of students whose courses are not specifically 'environmental' in focus
- Such 'cross-curricular greening' may be concerned with work-related needs or with the students' needs as citizens. In practice, much provision may address both sets of needs concurrently
- Although many employers see a need for 'greening', it has not so far received the attention it deserves either from FHE institutions or from national examining validating and accrediting bodies

Recommendations relating to 'cross-curricular greening' include:

- Each institution, pursuant to its overall environmental policy, should adopt a policy for the development of environmental education
- Insofar as future funding arrangements for FHE involve earmarked provision for staff development in particular subject areas, serious consideration should be given by the Further and Higher Education Funding Councils to the claims of environmental education

The report also emphasises the need for FHE institutions to practise what they teach. Its key recommendation is: 'After consultation with its staff and students, every further and higher education institution should formally adopt and publicise, by the beginning of the academic year 1994/5, a comprehensive environmental policy statement, together with an action plan for its implementation.'

The Panel on Sustainable Development recommends that the Government and institutions concerned should take early action.

In its response to the Toyne Report, the Further Education Funding Council (FEFC) stated in its Council Report (July 1993, No. 8) that environmental criteria would be taken into account in the assessment of applications for capital projects.

Analysis of colleges' strategic plans by FEFC for the period 1994-5 to 1996-7 provides an indication of the extent to which the sector has responded to the recommendations in the report. One hundred and five colleges made specific reference to the Toyne Report and 46 of these had either a policy in place or plans to issue an environmental policy statement. The main areas being addressed are the implementation of an environmental policy statement, the setting up of working groups, energy conservation, recycling, curriculum issues (cross-curriculum greening and environmental courses), staff development, and student awareness.

The 'new' National Curriculum post Dearing

Sir Ron Dearing's review resulted in a new, slimmer version of the National Curriculum. The implications for environmental education are mixed. The freeing up of one day a week for teachers to use at their discretion is clearly an

opportunity for environmental education. However, the benefits of the statutory foundation for environmental education in geography have been reduced in the light of the decision to make geography discretionary post 14. The cross-curricular environmental theme remains. The opportunity to review the considerable weaknesses of the cross-curricular themes in general was missed in the Dearing review and the final report – The National Curriculum and its Assessment: Final Report (School Curriculum Assessment Authority, 1994) – made no reference to them.

Whatever foundations are made in schools, there is a need to build on them. To promote environmental education in the school sector and not in the FHE sector conveys the unfortunate message that concern for the environment has nothing to do with the world of work.

Curriculum initiatives

Business and Technology Education Council (BTEC)

The aim of the BTEC Environmental Initiative is to offer guidance on the integration of appropriate environmental components into BTEC programmes, to enable students to make personal and work-related decisions which take account of the environment.

To this end, in 1993 BTEC developed a series of environmental learning outcomes at national level relating to:

- environmental responsibility
- science and technology
- resource management
- business practice
- policy and control
- investigation

In each case a group of environmental learning outcomes has been identified including some indication of performance criteria and range.

The first group of environmental learning outcomes relating to environmental responsibility should be regarded as essential learning for all students regardless of their course and centred on their personal development. These outcomes are that the learner should be able to:

1 explain the principles of sustainability
2 justify their environmental values and attitudes
3 appreciate, in general terms, global and local environmental interconnections
4 recognise the environmental implications of their personal behaviour
5 make personal decisions which take account of the environment

The relevance of the other five groups of more specialised learning outcomes will depend on the student's chosen course. While these more specialised learning outcomes are not appropriate for all students, each does have a cross-disciplinary application. For instance, the learning outcomes relating to Science & Technology are relevant to a wide range of vocational courses in engineering and the built environment. It is also possible for learning outcomes from more than one of the specialised groups to be relevant to one vocational course. There is some overlap between the sets.

This guidance also has relevance for Advanced GNVQs.

The Council for Environmental Education: Promoting sustainable practice through higher education curricula

Between March 1992 and March 1994, the Council for Environmental Education ran a national project, 'Promoting Sustainable Practice through Higher Education Curricula'.

Eleven HE institutions known for their standing in a particular educational area or for their environmental proactivity, or both, were invited to participate. The targeted educational areas and participating institutions were:

- Adult and Continuing Education, University of Bradford
- Art, Design and Performing Arts, Middlesex University

- Built Environment, De Montfort University
- Business & Management, Manchester Business School
- Engineering, University of Hertfordshire
- Health & Well-being, University of Surrey
- Humanities and Social Sciences, Wolverhampton University
- Information Technology, Kingston University
- Rural Environment, Reading University
- Science & Technology, Open University
- Sport, Leisure, Hospitality and Tourism, Cheltenham and Gloucester College of Higher Education

Each institution's task was to identify (in broad terms) appropriate environmental education content, a range of integration methods and examples of good practice. This involved a national research exercise and seminar for each targeted educational area.

The three key outcomes of the programme were:

- a series of 11 publications published in October 1994, which corresponded to the 11 targeted educational areas. The aim of the publication series is to stimulate thinking in relation to curriculum development which contributes towards a sustainable future. Case studies are a feature of all the publications
- a learning agenda for environmentally responsible citizenship for the FHE sector (see Chapter 4)
- a series of environmental responsibility indicators for the FHE sector relating to academic practice (see Chapter 5)

The learning agenda and indicators have been endorsed by various key people and strategic agencies, including the Chair of the UK Government Committee on Environmental Education in FHE, the Committee of Heads of Environmental Sciences in Universities, and the Institution of Environmental Sciences.

The project formed a major part of a two-year programme called Education and Training for Business and the Environment. The programme, now completed, was supported by the Department of the Environment and the World Wide Fund for Nature and stems from the Government's commitment in the 1990 White Paper *This Common Inheritance* to sponsor a series of conferences with a market place function, bringing together industry, educationalists, trainers and course providers.

Environmental education throughout FE

Between June 1992 and June 1994, the Further Education Unit in collaboration with Hopwood Hall College and representatives from a number of FE colleges undertook a project to develop a set of widely applicable learning outcomes for environmental education. Attention was given to continuity from the National Curriculum and the need to link environmental education with the new direction and self image of the student and with the student's whole curriculum.

The piloted set of general learning outcomes (at Level 3) requires that students:

1. understand the importance of natural processes, relationships and resources that exist in the environment
2. evaluate the environmental impact of an activity
3. analyse how decisions and activities impact on a local environment
4. interpret the legislative framework which exists to protect the environment
5. identify economic and social benefits of good environmental practice

Similar statements have been derived for Level 2.

More specific learning outcomes and associated assessment criteria are illustrated in the second report (see *Environmental education throughout FE: A model and unit of environmental outcomes*).

Participating colleges developed assignments to enable students on a range of vocational courses to achieve the above learning outcomes as an integral part of their courses.

Coombe Lodge Report

In 1993, the Staff College (now superseded by FEDA) published *Environmental Issues in Further and Higher Education*. This was the outcome of a three-day residential staff development event. It relates mainly to the environmental management in colleges and includes some detailed case material on energy conservation, transport strategies and waste management.

NIACE policy discussion paper

In 1993, NIACE published *Learning for the Future*. This presents the case for environmental adult education, identifies the kinds of provision being made and argues the need for the discussion of values, to address social policy issues, establish partnerships and bring about institutional change.

The Adult Environmental Education Curriculum involves:

- affective learning
  - learning attitudes of respect and care
  - learning to value the diversity and beauty of living systems
  - learning values of co-operation with living systems
- cognitive learning
  - learning about our own locality
  - learning how living systems work
  - learning about human impacts on living systems
  - learning about specific environmental problems
- higher cognitive learning developing critical and analytical skills
  - developing capacity for problem solving methods and strategies
  - exploring ethical issues
  - developing skills and knowledge for active citizenship
  - analysing and choosing ways of action

The environmental integrity of GNVQs

In 1995, NCVQ (in association with the World Wide Fund for Nature) commissioned the Forum for the Future to examine the environmental integrity of existing GNVQs.

The research revealed that while there is considerable agreement about the core themes of the common learning agenda for sustainability — including the the principles of sustainable development, values and ethics, the interrelationships of ecological, economic and social systems, responsible citizenship and the management of change — these are currently absent from existing GNVQ specifications.

The report of the study recommends the introduction of GNVQ mandatory core theme Units. This would require an accompanying staff and resource development programme. The recommendations are being discussed by NCVQ. The *Environmental Integrity of GNVQs* research report summaries are available from the World Wide Fund for Nature.

Institutional practice

The European Union Eco-Management and Audit Scheme

This scheme started in April 1995 and the details of it were published in the *Official Journal of the European Communities* in July 1993. It aims to encourage companies to undertake positive environmental management, including regular audits, and to report to the public on their environmental performance. Member states are required to set up arrangements for the scheme, which initially will be targeted at companies in the manufacturing, power and waste disposal sectors. In the UK, targeted areas have been extended to include local authorities. Participation by companies will be voluntary, but once a company joins it must comply with the requirements of the regulation if it is to retain its registration, which will apply to individual company sites.

BS7750: Environmental Management Systems

BS7750: Environmental Management Systems was developed in response to British Standards Institution members' requests for guidance on assessing, improving and demonstrating the environmental performance of their institutions. Figure 1 sets out the stages in the environmental management process.

BS7750 is a process standard and does not set environmental performance standards or define environmental policy. It does, however require a commitment to continuous improvement.

BS7750 is not a substitute for the European Union Eco-Audit and Management Scheme (EMAS). It was produced to be compatible with that scheme. BS7750 certification will provide a means for companies to satisfy the EMAS environmental management system requirement. Those wishing to register sites under the eco-management and audit scheme can choose either to devise their own environmental management system or to use a national, international or European management standard, provided it has been recognised by the Commission.

The first ten environmental certifiers (who will in due course become EMAS verifiers) were accredited by the National Accreditation Council for Certification Bodies (NACCB) in March 1995.

For FE institutions which have already adopted BS5750, accreditation to BS7750 would seem to be the next step, given the compatibility of the two. Interestingly, some practitioners have highlighted the common ground relating to the continuous improvement component in BS7750 with the corresponding requirement in BS7850: Total Quality Management (1992) and have argued that the two standards fit well together. Some rationalisation of BS5750, BS7750 and BS7850 is clearly needed.

Institutions are increasingly likely to seek partnerships with suppliers and employers with similar quality management systems in order protect, for instance, their quality standards to ensure compliance with environmental policy requirements.

Several colleges (for example, Blackburn College, High Peak College, Sandwell College) have undertaken PICKUP projects working with employers in the development of materials and training programmes to support their achievement of BS7750.

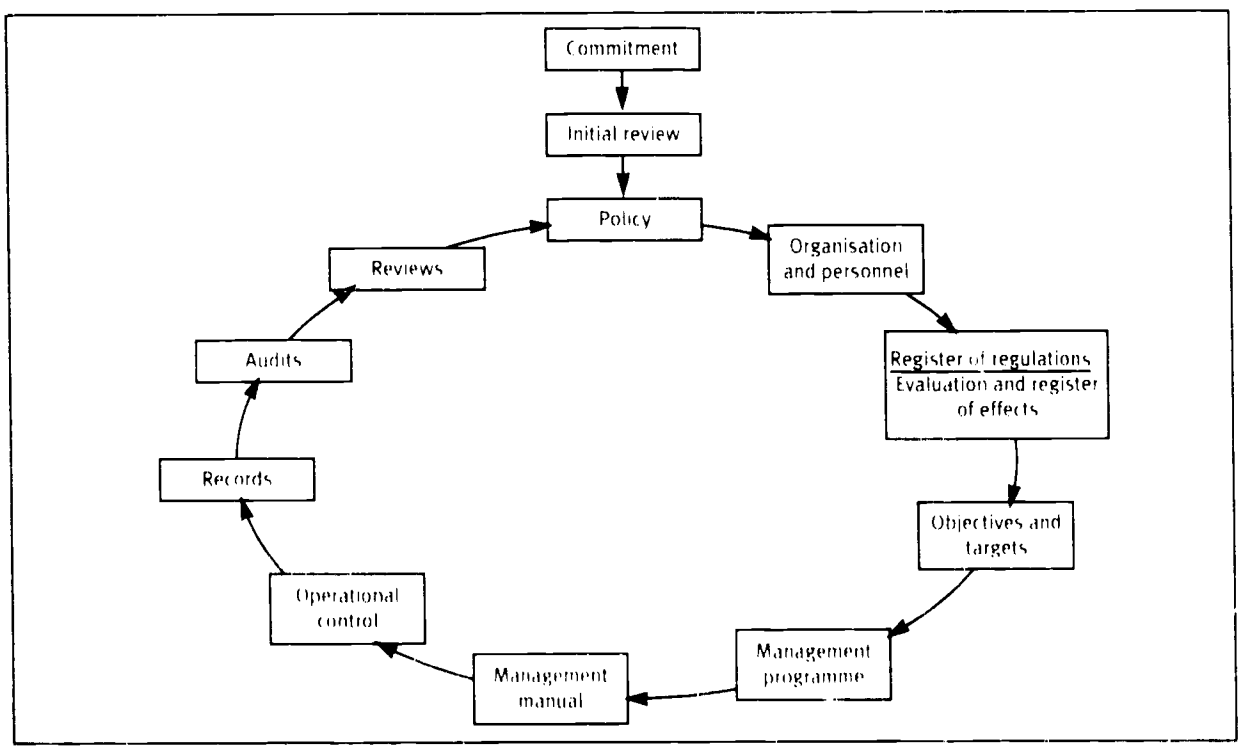

Figure 1 BS7750: Environmental Management Systems. Stages in the implementation of an environmental management system

2. Approaches to curriculum development

Three approaches to curriculum development for the environment are:

- Addition
  - the addition of units, or modules or other special separate components to an existing programme
- Incorporation
  - the modification of an existing programme area to include an environmental dimension relating to programme content
- Engagement
  - the establishment of a new purpose to achieve sustainable development or, in a more limited way, to solve environmental problems by interdisciplinary action

Each approach is useful for course managers and teachers with different assumptions about the nature and importance of the environmental challenge. A number of ideological barriers need to be overcome in order to progress from one approach to another. The sequence of approaches from addition, through incorporation and limited engagement to full engagement suggests a logical progression. In practice there is not a linear progression: practitioners do not enter the development process at the same point or progress at the same rate, or in the same direction. Also, the three approaches are not mutually exclusive; for instance, while additive approaches may be placed at the margins of mainstream study, actual initiatives may involve engagement approaches. The characteristics of the approaches are summarised in the Figure 2.

Curriculum addition

This additive approach assumes that learning about the environment has little relevance to the students' main programme or purpose of study. It is an optional extra which does not connect with or change the main programme. This addition to the main curriculum may take the form of a 'special' option or one or more 'special' lectures or activities. It can mean that environmental education is marginalised. On the other hand, students may have an opportunity to choose modules of interest to them.

Curriculum incorporation

The incorporation approach acknowledges that the environment has some relevance to the students' learning programme. Environmental connections are made with an existing programme by, for example, putting a new slant on established content or practice (see Figure 2).

The survival of courses and disciplines depends on their adaptability and relevance and whether they meet students' interests and needs. To make courses and discipline evolution relating to the environment visible, it is becoming common practice to add the word 'environmental' to a whole range of programme areas, e.g. biology, science, economics, geography, sociology, engineering, management. It can have different meanings for each programme area – the environmental components usually relate to different programme preoccupations. This is causing considerable confusion among employers, who are calling for specialists, e.g. architects, chemists, engineers, etc., who are also environmentally literate.

The emphasis in this publication is on cross-curricular greening – the integration of appropriate environmental education components into courses and programmes which are not specifically environmental. However, the distinction between courses which incorporate green elements and specialist environmental courses is not as clear as it might at first appear, especially where courses have significant environmental connections. For instance, is environmental chemistry a specialist environment course or a specialist chemistry course which has been greened?

Incorporation is an approach which contributes to the environmental knowledge base but holds back from encouraging a sharing of knowledge and responsibility towards the achievement of sustainability. This approach may change the

Characteristics of the approach	Curriculum addition	Curriculum incorporation	Curriculum engagement as problem solving	Curriculum engagement with the vision of sustainability
Assumptions				
The environment has	little relevance to main studies	some relevance to main studies	requires the contribution of specialist knowledge and skills	is inter-disciplinary, inclusive, empowering
The **starting point** is	to keep the environment separate from other studies	to make existing programmes relevant	to solve environmental problems	a vision of a sustainable future
Strengths				
Environmental education	is identifiable (although limited)	brings contextual understanding	is action focused	requires inspirational learning, and learning for and with the community
Limitations				
The environmental dimension	is isolated with little team involvement	has an uncertain balance with no environmental action agenda	focuses on damage limitation	
Likely outcome				
The approach	develops some environmental awareness	develops some environmental awareness	develops an holistic appreciation of environmental problems	develops responsible citizenship, achieves difficult targets toward sustainable development

Figure 2. Approaches to the introduction of environmental education

shape of a course or programme and involve assignments which integrate environmental concerns, but it does not emphasise responsibility toward achieving sustainability. The incorporation approach does not have an environmental action agenda.

Curriculum engagement

Education for a purpose

The engagement approach acknowledges that a key and legitimate educational purpose is to enable environmentally responsible citizenship. Sustainable development is not attainable by gaining knowledge alone. It involves what *This Common Inheritance* describes as the 'ethical imperative of stewardship'. This implies the development of a 'heightened sense of personal and collective environmental responsibility to future generations and to other people here and now' (*Environmental Responsibility*, HMSO, 1993).

The engagement approach has an action agenda for the environment and requires colleges to provide students with the opportunity to develop the knowledge, skills and commitment to become environmentally responsible. The engagement approach may take the form of environmental problem solving or, more fully, be vision directed.

Limited engagement or problem solving

In the more limited engagement approach, the starting point is an environmental problem to which specialist contributions to solutions are sought. The interdisciplinary nature of environmental problems requires specialists to enter into dialogue with each other since the definition of environmental problems and choice of solutions need insights from several disciplines. This requires all concerned to listen and learn from each other.

Public perception of what is an environmental problem shifts as new information and theories come to light. Solutions to problems are always based on incomplete knowledge. The precautionary principle requires that where there are possible risks to the environment (which includes humans), precautionary action should be taken. In short, it is better to attempt to solve a poorly understood problem than to do nothing. This, in turn, requires an acceptance that solutions may occasionally turn out to be partial, if that.

The weakness of the problem-solving approach is that it focuses on damage limitation and ignores the need for a much wider ranging, creative involvement in the pursuit of sustainability. Attempts to solve environmental problems which fail or are narrowly defined, can for different reasons put people off sustainability.

Full engagement or vision-directed development

The vision of this approach is the sustainable future. The vision-directed approach emphasises creative enhancement and embodies the motto of the Australian Commission for the Future which states:

- the future is not some place we are going to, but one we are creating
- the paths to it are not found but made
- the making of those pathways changes both the maker and the destination

If specialists are to play a full and active part in creating a sustainable future, there are implications for the whole education system, which need to become more locally interactive, interdisciplinary, inclusive and empowering.

Implications for learning systems

The vision-directed approach involves a shift toward the concept of a local learning community in which people learn through experience, open and equal interactions, and through personal experimentation and exploration.

Characteristics of a local learning community would include its ability to: be influenced by, as well as to positively influence the circumstances which surround it; take account of local context; value local knowledge; emphasise local innovation and encourage local participation. Other features would include flexible learning relationships with the business community, local authorities, and in and between learning institutions. The measurement of the quality of learning would relate to legitimate learning purposes one of which would be enabling environmentally responsible citizenship.

Implications for pedagogy

The vision-directed approach requires learners to take more responsibility for their own learning and to identify for themselves what they need to know and be able to do in relation to their work, or intended work, and their life styles. The aim is to enhance responsibility, leadership and creativity.

Teachers will be involved in learning, learning about learning, developing learners and exploring new ways of understanding their own and others' realities. Participatory learning implies mutual learning, which in turn implies a flat rather than a hierarchical learning structure.

A deep approach to learning is pursued. This approach emphasises independence of mind and the ability to make sense of and search for the meaning of, rather than reproduce information (see Briggs, 1987 and *Learning Styles*, FEDA/FEU, 1995).

Deep learning approaches include:

- independent learning
- personal development
- problem-based learning
- reflection
- independent group work
- learning by doing
- developing learning skills
- project work

The vision-directed approach is in harmony with developments which enable learners to provide evidence of their learning in relation to intended outcomes and which is free from prescriptive methods.

3. Methods of delivering environmental education

The three curriculum development approaches described can be delivered in various ways, e.g. through new courses, new modules, integrated assignments and projects, and extra-curricular activities. The following brief examples of college initiatives illustrate the experimentation which is taking place in the FE sector. As the introduction of a new course or integrated assignments is an example of the incorporation of approach, and the introduction of a new module an example of curriculum addition, there is not necessarily a direct correspondence between a method and an approach. The whole approach should be judged in relation to the whole course or programme and not a particular teaching technique. Specialist modules and integrated assignments can contribute to and underpin the engagement approach.

Partnerships are a common theme of successful initiatives. Relatively few examples were given in response to the FEU circular letter, of the compulsory environmental module. This is not surprising for its inclusion requires curriculum space to be made available. The methods which drew in most examples were the integrated assignments and learning resources. Indeed, far from following curriculum trends, resource development seems to be leading curriculum development, especially student-centred IT-based resources which enable students to by pass any lack of staff expertise and/or interest.

New courses

The design of an entirely new course gives opportunities for systematically building in appropriate environmental components. New course titles such as HND Outdoor Activity and Environmental Management (Sheffield College) and HNC Waste Management (New Durham College) illustrate new emphases.

Several respondents drew attention to environment related GCE A and AS level developments in their colleges, e.g. Environmental Science, Environmental Biology, Science and Society. The introduction of GNVQ Science was also mentioned as a means of delivering some environmental education.

Environmental Science Access courses seem to be a popular way of both attracting mature learners back into FHE and of delivering scientific principles to learners with no science background.

College partners in the Open College of the North West are developing a GCSE equivalent, environmental science course for adult returners. The course is being designed to meet teacher training and National Curriculum requirements and will be validated by the Open University and Lancaster University. The course offers a way of simultaneously improving environmental and scientific literacy.

Lewisham College has developed a new and unique BTEC National Diploma in Computer Studies with an environmental option. The course aims to enable students taking the environmental option to learn:

- how to be environmentally responsible and what sustainable development is
- how to use and configure a variety of industry standard software packages
- how businesses work and how they use computers
- how health and safety legislation affects computer use
- how businesses can operate ethically
- how to work in a professional manner in a commercial environment
- how to communicate in an appropriate business manner
- how to produce an environmentally based research project
- the principles of environmental theory and practice
- the principles of IT appropriate to working on the Information Superhighway

The first two terms of the course follow the core units of the BTEC National Diploma in Computer Studies. The next two terms focus on environmental theory and practice and how to set up and run computerised small business systems. The final two terms are built around an environmental project and placement, while looking at the impact of IT

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on society and the environment. The BTEC Environmental Initiative publication (see Chapter 1) is the point of reference for the environmental elements of the course.

This course is equivalent to three A levels and is designed to develop environmental and computer literacy – employee qualities high on the wish-list of a wide range of employers.

New modules/units

A modular course structure offers a useful framework for building environmental education into students' learning programmes.

Optional modules/units

Optional modules may cover general environmental education themes or be customised to make connections with other programme themes. A difficulty in achieving environmental education with optional modules is that students may opt not to take them!

For the past three years, the transport option of the HND Business & Finance course at **Northbrook College** has included an environmental dimension. The aim of the module is to promote an understanding of the environmental impact of transport in relation to operation and planning at a personal, corporate, local and national level.

In 1992 students carried out an analysis of the accessibility of the college by bus, train, cycle and on foot. Recommendations were passed to the College Environmental Committee for further consideration and action.

In 1993 students were required to devise a college activity in connection with National Green Transport Week. This took the form of a poster campaign and public transport information promotions, etc.

In 1991, **Northampton College** developed an optional module entitled 'People and Environments' to support the NNEB Diploma course. The aims of the module are:

- to enable students to gain a greater understanding of the nature of environments and to discuss the role of people within these environments
- to enable students to formulate, practice and evaluate ideas for activities suitable for pre-school and infant children which:
  - stimulate and interest in, and understanding of environments
  - encourage the interest of children
- to cover the relevant National Curriculum Attainment Targets for science and geography relating to Levels 1, 2 & 3

The college is also developing a BTEC environmental geography module as an option on the BTEC National Diploma in Nursery Nursing.

Compulsory modules/units

The compulsory module enables a planned approach to the introduction of appropriate environmental elements. The difficulties associated with introducing compulsory modules relates to the 'space' it requires. It could mean the loss of another part of a programme. Where the content of the course is externally determined, it may not be possible to accommodate an environmental module.

At **South Thames College**, a compulsory module entitled Organisation and Environment and an optional module on Countryside Studies on the BTEC National Leisure & Recreation programme has been built around the Wandsworth Borough Council's LIFE-funded programme on the theme 'the rehabilitation of urban lakes'. The college's role relates to assessing public opinion about a range of measures to improve the environ-mental quality of the lake in Battersea Park and in recommending appropriate ways of communicating initiatives taken to a range of interest groups.

Information generated through the LIFE programme has and further developed, with the help of TVEI funding, in the form of a reader on wildlife and ecology, to support the development of geography curricula.

Integrated assignments/projects

Environment-related integrated assignments or projects are a popular and flexible method of integrating environmental elements across a whole range of programmes. They have the potential to:

- enable students to bring their own concerns to the environmental education agenda, since many projects offer students flexibility of topic choice
- increase the environmental awareness of staff and thus encourage revision of courses
- permit a topic to be pursued in a holistic manner
- create a demand for appropriate library resources
- enable the 'greening' of institutional practice through specific pieces of research, marketing exercises and practical tasks
- enable the development of life skills and environmental citizenship skills which are regarded as part of quality learning, through working on 'live' issues
- offer an opportunity for students to work in partnership, for example with employers, non-governmental organisations, staff and students from other institutions, and through this to develop team skills

At **Askham Bryan College** a third-year HND student undertook a design project which made the case for the purification of waste water from the college dairy by means of a reed bed. The college is currently seeking funding from the European Union under the LIFE programme.

Cannington and Reaseheath Colleges have explored the use of the arts (sketching, and photography, creative artwork and poetry, documentary drama and role play) in the development of student attitudes toward the environment, in land-based industry courses. Integrated assignments, for example in Countryside Studies, Rural Tourism, Land Reclamation, and Public Relations have enabled the development and assessment of students' understanding and responsiveness to environmental issues. The deliberate use of the expressive arts and alternative methods of communication has greatly helped students to express concepts and ideas, and identify their communication strengths.

Staff development was identified essential to ensure the necessary enthusiasm and confidence. This should include exploration of the concepts of developing attitudes and values, the use of expressive arts, the writing of assignments and methods of skills assessment. Staff must be responsive and supportive to students and ensure that the necessary resources are available.

Stourbridge College has a franchise arrangement with Wolverhampton University to run the first year of its four year Environmental Science degree programme. The course is also open to Access students. The assignment associated with semester two is summarised below to illustrate expectations of students by the end of the first year.

Environmental Science, Semester 2, Assignment 2
Prepare a written report documenting the human impact on an ecosystem of your own choice and suggest strategies of how such impact can be minimised.

Choice of ecosystem may be influenced by the accessibility of a suitable site for the collection of primary data, and the availability of relevant secondary data.

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The report should be between 1,000 and 2,000 words in length and appropriately illustrated with maps, diagrams, photographs, tables and graphs. It should include three distinct sections:

i a detailed scientific description of the ecosystem
ii documentation of the impact of human activity on the ecosystem
iii management and conservation strategies to minimise the impact of human activity on the ecosystem

Credit will be given for the collection, presentation analysis and interpretation of primary data collected in the field. This may involve some laboratory work.

Colleges participating in this environmental education project developed assignments for students on vocational courses, which can deliver some or all of the generic set of environmental learning outcomes which relate particularly to environmental protection and sustainability (see *Environmental education throughout FE 2*). The following are examples which set students imaginative, realistic and challenging tasks, relevant to their vocational programme. While the programme area for which they are principally developed is identified, some could be integrated in a wider range of student programmes. Further examples are given in *Environmental education throughout FE 2*.

Accrington and Rossendale College

Rossington Stanley United is a traditional local football club which must decide whether it should accept a sponsorship deal with £200,000 from Savaheat, a local energy conservation company. For a case study, Level 3 Business & Finance students are required to advise the board of directors. The board is uncertain whether it can meet the requirements laid down by Savaheat; the company also wishes to maximise press coverage which would require the club to become more aware of local environmental concerns and its own practices. Students prepare a report

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1,500 words) which outlines the environmental impact of current practices (in areas of transport, catering, buildings and material waste management, energy, paper) and propose good environmental practice with reasons supported by data.

Accrington and Rossendale College

In 'National Questions', Business Studies students produce a tape recording of an environmental version of the radio programme 'National Questions'. Students role play prominent members of society (e.g. a university lecturer in Economic Policy, a Member of the European Parliament, a leader of the Transport and General Workers Union, an environmentalist). Working in groups students prepare questions and scripted answers on areas such as the UK Government's attitude to environmental issues, 'unemployment or a nuclear power industry?', deforestation in the Amazon, the global warming. Thorough preparation is emphasised for national reputations and credibility can be ruined by minor mistakes on air. Students individually submit detailed preparation notes and refer to economic theory and current issues.

Capel Manor College

'Building of Fences' is an assignment designed to help students of a Countryside Hardware and Paths module to understand the environmental impact of different types of fences. Using a map provided, students firstly assess the impact of existing fences on the landscape. They obtain from manufacturers details of fencing materials and assess whether materials are from renewable or non-renewable resources, what materials are from sources in short supply, the environmental impact of each manufacturing process, and whether materials used or unused can be recycled.

Chosen sites are visited and the most appropriate type of fence is assessed. Ecological conflicts and legal implications are addressed. Fences are erected to specification and waste material is removed and the most environmentally suitable disposal method selected.

Capel Manor College

'Weeds' is an assignment designed to enable Conservation students to understand the impact of weeds in cultivated and natural habitats.

Students work in groups and identify in three areas (e.g. garden, pond, woodlands) all plants which they would classify as weeds. The role of each weed plays in the habitat is explained and how the weeds compete for resources with the desired plant specimen.

The reasons for weed presence at particular sites is discussed using historical maps. The composition and value of weeds are investigated and reasons for their conservation based on ecological, economic, aesthetic and moral perspectives are suggested.

Chemical and non-chemical methods available for their control are identified, as is the relevant legislation.

Dunstable College

The assignment 'How Green is my college' confronts students (of the National Diploma in Design: Audio and Visual) with the opportunities and difficulties involved in being environmentally and socially responsible.

The college has an environmental mission statement which requires participation of all members of the institution, whether principal or student, and a green team is active.

The aims of the assignment are to evaluate the environmental impact of the college's institutional practice, identify economic and social benefits, and enhance the environmental responsibility of the individual.

The theme is used to integrate graphic design, desk-top publishing, photography, and video sound-production in good communication of environmental issues. Students in groups of two or three consider which areas have been successfully or not yet considered by the college's green team. Each group suggests how the college could improve its performance, and costs ideas. Students present their findings as a short video documentary and a small exhibition. A written diary records progress.

Walsall College of Arts and Technology

The assignment 'Safety Audit of College Laboratories' requires students of science Level 2 to carry out an investigation for the management of the college on the legislation which affects the use of biological and chemical materials, including radioactive materials. Students report on relevant legislation, a statement of good practice, and identify improvements which should be brought about to meet environmental regulations. The assignment develops students understanding of both the need for safe working practice, and the resource implications.

In the assignment the 'Use of Ecological Techniques' students are asked to assess the ecological value of a site, for which planning permission is sought by a local builder. The land has been left unused since several factories were demolished, but it is the only open space in the area though overgrown. A local environmental group was campaigning for the preservation of the site as a nature reserve.

Students work as a group, identifying individual tasks, pooling results and observations, and producing a report for the planning committee. Students' arguments show sincerity and strength of conviction, the political and sociological dimensions coming to the fore, illustrating the potential for neighbouring self-help based on the need for management and care of habitats.

The imagination of students was fired in contrasting the 'before and after treatment' of the chosen site under the Urban Derelict Land Reclamation scheme.

Extra curricular activity

Extra curricular activity is particularly important in relation to the behavioural and attitudinal aspects of the environmental learning agenda.

Student participation in sustainable management practice

Students can learn to value the environment by participating in sustainable management practices in their colleges. In the same way, students may not value the environment in a college which does not use its resources wisely. This can result in environmentally insensitive behaviour and the negation of environmental education delivered through course curricula.

Students on the Furniture Making course at City College, Norwich, expressed their concerns about the use of rain forest hardwoods and the waste of local timber hardwood trees. To address these concerns, a hardwood reclamation scheme was established to encourage students to explore sources of sustainable hardwoods and manage their conversion and seasoning for furniture making.

Students are charged with the tasks of locating trees felled on safety grounds, gale damaged trees, thinning them and arranging their purchase, transport and conversion. A kiln on campus, which is a reconstructed freight container, is used to season the timber and a mobile bandsaw distributor provides cheap a conversion facilities. Environmental and economic comparisons are drawn between this reclamation scheme, local commercially produced hardwoods and rain forest hardwoods. The scheme saves the college several thousand pounds a year on timber purchase, while encouraging creativity and environmental responsibility in students. It is not formally assessed.

Scheme partners include Norfolk County Council, Norwich City Council and local landowners.

Plymouth College has developed a college based nature reserve on the site of a disused railway cutting. It covers about a third of an acre and includes a variety of features: a pond, a marsh meadow and a nature trail. Its development has been a collaborative effort between college staff and special needs students, local community volunteers and sponsors (British Gas, Devon Community Chest, Groundwork Trust, British Trust for Conservation Volunteers). It is now a well-known and well-loved community learning resource, often visited by local school children.

Exchanges

Lancaster and Morecambe College staff and students participated in a European Union funded project developed by Lancashire County Council in partnership with the Union of Local Authorities of Chalkidiki, Poligiros, Greece and the Environmental Protection Services, Bonn, Germany. The theme of the Euroform project was 'Environmentally Friendly Tourism and New Tourism Products'.

During 1992-3, 20 C&G Leisure students and two members of staff participated in an exchange scheme which provided them with an opportunity to exchange ideas on rural and coastal tourism with Greek and German counterparts. To support the exchange, students took an additional course relating to the environmental impact of tourism; this was not assessed as part of their C&G course. The course was based on a series of five case studies on:

- footpath erosion
- planning
- farm diversification
- tourist honeypots
- coastal pollution

Benefits of participating in the project included enhanced environmental awareness of both staff and students, curriculum development and travel experience (it was the first trip abroad for most of the students).

Pastoral programme

In 1991, **Harlow College** reformed its pastoral programme which became the Personal Enhancement Programme (PEP). In this new programme a progressive approach to the communication of environmental issues was developed.

The aims of the PEP are to:

- inform students of the importance of a healthy environment (in the college, locally, nationally and internationally) and of preserving the environment for present and future generations
- encourage a responsible attitude

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- provide information and opportunities for the students to carry out a variety of tasks; for example:
  - recycling paper and cans
  - buying environmentally friendly products
  - saving energy

Students are provided with the opportunity to explore environmental issues, during one of the three theme weeks in the PEP. Students are encouraged to form their own action groups; the motivation, organisation and commitment of the group varies from year to year.

During the theme weeks many agencies and companies are invited into college to display relevant material and provide information or run sessions.

Examples of theme weeks:

- Fresher's Fair
  - local environmental pressure group to inform on green issues
  - The Body Shop to inform on environmental products
  - Traid Craft to promote crafts made in developing countries

- Working World
  - large photographs to stress the importance of working in a pleasant environment

- World Money Game
  - large group activity which provides awareness of saving the world's natural resources

- Health Fair
  - a graffiti wall is provided so that students may write their thoughts and feelings about smoking

Funding is provided from the PEP budget. Most of it is spent on reprographics work. The PEP is evaluated at the end of the academic year through a student questionnaire.

The advantage of this type of programme is that it can reach a large number of students (1,400 per year) of mixed abilities. It also encourages students to find out what they want to know for themselves.

Working with the community

Dunstable College stages an annual two-day environmental and health event. Each event has attracted some 1,000 visitors to examine:

- student environmental work
- stands from local and national environmental organisations
- stands from industrial, commercial and local authority environmental and health organisations
- environmental projects from local schools

Considerable local radio and press coverage has focused attention on the opportunities to expand environmental education, and for the college to be seen as part of the community rather than its servant.

Open learning resources

One of the real stumbling blocks to curriculum greening is lack of staff expertise and confidence in relation to delivering the environmental learning agenda. High-quality open learning resources can help to overcome this blockage

Darlington College of Technology, Derwentside College and **New College Durham** are working collaboratively on a PICKUP-funded project Environmental Management Developments in Relation to BS7750. The project was awarded £32,000.

A self-study pack, called Action for the Environment which can be used by small and medium-sized enterprises, schools and colleges, has been developed. It contains three elements:

- self-study programme — BS5750 the links explained
- BS7750 sample manual
- awareness video

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All three colleges have sent a member of staff on a British Standards approved training course in environmental auditing, to ensure that training and consultancy meet British Standards requirements.

The intention is to promote the pack through a series of seminars, consultancy and training programmes, partially funded through TEC small business development funds.

The possibility of producing the pack on CD ROM is also being considered.

Two years ago, **Lancaster and Morecambe College** undertook a curriculum mapping exercise to identify learner support materials most needed to support existing programmes, to compensate for reduced teaching hours and to encourage greater use of the College's newly refurbished learning resource centre which has over 50 PCs.

The college established a writing team to produce materials relating to the resource gaps identified through the mapping exercise. A house style was agreed and the staff involved attended a number of writers' workshops before they began writing. A common format was agreed. Over one hundred units have been commissioned during the first year of the project and additional units are planned for year two.

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Environmental units commissioned include:

- Greenhouse effect
- Genetic engineering
- Forests
- Environment, litter and recycling (includes special needs audio tape)
- Energy – what is it?
- Producing electricity
- Fossil fuel
- Nuclear energy
- Renewable energy 1&2
- Conservation
- Ecosystems
- Population 1&2
- Waste disposal 1&2
- Environmental management and industry

The development of these units was funded through TVEI and the college's own development funds.

A similar aim to the Darlington College and partners project is the **North Trafford College**'s PICKUP-funded initiative to develop an open learning resource in environmental management. The design and development of the resource, in collaboration with industry, began in 1994 and is near completion.

North Trafford College's resource is more broadly based, its aim being to give learners an understanding of environmental management in general (i.e. the resource does not solely relate to BS7750).

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Content of the reader includes:

- Principles of environmental management
- Commitment
- Preparatory review
- Policy
- Personnel
- Compiling registers
- Identifying priorities
- Setting targets
- Action planning
- Procedure writing
- Producing manuals
- Control and monitoring
- Keeping records
- Auditing
- Reviews
- British Standards
- Information sources

Case studies are a feature of the reader. There is also a work book which provides an environmental management framework within which individuals fill in their own detail.

The resource (cost £60) is now available to help companies implement environmental management systems which comply with BS7750. North Trafford College also offers tutor support. The resource also has relevance for taught courses, e.g. business courses.

At **Plymouth College of Further Education** in the summer of 1993, a proposal to senior management to develop an IT-based flexible environmental learning resource was successful and a budget of £2,000 was allocated to the project. The resource, which is now being piloted on A-level biology and environmental courses, covers basic ecological principles, environmental impact assessment and includes local ecological data. As such, it is also relevant to other course curricula e.g. Science, Construction. It comprises a database of interactive media packages relating to human impact on the environment; and software which enables students to use remote sensing techniques to access and analyse 'live' environmental data, and to collect and analyse their own 'live' data. The hope is to involve local schools in developing a database of local environmental information.

Such IT-based environmental learning resources have the advantage of simultaneously facilitating the development of IT and environmental competence.

Some other initiatives taken by colleges, and guidance to colleges were reported in *Colleges going Green*.

4. A Learning Agenda for Environmentally Responsible Citizenship

One outcome of the national research exercise in Promoting Sustainable Practice Through Higher Education Curricula project, was the identification of a number of general learning outcomes relevant to all HE students. These were converted into the Common Learning Agenda for Environmentally Responsible Citizenship designed to enable students to develop the wisdom, ability and commitment to manage their personal and work-related environmental responsibilities. These general learning outcomes are equally relevant to FE.

Before course managers and teachers can facilitate the delivery of the Learning Agenda for Environmentally Responsible Citizenship to students, they must first become capable and responsible environmental citizens themselves. The Common Learning Agenda is therefore a basis for both staff and student development.

The content associated with the agenda's six key learning outcomes is indicative rather than prescriptive (see next page).

The relevance of the Learning Agenda to other interest groups

Much of the Learning Agenda for Environmentally Responsible Citizenship is about understanding how things connect, how governments and organisations work and how to participate actively and creatively in a global society. All this is very much in keeping with the Council for World Citizenship's description of education for citizenship.

The Learning Agenda for Environmentally Responsible Citizenship also fits well with the increasingly familiar 'wish list' of graduate qualities identified by employers. Employers want, but sometimes seem unable to get, employees who are good team workers, able to participate in organisational politics, who empathise with people's motivations, are able to deal with a variety of colleagues, can construct and deliver concise argument and who can manage their work-related environmental responsibilities (*Employer Satisfaction Report*, Birmingham University, 1994; *Environmental Responsibility*, Department for Education, 1993).

In addition, the Government is encouraging active citizenship as a means of implementing the spirit of a whole range of public policies, including environmental policies (*This Common Inheritance*, 1992).

Key features of the Agenda

Linking physical and social scientific approaches

The Agenda includes both physical and social scientific approaches, which are frequently dealt with separately. All students should develop a basic level of physical and social scientific literacy which will enable them to understand the nature and status of scientific evidence and analyse its social implications.

Linking personal and professional responsibility

The Learning Agenda emphasises the importance of developing an appreciation of personal environmental impact and contribution to environmental solutions. These elements of the Agenda acknowledge the link between personal and professional environmental responsibility. This recognises that people are individuals before they are caterers, engineers or managers, nurses and that responsible people make responsible professionals.

The Toyne Committee recognised the unreal distinctions which would have to be made if learning for personal environmental responsibility and professional environmental responsibility were separated.

'Whatever "environmental literacy" is taken to mean, it must mean the same for the consumer and the citizen as it means for the worker — at least if it means more than a set of situation-specific "dos" and "don'ts" learned by rote and uncomprehendingly observed' (*Environmental Responsibility*, DFE, 1993).

COMMON LEARNING AGENDA FOR ENVIRONMENTALLY RESPONSIBLE CITIZENSHIP

Every learner on completion of their further or higher education course should be able to:

1 understand the principles of sustainability

Sustainable principles relating to: biodiversity, environmental values and ethics, natural cycles, people as part of nature, quality of human life (as opposed to standard of living), the depletion of finite resources, the earth's carrying capacity

2 recognise the environmental impact of personal choices and decisions and potential contribution to environmental solutions

Effects relating to choice and/or use of: cleaning materials, clothes, energy, food, hobbies, holidays, household durables, transport, water

3 recognise the environmental impact of their chosen educational or occupational area and its potential contribution to environmental solutions

While this learning outcome is relevant to all students, the environmental impacts and contributions will vary according to a student's programme.

4 appreciate the relationships between human activity and global environmental problems

Problems such as: acid rain, desertification, ozone depletion, global warming, toxic waste

5 appreciate the contribution and limitation of current approaches to environmental solutions

Approaches including: economic, educational, legislative, managerial, media-led, campaigns, scientific, technological

6 manage personal and work-related environmental responsibilities

The successful achievement of this 'catch-all' learning outcome depends on the development of:

- appropriate awareness and understanding (see general learning outcomes 1-5 above)
- associated skills which enable students to:
  - conduct interdisciplinary analysis/appraisal which might include the use of techniques such as environmental impact assessment, life cycle analysis, environmental auditing
  - make critical judgements
  - manage change
  - manage information
  - participate in organisational politics
  - think creatively
- a sense of environmental responsibility

5. Evaluating institutional and curriculum practice

It is important that institutional commitment is evaluated as well as specific curriculum activities. Responsibility for this will vary across the sector. Curriculum greening may usefully be monitored through normal course review processes.

It is difficult to separate learning for sustainability, which has been facilitated by a college, from that which has been acquired from other sources, e.g. friends, media, family. It is also difficult to demonstrate a direct relationship between learning for sustainability and sustainable practice, partly because of the general difficulty of demonstrating the link between learning and action, but mainly because there is no agreement on what sustainable practice actually means at the level of the individual. The convention is to talk about practice which is more or less sustainable. As such, the idea of employing environmental performance indicators as a means of evaluating the effectiveness of learning for sustainability is a non-starter.

The suggestion is to focus evaluation efforts on process rather than performance. The following series of environmental responsibility indicators have been developed through the Council for Environmental Education's project 'Promoting Sustainable Practice through Higher Education Curricula' and endorsed by Professor Peter Toyne, the chair of the Department for Education's Committee which produced *Environmental Responsibility.*

Environmental responsibility indicators: institutional and curriculum practice

The college should have:

- a comprehensive environmental policy statement for both institutional and curriculum practice
- a strategy for implementing the institution's environmental policy
- an environmental advisory group to guide the strategy implementation
- an accreditation to BS7750 or similar mechanism for systematically managing the institution's environmental responsibilities
- an annual environmental audit or environmental performance report

Environmental responsibility indicators: curriculum practice

The college should have:

- a framework for cross-curricular, environmental education including:
  - — learning outcomes relevant to all students
  - — learning outcomes relating to specific educational areas

  NB these may include those identified by professional/examining bodies
- a list of criteria used for internal assessment of cross-curricular, environmental education provision
- an accreditation or assessment report of cross-curricular environmental education provision by external body, e.g. professional body or independent assessor
- a list of current in-house expertise in relation to the environment
- a staff development programme relating to the institution's environmental education framework, e.g. programme summary, number of staff involved, time commitment
- institutional membership of or formal links with environmental professional bodies, agencies or organisations (local, national and international)

- a student survey report relating to awareness of institution's environmental policy and satisfaction with environmental education provision
- an employer satisfaction survey report relating to the environmental competence of named recruits to named companies/organisations, from named courses

The Toyne Committee recommended a national appraisal of the progress which further and higher education has made in the development of environmental education against the background of the Committee's report, and that this appraisal should take place not later than the academic year 1995-6. A review of progress, commissioned by the Department of the Environment, is due in April 1996.

6. The way forward

The way forward requires action by college managers and teachers, curriculum and qualification bodies, and support agencies.

College managers should recognise the key role the FE sector can play by influencing the practice and attitudes of all its students whether at work or in their private lives, and so contributing to the achievement of global sustainability.

Managers with cross-college curriculum responsibilities and course leaders should:

- keep abreast of national developments and of requirements
- ensure appropriate environmental learning outcomes with learning experiences and assessment are in place for all students
- continually monitor the situation in their college by, for example, using the indicators in Chapter 5

In developing their curriculum provision, colleges may wish to:

- consider the extent to which their existing curricula and qualifications enable students to achieve the general learning outcomes, proposed by the Council for Environmental Education (Chapter 4);
- consider the applicability of the model outlined briefly in Chapter 1 (page 14) and more fully in *Environmental education throughout FE 2. A model and unit of environmental learning outcomes for FE*
- draw upon the environmental outcomes and illustrative assignments developed by the Business and Technology Education Council (see Chapter 1)

The challenge is to move from environmental education as an addition to the main curriculum of some students through the incorporation of environmental education to environmental education as a key purpose for all students.

Movement toward the vision-directed approach requires the development of staff, the development and provision of learning activities and resources, and networking of colleges to learn from each other and disseminate good practice.

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Business and Technology Education Council (BTEC), Central House, Upper Woburn Place, London WC1H 0HH (0171-413 8400)

Council for Occupational Standards and Qualifications in Environmental Conservation (COSQUEC), Windsor House, Bayshill Road, Cheltenham, Glos GL50 3AT (01452-840825)

Council for Environmental Education (CEE) University of Reading, London Road, Reading, Berkshire RG1 5AF (01734-756061

European Union Eco-Audit and Management Systems (EMAS), The UK Competent Body for the EC Encouragement and Audit Scheme Department of the Environment C11/21, 2 Maskham Street, London SW1P 3EB (0171-276 3377)

Further Education Development Agency (FEDA), Dumbarton House, 68 Oxford Street, London W1N 0DA (0171-436 0020)

Institute of Environmental Sciences (IES), 14 Princes Gate, Hyde Park, London SW7 1PU (0181-766 6755)

National Council for Vocational Qualifications (NCVQ), 222 Euston Road, London NW1 2BZ (0171-387 9898)

The Environment Council (publishes *Who's Who in the Environment in England* and *Who's Who in the Environment in Wales*), 21 Elizabeth Street, London SW1W 9RP (0171-824 8411)

World Wide Fund for Nature (WWF), Panda House, Weyside Park, Catteshall Lane, Godalming, Surrey GU7 1XR (01483-426444)

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ISSN 1361 - 9977