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ABSTRACT

The purpose of this annual publication is to report, evaluate, encourage, and help guide progress in Environmental Education (EE) in the United Kingdom and to provide information on important initiatives and comparative international developments. Issues and priorities are identified with an emphasis on current EE philosophy rather than practice and methodology. In this issue, articles cover a range of topics including the following: the White Paper on the Environment, issued by the British Government, and Curriculum Guidance 7, Environmental Education, from the National Curriculum Council; global perspectives; review of 1990 achievements of British EE; EE developments in Scotland, Wales, and Northern Ireland; local authority policies; the National Curriculum; core skills; pre-service and in-service teacher education; youth service; the Bergen conference; dangers of the evangelical approach to EE; teaching about the greenhouse effect; networking in Scotland; case study of the Milton Keyes community EE program; EE information technology; the Environment, Community, Arts Network; primary school teachers and EE; EE in the Netherlands; and education for sustainable development. An "Updates and News" section contains reports on global environmental education, on recent developments regarding the 1988 European Resolution on Environmental Education, and on the Learning through Landscapes Trust. A book review section is included, and a subscription order form is attached. (MCO)

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CEE was established in 1968 to provide a focus for organisations with an interest in environmental education in England, Wales and Northern Ireland. It is now widely recognised as the national body with responsibility and concern for all aspects of environmental education.

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EDITORIAL POLICY

The purpose of the *Annual Review* is to report, evaluate, encourage and help guide progress in environmental education, particularly as it relates to school and non formal education. It aims to:

- provide a critical overview of the progress of environmental education in the UK
- provide information on important initiatives and developments and comparative international developments
- use the evidence of the past year to identify issues and priorities for the future.

Emphasis is given to articles on current thinking and developments in environmental education rather than detailed practice and methodology.

Its goals are to:

- assist and encourage all those interested or involved in working in this area by providing an authoritative review of the year and of trends
- help win increased support and recognition for environmental education amongst decision makers at all levels.

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Contributions and comments

Your comments on this issue, or suggestions of topics to be covered in the next issue, are very much welcomed.

Potential authors are invited to send for a copy of *Contributor's notes*.

Please contact the Editor, Annual Review of Environmental Education, CEE (address above).

Beyond the paradoxes

Stephen Sterling
Executive Editor

There's a temptation, if you only write an editorial annually, to sound off with rhetorical phrases such as 'landmark year', 'watershed for the future' and so on.

But too much trumpet blowing hides a situation marked by paradox, perhaps best summed up by 'It's good - but not that good'. This phrase is the advertising slogan of a brand of beer, but it's maybe also appropriate to the current state of environmental education. Things *are* going well - but not *that* well. Many practitioners know of superb work here, of burgeoning enthusiasm there - but also of educational areas hardly touched by environmental education. There are major developments taking place but at the same time real constraints 'on the ground'. In other words, we need *both* our optimists and pessimists at this stage, our idealists and realists, because the reality of the situation and the basis of future progress lies between the two.

Take the key events of 1990 - the release by HM Government of the White Paper on the Environment which, very significantly, endorsed environmental education as a key means of realising environmental policy, and Curriculum Guidance 7 *Environmental Education* from the National Curriculum Council.

Did these represent a breakthrough for environmental education as some have claimed? By some criteria, the answer is clearly 'yes'. After many years during which any crumbs of central recognition were seized on by a hungry environmental education lobby, these documents signify a major achievement and a shift in government thinking - for which environmental educationists can claim some credit.

The documents have lent further weight and impetus to a very real growing interest in environmental education which has been boosted by many other factors from international developments such as the Bergen conference and moves towards Brazil '92, to the steady greening of local government, of industry, and of public concern. There appears to be a certain synergy taking place, opening up opportunities - and responsibilities - that environmental education has never before had. But it has to respond well if the new opportunities are not to be missed, and the potential is to be realised.

Can the disparate 'environmental education movement' adequately respond? It's partly a matter of capacity - sufficient trained people, money and resources. There's a shortage of all of these. But it's also a matter of vision and determination.

Environmental educationists need to think boldly. They have to - the issues facing the world demand it. If education and training has any role at all in their solution, in securing a safe and truly sustainable future, (and the White Paper, the post-Brundtland debate, and most environmental educationists assume that it does), it needs to take on the techniques, objectives and ethos of environmental education at a deep and thorough level. Environmental education needs to become not just in the White Paper's words 'an important theme' in education, but a prime function of virtually all education in all sectors. Chris Patten, in this issue of the *Annual Review*, says it needs to 'permeate all levels and aspects of education'.

In many respects, we are clearly still a long way from achieving such status and practice. There are at least two things which environmental educators can do to move things further towards this goal.

The first is to think broadly and strategically, in whatever situation one is in, and to build on existing structures where possible. For example, the Scottish Environmental Education Council (SEEC) is servicing a group looking at a national strategy for environmental education that will identify objectives, gaps, resource implications and so on. But similar exercises should be repeated by everyone concerned, formally or informally at every level - from company to school, from government to individual.

The second is to engage in debate. Curiously, the deeper questions inherent in environmental education are not much discussed these days. There seems to be a feeling in some quarters that now there's consensus on 'what it is', we just need to get on with implementation. Certainly, the effective implementation of environmental education as a coherent approach and experience is difficult enough. But as the extent of its importance and practice grows, the

questions and issues it raises will have to be addressed more thoroughly.

These issues include:
- the tensions within and between the spectrum of 'dark green', and 'light green' views;
- tensions between the accepted need to change people's values and behaviour towards more environmentally sensitive modes, and charges of imbalance and controversialism;
- the difficulties of presenting complex and crucial global issues to young people in ways which are not negative in effect and retain the vital aesthetic and enjoyment aspects of the environment;
- the problem of presenting environmental education holistically within a still predominantly compartmentalised education system.

Despite current emphasis on knowledge and skills, following CG7 and the White Paper (perhaps too blindly?), such vital questions of value and quality are likely to become more pronounced with time. If environmental education is to be *effective* it needs to address more systematically the difficult questions that its practice raises. ■

Soundings

Think globally - act locally

Chris Patten discusses the implications for education of the White Paper on the Environment.

Rt Hon Chris Patten MP
Former Secretary of State for the Environment

On September 25 1990 the Government published its Environment White Paper. This covers a breadth of environmental issues not previously addressed and sets a challenging agenda for the next ten years. What is the significance of this for the education world?

To protect the environment and control pollution, governments around the world must consider the issues, weigh the priorities and then make objective decisions based on sound information and analysis. It may sound straightforward, but at the heart of the problem are the uncertain and complex relationships between people, resources, the environment and economic growth. The nature of each and the interplay between them have to be mastered if the decisions taken are to prove fruitful. The task calls for highly developed environmental understanding.

Central to this search for a safer planet are education and training. To provide the human funding, environmental education will need to permeate all levels and aspects of education, beginning with the National Curriculum in schools, continuing in colleges and universities and extending into professional and vocational training. Equally, the wide spectrum of environmental objectives will demand qualified specialists and a trained workforce in all fields. For education the challenge will never be bigger.

Until now we have assumed that the world would remain fundamentally the same, regardless of changes we made to its seas or lands. We now know this is no longer true and we need to ensure that our children know it too. The production of food and fuel for a rapidly expanding population, as well as the resulting waste, have taken its toll on nature. Over the next decade we have to make sure that our actions do not stretch the world's resources beyond breaking point. To tackle the problem we will need to apply certain key principles to everything we do.

Stewardship

The foundation for the future must be a real grasp of our role as stewards, custodians of the planet. Each of us has an individual contribution to make. The Earth is not ours to fritter away or degrade; we can enjoy it but we must look after it for future generations too. And in order to achieve this we need economic growth - sustainable development which blends economic and environmental policies without ransacking the earth's precious resources. In this way we can provide the means to lead better and fuller lives, to clean up the pollution of old industries in the developed world and overcome the toxic effects on the environment of poverty itself in the Third World.

Fact not fantasy

We have learnt to our cost the dangers of action based on inadequate evidence - CFCs and lead in petrol were originally hailed as scientific advances bringing greater benefits. But now they exemplify how important it is to examine all the facts and likely outcome of actions on the basis of sound science. We must ensure that our children are taught the principles of sound science and put into practice the National Curriculum principle that argument is impossible without facts. The teaching of scientific fact is therefore imperative in order to maintain environmental education standards and to promote reasoned debate and argument among young and old alike.

Safety first

Where the planet is at stake - from global warming or ozone depletion - it may prove risky and costly to take late corrective action; prevention is likely to be better and cheaper than cure. At all costs, we must avoid leaving a burden of environmental debts for the future.

Sound knowledge and understanding

Environmental information will be crucial in the 90s. Armed with freely available facts and with proper interpretation of those facts, we will all be able to make sound

consumer decisions and to press for change for the better. During the next decade a great deal of effort will go into scientific research, monitoring and publishing of results to furnish governments, organisations and individuals with this all-important information. And, of course, schools and colleges will be at the top of any agenda designed to educate and to disseminate information.

International co-operation

Global problems require global action. The oceans and the atmosphere are a common birthright which can only be preserved by international co-operation on an unparalleled scale. That is why this Government is playing a full part in developing a concerted approach with bodies such as the United Nations, the Organisation for Economic Co-operation and Development and the European Community. Pooling knowledge and resources internationally will speed progress to scientific understanding. But the basis of environmental statecraft will be mutual understanding across frontiers and cultures. Developing nations will need access to the know-how of the developed world on fair and affordable terms.

The best instruments

In the same way that we are anxious to use wisely the world's resources, so we must be careful not to bankrupt it when searching for safeguards. The most cost effective pollution control methods will be adopted. There are two broad methods:

- regulation - centrally determined rules applied by law;
- price signals - costs used to influence the behaviour of manufacturers and customers.

Each of these courses represents an economic incentive to keep pollution down and each works on the 'polluter pays' principle. Teachers and their pupils will therefore be able to calculate the consequences of each approach and to speculate on how those consequences will help shape future patterns of behaviour.

Regulations have worked well in the past and will continue to do so. The latest step is to establish Integrated Pollution Control, a single co-ordinating control, which will regulate all dirty emissions - into the air, into water and onto land - to ensure the best outcome for the whole environment. But regulation alone is not always the best form of control. This is why the Government is looking at more flexible methods, such as price signals, which work with the grain of the market. The price differential between leaded and unleaded petrol and the massive upturn in the sale of unleaded is probably the best example of how a price signal can encourage customers and producers to behave in environmentally-friendly ways.

'Central to this search for a safer planet are education and training. Environmental education will need to permeate all levels and aspects of education.'

In the 90s, the true market costs of the services we consume and the quality we demand will become much more apparent. The price of energy in particular will rise to reflect its environmental cost, signalling to us the need for greater efficiency and conservation in order to reduce the effect of global warming.

Action for all

In the final analysis, responsibility for our environment must be shared; it is not a duty for Government alone - householders, drivers, shoppers, gardeners, neighbours, investors, retailers, manufacturers - everyone must take stock to make changes, improvements and contributions to the shared goal: the conservation of our common inheritance.

The Environment White Paper contains all the important information that teachers will need to lead their pupils through the next decade. I urge every teacher who cares to get hold of a copy without delay. ■

Education for a global community

John Smyth reflects on some lessons drawn from his extensive contact with environmental education in other cultures.

Professor John Smyth
Chairman, Scottish Environmental Education Council

Everyone now knows that environmental issues are not readily confined by national frontiers. Acid rain, the greenhouse effect, the ozone hole, Chernobyl, pollution of the Rhine and many more have provided convincing evidence of this. But we should have known it before: war, colonisation, the spread of diseases, international trade, holidays in the sun have all had environmental impacts as wide-ranging or more so. Our world has not really been divisible for a long time.

If we are to survive as a species we shall have to develop a more global outlook on both environment and the people that live in it. It's not specially easy. Our cultures and traditions and even languages are better at emphasising differences and contrasts than resemblances and common features - between races, religions, social classes and any other distinction we can pick on. Diversity is a quality to be valued highly, social as well as environmental, but beneath it are great elements of common need and somehow we have to extend our minds from the more superficial diverse things, to those underlying commonalities that we must co-operate to protect.

So environmental education needs to become more global. We have to give more thought and ingenuity to providing young people (and not so young) with really convincing evidence that their lives are closely tied to people and their environments far away: that if something is going wrong, even in a remote community and environment far across the world, it can be like an infection starting at the tip of a finger which may spread and poison the whole body. We must get to know those who share our global community much better, and understand them better, and be concerned for their health as for our own.

Among other things this needs effective communication, something we should be good at in our high-tech culture. But it is still subject to difficulties. At a recent conference in Bangalore organised by the IUCN Commission on Education and Communication, the participants (mostly from India and neighbouring countries) were asked what were the main

difficulties they encountered in communication relating to conservation and sustainable development. Here are a few examples of their replies:

· The modern commercial culture, in which anti-conservation messages are very strong and media messages often so negative as to induce despair;

· Socio-economic change, with parents dropping out of education (eg. working mothers) and city-dwellers rejecting the environment as irrelevant to success;

· The speed of change, too great for social change to adapt to it - and much too fast for educational change;

· The insulation of decision-makers against the effects of their actions;

· Information being withheld deliberately; or being transmitted or received incorrectly - either deliberately or unwittingly;

· Lack of economic stimulants to reward good environmental behaviour and lack of jobs for young trained personnel;

· Lack of consultation with indigenous people and failure of 'experts' to recognise that communication is a two-way process.

These replies come from India but are they not mostly familiar here? To what extent have we exported difficulties from our culture to theirs? Can we learn to listen better to communications from other people of different traditions from our own?

We have much to learn. In less developed countries they often know far better than we do the feel of environmental sickness: some Ministries of the Environment are working very hard to get more influence on education, seeing very clearly how they depend on its success for the future. Perhaps in our developed world we could benefit from similar conviction.

In countries where illiteracy is widespread they are good at using alternative methods of communication - story-telling, theatre, dance. I think of one particular street theatre group (Jagran = awakening) putting across excellent environmental messages to the street crowds in poor quarters of Delhi (where the tourists do not go, but where most of the actors belonged themselves). We have our own problems about literacy. One of our Western exports to developing countries is television - some of our soap operas for example. Are we better at communicating noise than signals?

Traditional Indian systems of education could teach us about the value of silence, offer a concept of universal one-ness (more comfortable than the world 'holistic' with a more ancient philosophical foundation), emphasise peace of mind, and peaceful places as appropriate environments for education ('How can people learn in huddles?'). We have not fully appreciated the importance of the environment in which we expect people to learn, but others have thought about it for a long time.

I could easily continue with these reflections, but what should we be doing? Many good projects and ideas are available these days to help young people appreciate the reality of our global community, but too many youngsters are not yet touched by them. The young are, of course, excellent ambassadors: direct contact between young people of different countries is very effective, but also expensive and deserves far more to be spent on it.

The 1992 UN Conference on Environment and Development will soon be upon us. Can the environmental educators of our global community get together to present a united call for a high priority to be put on much improved communication for environmental education across the planet? ■

A review of 1990

1990 was another important year for environmental education - and probably critical to its future. Such a lot has happened that any overview can only present a highly selective picture, and the rest of this issue of the *Annual Review* expand this short piece.

Stephen Sterling
Executive Editor

As in recent years, green debate and green action in many areas of society have created a climate of opinion conducive to progress in environmental education. And again opinion polls underlined public interest and concern relating to environmental matters. In particular, a poll undertaken for *The Guardian* in September showed that people put the environment second only to the poll tax in a list of serious issues that concerned them, whilst a survey undertaken for the Co-op showed that over a third of young people between ages 11 and 16 considered it to be the most important world issue.

Significant 'green developments' include environmental policy statements and guidelines from the Association of County Councils, certain local authorities, the CBI and TUC. Some of these have direct and encouraging implications for environmental education.

Key events were the publication of the Government's White Paper on the Environment which included a chapter on 'Knowledge, Education and Training' and Curriculum Guidance 7 *Environmental Education* from the National Curriculum Council. The fact that they came out around the same time seemed to increase the impact of each.

CEE and Wildlife Link made considered submissions to government on the White Paper, and it is clear that these had an effect on the final draft. However, for many, pleasure at the White Paper's recognition of environmental education was tempered by the extent to which the original draft of CG7 had been weakened.

At the same time as a copy of the summary of the White Paper was sent to all schools, Mr MacGregor said, reassuringly, that the government was building on the good work done by schools 'by placing environmental education at the heart of the National Curriculum'....

Against the background of these documents, many local authorities have produced guidelines and policy documents on environmental education, and it appears that a significant number of schools have also worked to produce environmental policies or are developing whole school curriculum documents which recognise the place of cross-curricular environmental education. Most authorities now have an

inspector with this specific brief - a change around from the situation some years ago when numbers were declining. How environmental education is to be resourced remains an issue, however, in many authorities.

In the youth sector, the debate over a core curriculum afforded the chance for environmental education interests and youth interests to work together to help ensure that environmental education is officially recognised as a fundamental aspect of young people's social and personal development. CEE's innovative 'Youth and Environment Training Project' completed its final year, and a National Youth Work Training Programme is arising out of the project.

There have also been significant developments at international level, including the Bergen Conference held in May. The UK government attended an EC governmental meeting to assess progress since the European Resolution on environmental education of May 1988. Such events appear to be feeding into official recognition for environmental education at governmental-level.

A special conference for senior representatives of central and local government, voluntary organisations and business on environmental education is scheduled for next March. There is some implication, following the White Paper, that there could be a measure of cross-departmental responsibility for environmental education within central government. If so, this welcome development would echo a similar direction being taken at local government level in some authorities. In addition, there is evidence of increasing interest in environmental education and training beyond the school and formal sectors, for example in industry.

There is still need for research in environmental education - both in terms of existing practice and provision, and the development of new material and techniques. As ever, the voluntary sector has taken a lead. Notably, WWF UK is funding a large number of important curriculum development projects, and is also funding research into teacher education provision as well as tertiary education - two areas which a number of bodies have identified as important targets for future work.

Meanwhile, CEE is mounting a research programme to monitor environmental education in the curriculum - thus addressing a need that has existed for years.

It has been a good year for excellent EE conferences - which perhaps is indicative of the health of the area. These include the seventh biennial conference of the Environmental Education Advisers Association (EEAA) (good to see lots of new faces here!), a DES course on EE and Outdoor Education, the remarkable 'Caretakers of the Environment' event (reported in this issue), NAEE's annual course which this year looked at local and global issues, a one-day marathon held by WWF looking at EE and the National Curriculum, and 'Education for Enterprise and the Environment' which looked at tertiary education, industry and environment and was initiated by IUCN's UK Committee.

Philip Neal, General Secretary of NAEE, and long time veteran of EE campaigns received a much deserved MBE in recognition of his work.

Whilst much satisfaction can be gained from the progress made in the last year, a number of issues and priorities remain:

- how, when and if environmental education will actually be delivered in each and every school;
- the relatively poor provision for environmental education in teacher education at pre and inservice levels;
- uncertainty over the use of in-service funds;
- the effects of LMS on the quality and very existence of many field-centres (which provide a unique and vital element of environmental education experience);
- the need to collaborate with developmental work in related areas of interest (in particular the other cross-curricular themes)
- the need for further research and development in virtually all areas of environmental education, (including curriculum models);
- resourcing EE at all levels as interest grows;
- increasing training provision in EE for the youth service;
- increasing dialogue and work with the 'new sectors' interested in environmental education such as industry. ■

A Scottish Perspective

Kate Sankey

Director, Scottish Environmental Education Council

This year SEEC published its corporate strategy 1990-1993. It was tough putting in writing our target programme of activities, but now the thinking has been done we can monitor progress. However, we operate against the background of national and international developments in the environmental education field, so there will always be an unpredictable element. This year there has been more than a fair share of changes taking place. We have observed the roller-coaster ride of colleagues in Eastern Europe as participation in change has opened horizons, and as the real environmental, economic and social situation has unfolded. SEEC continues to organise the International Youth Conservation Exchange programme with the Atlantic Centre for the Environment, Massachusetts and the Independent Ecological Centre, Budapest. This year an international group including five from Scotland followed a five week study tour in Hungary. As a result the east-west gap is being bridged in quite remarkable ways. Major financial support has come from the Cross Trust, the Royal Bank of Scotland as well as the Youth Exchange Centre.

Curriculum changes

Non-educationalists in Scotland would be forgiven for assuming that the National Curriculum with all its ramifications and implications was a UK education initiative. The situation is different in Scotland; here the school curriculum for children between the ages of 5 and 14 is under total review. No doubt some of the underlying rationale is analogous with that which drove the National Curriculum debate. Here, we await the guidelines for Environmental Studies, due out soon. This will be a curricular document about the teaching of science, technology and the social studies and as such hasn't involved formal input from outwith the formal education system. Many environmental educators wait with bated breath for the words of wisdom and deliberation, whilst in many cases environmental education activities have been put on hold. But environmental education has a legitimate place in all of the

other four Review and Development Groups - Art and Aesthetic studies, in Moral and Religious studies as well as Language and Maths. The Environmental Studies and Development Group was significantly the third of these five groups - sitting right in the middle.

SEEC is understandably concerned that environmental education will not have been given an appropriate airing within this crowded curriculum. Notwithstanding that the cross-curricular guidlelines of the National Curriculum south of the border have no statutory basis, at least there would appear to be some specific commitment to environmental education. It is true that a special Review and Development Group has recently been set up to look at *all* cross-curricular themes but the timing of this rather looks like a tag-on. Meanwhile against this background of impending change in the formal education system, real progress in environmental education *is* being made at all levels. Some of the most innovative programmes are to be found at school, community and even at regional level, usually as a result of committed individuals and forward-thinking community or regional leaders who will always be practitioners of progress.

Strategic group

This time last year we were looking forward to a more strategic approach to environmental education in Scotland. I am happy to report that on the 11th September 1990 the Rt Hon Malcolm Rifkind QC MP, then Secretary of State for Scotland announced the establishment of a Working Group on Environmental Education. It is charged with reviewing all activities relating to environmental education by the public, private and voluntary sectors. There is a small secretariat managed by SEEC to support the group; the chairman is Prof John Smyth and there are nineteen members of the group representing a broad spectrum of interest. It is due to report in two years but we expect that it will be pro-active throughout the period. This is surely an important opportunity for Scotland, particularly as it brings together the formal, informal and non-formal contributors to environmental education including governmental, non-governmental, voluntary, private and commercial sectors. It will also bring us more in line with our European neighbours, many of whom already have national strategies for environmental education.

'We would like to believe that all this change heralds a fundamental shift towards educational and environmental policies in line with the aims and aspirations of sustainable development.'

SEEC initiatives

Despite the lengthy and persistent discussions with the Scottish Office relating to the setting up of this working group, SEEC has has a full programme of activities. The Regional Environmental Education Forum (REEF) networking project has gone from strength to strength (see separate article by Dr Bill Blazek in this issue).

Our annual conference was once again a stimulating event. Held in Glasgow, we joined the City of Culture celebrations and focussed on the value of city environments for environmental education. Conference proceedings are available, sponsored by the NCC (Community Nature Scheme).

We have set up a joint project with the Scottish Consultative Council on the Curriculum (similar to the National Curriculum Council in England) in response to the OECD Schools and the Environment Initiative. This will further promote innovation in environmental education in schools. Just launched in Scotland with a Project Officer in post, the project will run for at least two years. But schools are not our only target; we are anxious to examine post school experience in education and training as well as the links with employers and the needs of the work place. A seminar held at Stirling University with the Department of Education Policy and Development was held to explore the response of higher education - through course provision - to the future needs for decision makers with a clear understanding of ecologically sustainable development. It is interesting that this is an area highlighted by the government White Paper. We would like to believe that all this change heralds a fundamental shift towards educational and environmental policies in line with the aims and aspirations of sustainable development.

Always of special importance to SEEC is our members. Without their drive our progress would not have been possible. The SEEC staff is a small, committed and dynamic team who are tremendous to work with. But we are helped by the voluntary support of many Council members and officers. A special recognition must go to our very special Chairman, Prof John Smyth.

Maybe next year, financial support will be easier to come by from both the public and private quarters? It would be good for the stress level to move from a position of continual uncertainty and change to one of consolidation and strength. ■

A Welsh Perspective

Dr Malcolm McElhone

Senior Lecturer in Environmental Science. Gwent College of Higher Education

Excited by the mounting pressures and opportunities that have arisen over the last year or so, environmental education activities have taken off in Wales. Wales is very proud of its beautiful natural environment which attracts millions of visitors to the country each year but is equally aware of the need to reclaim the scars of its industrial past.

There has been a vast array of initiatives in Wales both in the formal and non formal education sectors - too many to report on here! Important developments include the production of City of Cardiff's Environmental Strategy and the establishment of an education officer in the Wales section of the RSPB. Many local authorities and county councils have appointed environmental officers, some of whom have an education brief. A mobile environmental wagon has been developed by Phil Ormond, a teacher in Dyfed. He is now seconded by the Nature Conservancy Council to carry out conservation work in schools and plans an exciting series of projects.

Recently, Wales has launched its first Welsh medium environmental publication called 'Gwaith Maes' (the English translation is Field Work). Geraint George and his colleagues are to be congratulated on the production of a first class publication.

Over the last few years, the Prince of Wales' Committee's Environmental Education group has been very active, producing a National Strategy Document for Environmental Education and most importantly in establishing a Welsh Centre for Environmental Education (WCEE) at Gwent College of Higher Education. The Centre, whose aim is to serve the community of Wales, has been co-operatively sponsored by the Welsh Office, the Dulverton Trust, the Esmee Fairbairn Trust, Gwent College and the Prince of Wales' Committee. It is a first step in an effort to provide greater personnel and material support for environmental education in Wales, and in the future the Environmental Education Group hopesto promote a series of satellite centres throughout Wales.

An Information Officer and an Education/Development Officer are currently working at the Centre and through their efforts it is hoped to bring about a greater co-ordination of environmental education in Wales, to nurture the development of environmental issues in the National Curriculum and to install a computerised Welsh Environmental Education and Training Information System. Work has already begun on some of these aspects and closer co-operation is being sought with governmental and non-governmental agencies and industry, particularly in developing resource materials for schools and colleges.

These activities will be greatly facilitated by the relocation of the Centre from a small office in the main college to an adjacent, larger, independent building. The move will be completed by December and the larger premises will have a resource area, audio-visual, computer and teaching unit.

The WCEE is currently working with CEE and SEEC in developing capacity to respond on a UK-wide basis to major issues and needs in environmental education. This liaison, shortly to include a Northern Ireland dimension, will be an important feature of the Centre's development in 1991.

Lastly, Dr Alan Young, the former author of this report from Wales, has recently left for Bophuthatswana in Southern Africa. He will be remembered largely for the energy he devoted to the Environmental Education Group and projects such as Cynefin and Welsh Acid Drops.

The Welsh Centre for Environmental Education may be contacted at Gwent College of Higher Education, Caerleon, Gwent NP6 1XJ. ■

A view from Northern Ireland

Janet Wilson

Education Adviser. Royal Society for the Protection of Birds. Belfast

Recent changes in the natural landscape of Northern Ireland emphasise the necessity for effective environmental education if Ulsters' rich heritage is not to become its history. To date, the Northern Ireland education system has not possessed any clearly defined guidelines on environmental education. Some teachers have been doing an excellent job in investigating environmental issues but in general provision is patchy and lacks a cohesive framework. Education reforms, therefore, offers the challenge of a new perspective on environmental education.

Environmental education in the Common Curriculum

In Northern Ireland's Common Curriculum environmental education is addressed within the cross-curricular themes (particularly Education for Mutual Understanding, Cultural Heritage and Economic Awareness) but not as a theme in its own right, as in the National Curriculum for England and Wales. Consequently, it will rely heavily upon science and geography for its implementation.

Within the Attainment Targets of the NI Science Curriculum (implemented in September 1990) there is considerable emphasis placed on studies about and within the environment. As a broad, science-based education is essential for people to understand their personal role in caring for the environment this is to be welcomed.

The Report of the Ministerial Working Group - *Proposals for Geography in the Northern Ireland Curriculum* - was published in September 1990. Five well-balance Attainment Targets have been proposed, complemented by comprehensive Programmes of Study requiring that case studies and examples are chosen at a variety of scales. If adequate teacher support in terms of resources and inservice training is provided, environmental education will have a secure place within geography.

Support for environmental education

In addition to government agencies, the voluntary bodies have provided much of the support for environmental education in schools and look set to continue in this field. The Northern Ireland Conservation Volunteers have helped many schools with the development of school grounds as a teaching resource. The Ulster Wildlife Trust promotes a variety of conservation activities backed up by resources for teachers. The National Trust provides educational programmes for schools at their sites throughout the Province and the Wildfowl and Wetlands Trust have extended their activities in Northern Ireland. As a demonstration of its commitment to environmental education the Royal Society for the Protection of Birds has appointed Educational Advisers throughout the United Kingdom, including Northern Ireland. The Advisers will liaise with curriculum development and the Education Boards, and provide advisers and teachers with effective educational resources and training.

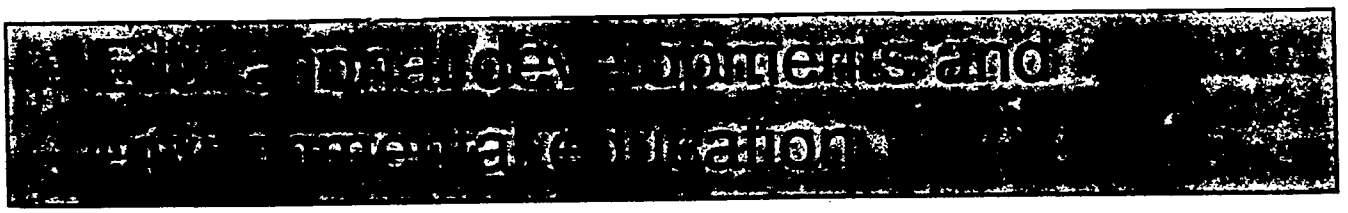
Conclusions

There may still be concern that in the absence of environmental education as a cross-curricular theme opportunities for its implementation in subjects other than geography and science may be lost. Indeed, where pupils drop geography after Key Stage 3, many important environmental issues may not have been adequately addressed.

However, in response to the White Paper on the Environment, Environment Minister, Brian Mawhinney, has written to all schools in Northern Ireland impressing upon them their responsibility to embrace environmental issues and ensure that environmental education is an integral part of the experience of all

children within the Common Curriculum.

In addition, discussions have recently taken place between the Department of the Environment (NI) and the Nature Conservancy Council to explore the possibility of setting up a forum for Environmental Education in Northern Ireland. Such an initiative, combined with support from Government level will undoubtedly help to ensure that environmental education is given the attention it requires to move forward into the 1990s. ■



Local authority policies on environmental education

More local authorities are adopting 'green charters' and specific environmental education policies. Monica Hale reports, drawing on the results of a CEE survey.

Monica Hale

Senior Education Officer (Schools and Colleges), CEE

The role of local authorities

County and metropolitan councils have wide-ranging statutory responsibilities and perform a far-reaching strategic and planning role. There is, therefore, considerable opportunity to effect more environmentally-friendly practices across a broad range of operations. Pressures for local action for environmental improvements have resulted in a higher profile for green issues and public concern for these 'represents a great opportunity for local authorities'.[1]

There is an increasing public awareness that global problems such as ozone depletion and the greenhouse effect can in part be addressed by local policies such as waste management, purchasing practices and environmental policies. Local authorities (LAs) are adapting their operations in a number of ways in response to pressure from both individuals and organisations. For example, the draft environmental charter for Metro Rochdale observes that, 'local authorities are not only developing their traditional roles as "guardians of the local environment" but increasingly are recognising the role they have to play as part of the wider movement in solving global environmental problems'.

Traditionally, local government responsibilities have largely been promoting environmental initiatives confined to: prevention; regulation and control; restoration, conservation and enhancement; and co-ordination and monitoring. However, education is increasingly viewed as an essential part of the process leading to environmental improvement. The Local Government Training Board (LGTB) has emphasised the role of environmental education: 'Ultimately public behaviour can be changed only by education, by disseminating an understanding of the issues involved' [2]

The White Paper on the Environment

In the White Paper on the Environment a significant milestone was achieved through official recognition of the role of education in ensuring the successful implementation of environmental policy objectives. In 'Action for All' (Chapter 22), it was stated that local authorities need to prepare 'environmental strategies covering such areas as energy conservation, recycling...environmental education, transport and planning'.[3] The White Paper also linked its proposals to the National Curriculum as this 'will provide a sure basis for developing and improving environmental education'.

As regards implementation of the proposals in the White Paper, a strong plea was made that all sectors must 'do their bit', thus opening the way not only for cross-departmental cooperation at central and local level but also for close working links with the voluntary and other sectors. It is anticipated that this cross-departmental responsibility may also extend to environmental education.

LEAs and environmental education

The Association of County Councils (ACC) has acknowledged the role of education and schools in promoting environmental concepts and skills. It acknowledges that schools are 'a major force in helping children to develop a reasoned and sensitive concern for the management of the earth's resources and for responsible use of the environment generally'.[4]

The LGTB similarly supports the role of environmental education as it identi-

fies that 'early instilling of a sense of environmental responsibility within schools can create a whole generation conscious of a need to safeguard and respect the environment'.

The recognition of environmental education as a cross-curricular theme in the National Curriculum and elsewhere has drawn further attention within local authorities to EE. Friends of the Earth have advised that 'Authorities need to include environmental issues and ecology in their education strategies for all age groups within a formal environmental education strategy'.[5]

The introduction of the National Curriculum and duties imposed on local authorities by the Education Reform Act, mean that it is the responsibility of LAs to ensure that all schools in their areas meet the requirements of the new curriculum. This means that local authorities are placed in a prominent position to ensure pupils and young adults will be well prepared to protect and care for the environment in the future.

The ACC has identified that it will be necessary for local authorities to establish or review their policies on environmental education within their curriculum statements.[6] In addition, it will be necessary for them to provide sufficient resources and support through their advisory services to assist and advise schools. In-service training and the availability of specialist environmental and field-study centres is crucial to this process. The LEA is also responsible for the monitoring and assessment of environmental education in schools.

Colleges of further education and specialised units such as agricultural colleges are also included within the LAs' responsibilities. Agricultural colleges train students who will eventually be engaged in work directly related to the environment. It would be appropriate for LAs to work towards strengthening the links and facilitating joint projects with these establishments.

Other areas of educational responsibility of LAs include the youth service and adult education such as non-vocational and community education. Aspects of environmental education should also be built up through the additional provision of environmental training and courses in these sectors.[7] In Rochdale, for example, the authority has already established a broad educational commitment as expressed in their draft environmental charter (1990). This states that Rochdale will be working towards developing 'a policy for environmental education in business, schools and the community, and make accessible to the public information on environmental issues held by the Council'.

The Association for County Councils document emphasises that the Education Service cannot take sole responsibility for 'informing, moulding and sustaining public opinion in this area' as it is a task for the County Council as a whole and that 'every County Council should have a conscious education and information policy element to its Environmental Strategy'.

CEE survey of LEA policies on environmental education

During 1989/90, a CEE survey was carried out to find out how many LEAs have developed and implemented environmental education policies. 107 LEAs were contacted and were asked whether such a policy existed, and, if so, to submit a copy to CEE. The findings varied widely and are summarised in Table 1.

The following reasons were offered by some of the 50 LEAs not having a policy on environmental education:
- 13 LEAs were currently drafting their policies;
- 10 were waiting for National Curriculum Guidance; and
- 3 requested advice and help with the formulation of their policy.

The policy documents examined in this survey varied widely in content, style, level of detail, intended audience, advice/guidance for implementation, support facilities suggested and the degree of persuasion to take up all or part of the policy. There is also little standardisation or agreement between the terminology employed to describe such documents. These may take the form of a 'charter' or a 'strategy' or a general statement of policy.

'It is apparent that the majority of LEA policy documents do not include resourcing implications, which could be substantial if all the proposals are to be implemented.'

Most of the existing guidelines for environmental education consist of short 'statements of intent' incorporated into the LEA's curriculum policy document. These generally take the form of a definition of environmental education accompanied by an outline of the aims and objectives of environmental education, with supplementary advice on implementation.

Even those LEAs who have produced comprehensive and detailed policy documents are likely to find that they need revision in the light of the National Curriculum proposals. It is apparent that the majority of policy documents do not include resourcing implications, which could be substantial if all the proposals are to be implemented.

One LEA has produced summary guidelines in the form of a poster for use in schools. A number of authorities are encouraging individual schools to develop their own school policies in environmental education.

The CEE survey also found that it is not always clear which departments or individuals have overall responsibility for environmental education or the development of appropriate policies within authorities. Often it was difficult to ascertain where approaches should be made. It was apparent that those authorities employing advisers for environmental education were far more active in promoting environmental education at all levels.

A number of LA's have produced an 'environment charter' indicating a commitment to environmental concerns in general. While environmental education is given mention in these 'charters', it has to be actively encouraged and supported ifthe aims embodied in these statements are to be achieved.

To some degree the CEE survey brought into question the necessity for environmental education policy documents as many LEAs are supporting considerable innovative work *without* recourse to official policy guidance, for example: Hampshire, Shropshire and Gloucestershire (although the latter authority is currently working on policy guidance).

Understandably, there is often some reluctance to produce more documents to go in to schools as they are

Table 1

No-reply	No-policy	Existing policy	Included in curriculum policy statement/ general guidelines available
14	50	6	29

already overwhelmed by large quantities of paper. Some local authorities prefer to support such developments by way of their INSET programmes.

The Friends of the Earth's *Environment Charter for Local Government* puts forward 193 recommendations to promote conservation and sustainable use of natural resources and to minimise environmental pollution.[8] Included in this charter are considerations on the promotion of environmental education. FoE has persuaded a number of local authorities to subscribe to its Environmental Charter, with 12 councils so far adopting it in full.

However, there has been considerable comment that many charters do not include statements on education or the role environmental education has to play in the successful implementation of these charters. The CEE survey has shown that the amount of guidance and plans for action included in these charters varies widely, from detailed documents to a few paragraphs.

Conclusion: LEA policy development

In its report *The Development of Environmental Education in London*, the London Ecology Unit recommended the policy content in education development plans should include, 'sufficient resources and training for teachers to facilitate the full development of environmental education, and the involvement of the many non-governmental organisations in this field'.[9]

Many local authorities, non-governmental organisations (NGOs) and other organisations (such as the London Ecology Unit) consider that there are a number of LA functional areas which need to be provided for and resourced, including:

1 providing and maintaining local sites for fieldwork within school grounds and in the immediate vicinity of schools;
2 maintaining an environmental centre(s) for use by all sectors in the authority;
3 the provision of a rural residential centre(s) providing experience which is essentially different from the home area;
4 the deployment of specialist staff to help with ecological/environmental maintenance on a variety of authority sites and to offer advice to those such as schools wishing to create semi-natural habitats;
5 in-service teacher training (as well as initial teacher training) in cross-curricular and environmental education, in the creation, maintenance and educational use of nature areas, and other related matters (eg. assessment and profiling);
6 educating counsellors and school governors about environmental issues and keeping them up to date. This can be carried out by the organisation of workshops and training/information sessions;
7 developing and maintaining contacts with nationally and locally based NGOs who have a wealth of knowledge and expertise and who are often willing to assist authorities directly. Authorities should support locally operating NGOs through grant-aiding certain of their functions.

The above recommendations need a resource commitment from local authorities if they are to fulfil their potential in furthering environmental education within the authority.

All local authorities might benefit from the type of approach as that adopted by Rochdale:

'Metro Rochdale recognises the key role it has to play as "guardian of the local environment". It will seek to develop a "whole-environment" approach to everything that it does and encourage others to do the same.'

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Charging legislation and the incidence of fieldwork

Monica Hale reports on a survey designed to assess the effects of recent government legislation on the opportunities for school pupils to undertake fieldwork.

Monica Hale
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During the past year, CEE and the Field Studies Council have been researching the effects of the 'charging for out of school activities' legislation on both field centres and schools.

The survey was instigated as a direct result of a joint seminar organised by the FSC and CEE held in May 1989 and was funded by the Department of Education and Science, to whom all the results are communicated.[1]

Organisation of the survey

Field Centres: Data were collected on the effects of the legislation on the total numbers and booking habits of schools using field centres regularly and occasionally. By comparing the level and nature of course/centre reservations before and after the legislation came into effect, it was intended to determine what, if any, effects the legislation might be having in the short-term and to isolate longer-term trends.

Considerable time was expended in establishing a database of existing field study centres across a broad spectrum from urban studies centres to rural centres and from those specialising in subject-specific courses to studies of a general environmental nature. These included both authority supported and privately funded centres.

Field centres were interrogated as to the level and status of their past and present bookings through a specially devised questionnaire which were sent to 440 centres. 161 completed forms were subsequently returned (by January 1990).

The survey found that during the first year during which the new legislation came into operation little change in the numbers of

schools booking for field classes had taken place. However, there was a discernible change in the age groups being given the opportunity to carry out environmental fieldwork away from the home area.

It is possible the timing of the survey may have been too early to pick up any long term trends in the pattern of fieldwork opportunity. This confirms the necessity for a follow-up survey and, ideally the instigation of longer-term monitoring of the trends in fieldwork being carried out by pupils of all ages.

It should be emphasised that this first phase of the survey only reflects the usage of field centres away from the immediate vicinity of the schools using them.

Schools: The second phase of the research sought to determine the effects the legislation might be having on the opportunities for fieldwork (particularly based on experiencing different environments other than the home environment). The survey was conducted in the summer 1990 in nine selected LEAs across the country (both urban and rural), with every school receiving a questionnaire. The results are currently being analysed.

The purpose of organising a parallel survey of field study centres and schools is to determine whether schools, limited by financial constraints, are maintaining, increasing or decreasing the amount of field experience provided for pupils at each Key Stage. This may not necessarily be dependent on undertaking courses or time at field centres.

With the other recent developments relating to government funding for education and disbursement of funds directly to schools (under the Local Management of Schools 'LMS' legislation), the support of provisions for fieldwork are under further pressures. Finances available to fund field centres (particularly those under local authority ownership) are extremely constrained.

Results of the survey

The results of the survey do not indicate the total environmental fieldwork experience of pupils as locally-based fieldwork may be undertaken. Thus the second phase of the survey must be viewed in conjunction with the outcomes of the first phase.

With regard to the effects of the out of school activities legislation, the conclusions of the survey are that at this stage no dramatic change in patterns of fieldwork opportunities for pupils are discernible.[2]

However, perhaps more significant in its potential effect is the devolvement of funds previously administered by the LEAs which were directed towards the maintenance and upkeep of authority run field study centres. With LMS and the devolvement of funds to schools, the financial base for many authority supported field centres has been eradicated.

Conclusion

A number of local authority financial factors are affecting the provision of fieldwork opportunities for pupils at all Key Stages.

It is not easy to determine the effects of the 'charging for out-of-school activities' legislation in isolation from the effects resulting from other recent government legislation such as the LMS regulations. The disbursement of funds to schools, factors such as timetable constraints resulting from the imposition of the National Curriculum, and additional demands being made upon teachers leave little 'extra' time to undertake (what are often seen as) time consuming field courses.

As the survey showed, charging for out-of-school activities legislation has not yet directly resulted in the closure of field centres or cessation of field course bookings as at first feared. However, it is necessary to continue to monitor and evaluate fieldwork trends at all levels.

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Environmental education in the National Curriculum: an update.

Chris Gayford maps progress over another year.

Whereas the actual hue of green represented in the Government White Paper on the Environment is perhaps disappointing, especially in relation to environmental education, developments in the National Curriculum give greater cause for optimism.

Dr Chris Gayford

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Reports from the subjects

The three subjects, mathematics, science and English, identified as 'core' in the early stages of the National Curriculum, are now well in place and into the second year of implementation for Key Stages 1 and 3 and the first year for Key Stage 2. 1992 will see the introduction of Key Stage 4. Already many publishers have prepared revised or new texts to address the requirements in these subject areas. The introduction of the first phase of the standard assessment tasks (SAT's) is scheduled for Summer 1991. These will be awaited with considerable interest to see how the assessment relates to the statements within the attainment targets and programmes of study. Clearly, the incorporation of environmental material in these assessment tasks will have a profound influence on whether the environment features significantly in these areas of the school curriculum.

Technology[1] has now been developed as a subject within the curriculum. There has already been considerable contention over the identity of technology and its relation to other subject areas. Interim documents and the final report of the National Curriculum Council Working Group showed radical changes from one stage to the next. Throughout, the emphasis had been on process rather than content. The Standing Orders which were agreed in March 1990 showed some surprising changes from the final report in that the term 'design' had been removed from the overall title. Also,

although the Orders are clearly la' elled 'Technology in the National Curriculum' and the preamble contains no reference to design, the Attainment Targets and Statements of Attainment are given the heading 'Design and Technology Capability'.

The environmental content of the technology document received considerable further explicit recognition, particularly in the final report of 1989, compared to the earlier interim report. However, this recognition has been modified in the Statutory Orders. The environmental implications are no longer a recurrent theme as previously; now the main environmental contribution is through AT4 which relates to evaluating technological design and activities.

There appear to be two particular problems that schools face in the implementation of technology in the curriculum:
1 Technology lacks the tradition of consistent and well-documented development that other more established subject areas have enjoyed over decades. As a result it must establish its own niche and this is likely to vary from school to school, especially with the introduction of more devolved management of schools.
2 Identifying appropriate teachers and setting up suitable resources is likely to cause difficulties in many schools.

Further, the particular references to the environment in the Orders, although many, are somewhat equivocal and certainly do not guarantee the sort of environmental educational input that many would like to see in this young and exciting area of the curriculum.

The Final Reports from the Geography[2], History[3] and Modern Foreign Languages[4] working groups have now become available; the former two in mid-1990, the latter in late 1990. It seems appropriate to give special attention here to the **Geography** Report since this area of the curriculum has been explicitly identified by central government as being one of the main vehicles for delivering environmental education. We now await the Statutory Orders in the first half of 1991.

The first thing that will strike critical readers of the Geography Report will be the greater emphasis placed on the Programmes of Study (PoS) compared to that adopted in the Interim Report. No longer do the Statements of Attainment (SoA's) within the Attainment Targets contain overwhelming preponderance of information. The latter have now been considerably streamlined and the PoS for each Key Stage allow teachers to see interrelationships between the AT's and to achieve some coherence. I still find it difficult to understand why the extensive use of examples in the AT's was adopted rather than including these in the PoS for each Key Stage, which would have been more logical.

'the incorporation of environmental material in the assessment tasks will have a profound influence on whether the environment features significantly in the curriculum.'

AT 7, entitled 'Environmental Geography', will be of particular interest to environmental educators. This deals with the development of knowledge and understanding in three areas:
a the use and misuse of environmental resources;
b the quality and vulnerability of different environments;
c the possibilities of protecting and managing environments.

It is to the credit of the Working Group that a determined attempt has been made to address each of these aspects at each level of attainment.

One of the problems that arises from the inclusion of 'Environmental Geography' as a separate Attainment Target is the widely acknowledged all-pervasiveness of these ideas throughout the geography curriculum. There is discussion of this difficulty within the document and clearly it is envisaged that teaching will involve the combination of AT's in order to achieve coherence across the skills, areas and themes that make up the subject of geography. Teachers will find the achievement of this aim challenging and negotiating their way through the models presented here will be an exacting task, for which a significant amount of help is likely to be required.

Ideas as to the place of geography in the whole curriculum have been extensively developed both in terms of the links with the other subject areas as well as the cross-curricular dimensions, skills and themes. In the document it is explicitly stated that geography is likely to be the major vehicle for delivery of environmental education in the curriculum and this may well be realistically what happens over the next few years. However, as discussed in the Final Report the way is open for imaginative co-operation between subject specialists and curriculum planners to use the undoubted experience and expertise of geographers as a catalyst to develop environmental education across the curriculum.

In the case of the **History** Report there are clear statements about the relationship between history and environmental education, although it is clear throughout that the 'burden' of environmental education is not expected to fall heavily on this subject. A valuable section at the end of the report considers the relationship between history and the rest of the curriculum. Here discussion is not limited to other subjects but also includes the cross-curricular area. History is stated to contribute to environmental education in three interrelated ways which may be restated as follows:
a the requirement for historical information and understanding in order to appreciate the way that the environment has been shaped by human activity and ideas about nature; how those activities have been shaped by environmental factors as a continuing process.
b the need for historical skills to interpret written and graphical sources and physical remains which relate to long-term changes in the environment.
c the objective of developing a concern for the environment and its inheritance from the past through an understanding of, and respect for, that inheritance.

Also the use of the environment as a resource for the study of history through visits is clearly emphasized.

It is not possible in a brief article such as this to comment on all aspects of the developing National Curriculum which have a direct bearing on environmental education since there are so many. However, it should be mentioned that Working Groups for Art, Physical Education and Music have been set up and will report in 1991.

Curriculum Guidance documents

Perhaps some of the most significant developments in relation to environmental education in the National Curriculum have been through the 'Whole Curriculum'. The document Curriculum Guidance No 3[5] which appeared in early 1990 set out how the various cross-curricular areas should be developed and delivered through the curriculum; how they should relate to the foundation subjects and to each other. This was a helpful and clear statement which was followed up in each of the Curricular Guidance documents dealing specifically with the individual themes.

Curriculum Guidance No 7: Environmental Education[6] appeared at the end of September fairly well on schedule. It takes as its starting point the Resolution of the Council of Ministers of Education of the European Community in May 1988 where it is urged that as a matter of priority environmental education should be promoted within all sectors of education in the Community. The aims of environmental education are outlined as three-fold:

· to provide opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment.

· to encourage pupils to examine and interpret the environment from a variety of perspectives - physical, geographical, biological, sociological, economic, political, technological, historical, aesthetic, ethical and spiritual.

· to arouse pupils' awareness and curiosity about the environment and encourage active participation in resolving environmental problems.

The sort of knowledge and understanding, skills and attitudes are further elaborated and the relationship to other areas of the curriculum are discussed to include the existing Attainment Targets in the foundation subjects so far developed. Approaches to the introduction and co-ordination of environmental education across the curriculum are discussed and various strategies mentioned.

A substantial part of the document is given to case studies based on actual practice in schools. These give examples of work undertaken in schools across the country and they provide a range of examples addressing cross-curricular and single subject approaches at Key Stages. Perhaps due to the inevitable limitation on the overall number of case studies it was apparently not possible to demonstrate how more than a 'topic based approach' can be adopted.

An appendix to the document contains extracts from the Programmes of Study for science, technology and geography to demonstrate how environmental education permeates these subject areas. Again, while this is an interesting analysis, the feeling remains that it would have been more valuable had this covered the full range of foundation subjects, rather than only three. It seems that this is yet another example of the way that the National Curriculum has been developed leading to considerable difficulties in relating the cross-curricular activities to the foundation subjects systematically.

Concluding feelings

A great deal has occurred this year in relation to the National Curriculum. Environmental educators should be far from disappointed. Many teachers of a wide variety of subject areas that I have spoken to have an optimism as regards environmental education that I have not experienced for a long time, if ever. There is, without doubt, a good deal yet to be done but it is clear that we have come a long way when we look back to the introductory statements by the DES setting out the philosophy of the National Curriculum in 1987[7]. If you remember, there was little mention of environmental education then. However, Curriculum Guidance No 7 is hardly the sort of publication which will fire teachers, parents or governors.

The task ahead is surely to build on what we have and to take the opportunity to relate and interpret what has been already stated so that it can be incorporated into teaching programmes within our schools.

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'Core' or 'cross' ..... educational jargon or the essential ingredients of the educational diet for the 1990's?

Tony Thomas looks at the current emphasis on core skills against the ability of environmental education to 'deliver' them.

Tony Thomas
Director, Field Studies Council

It seems that these days, without the prefix of 'core' or 'cross', ideas, suggestions, even concepts, pale into insignificance. Emphasis is now placed on the:
***core* curriculum**
syllabus *cores*
***core* skills, core competence**
OR
***cross*-curricular themes**
***cross*-curricular dimensions**
***cross*-curricular skill.**

What are core skills/cross curricular skills? Who created or re-created them and what do they offer to students facing the 21st century?

In November 1989, John MacGregor (then Secretary of State for Education) when making reference to the maintenance of rigorous standards at 'A' level, stressed that 'this should not be at the expense of developing broader skills, knowledge and understanding which will be needed in the 21st century'. His predecessor, Kenneth Baker, had defined a skill as 'a competence based on knowledge and understanding'.[1] He identified that young people and adults will need:

· communication - written or oral numeracy
· personal relation - team working and leadership
· familiarity with technology - especially information technology
· familiarity with systems - office and workshop procedures
· familiarity with changing working and social contexts
· overseas dimension - especially foreign language knowledge

In the briefing document to the Schools Examination and Assessment Council (SEAC),[2] Mr MacGregor requested that it should in consultation with the National Curriculum Council (NCC) consider which of the core skills could be promoted through common requirement across all syllabuses without undue

Table 1
Commonality of skills and attitudes/qualities

	YTS	TVEI	BTEC	CPVE	NCC
Skill	problem solving application and transfer organisation of time collecting information communication numeracy practical skills IT enterprise	problem solving communication numeracy practical skills IT study skills	problem solving application and transfer organising and learning information gathering communication numeracy practical and manual skills using IT design and visual discrimination	problem solving communication numeracy practical skills using IT study skills	problem solving communication IT modern language
Qualities & attitudes	personal effectiveness	personal & social development working cooperatively enterprise & individual initiative	personal & social development readiness to accept responsibility application to work adaptability reliability	personal and career development working with others flexibility reliablity creative development	personal skills

Table 2 Examples of skill development through EE exercises

	Communication	Numeracy	Using IT	Problem solving	Practical skills	Working cooperatively
Exposition	Introductory slide show providing history of the area and the proposals for urban development					
Structured discussion						Small group of students discuss together their views on food aid and present collective view to the whole class
Assignment	Students make an oral presentation of their findings following an individual assignment	Students collect data on number of cars and heavy vehicles and calculate their average speed	Result of traffic survey displayed in form of bar charts and graphs with aid of computers	In an enquiry into the need for a pedestrian crossing near their school, students identify the problem of heavy traffic	Students produce, with local artist, a large scale structure for the school	
Practical work	Letters sent to various organisations to express concern and to find out more information about badgers					Small groups design solutions for the redevelopment of the docks
Role play	Students practise and develop oral skills					
Work experience			Students gain experience using micro-computers in the local studies centre		Students lay a hedge to increase stock-proofing and maintain landscape value	

duplication and to consider the implications for *assessment, recording* and *reporting*.

In 1989, Her Majesty's Inspectorate, stated that:

'skills are essential for the effective performance of a task; intellectual or physical attributes are necessary in varying degrees for the acquisition of skills. Skills are usually improved by frequent practice and by an understanding of their scope, relevance and potential.'[3]

HMI also suggest that:

'attitudes and qualities affect the way in which individuals use and apply their knowledge, understanding and skill to achieve a successful outcome.'

Skills and aptitudes appear to be the common currency, with numerous initiatives and organisations acknowledging their importance (see **Table 1**).

Skills are not necessarily developed in isolation but in particular contexts. Good practice in teaching and learning offers students an appropriate variety of relevant learning activities which allows them to acquire a number of the core skills irrespective of the specific course or syllabus they are following.

Environmental educationalists are well practised in many of, if not all, the learning styles outlined by HMI. Although I have only filled a few of the boxes in **Table 2** using material from Curriculum Guidance 7, [5] the indications are that teachers involved in environmental education will have no problem in 'delivering' core/cross-curricular skills.

An array of cross-curricular skills will be necessary to assist in the promotion of personal and social development (ie. cross-curricular dimensions) and these can be developed through either core and foundation subjects in the National Curriculum or through the cross-curricular themes. Although the focus on the present debate is at ages 16/19, the TVEI initiative brings it down to 14 and the growing need for greater competence in all these core skill areas, including foreign languages, will be the aim of future governments, whatever their political hue.

The jaundiced view might be that the core skill acquisition concept is merely a reworking of the obvious skills acquisition throughout formal education. That government is prepared to see core skills identified within syllabuses and encourage colleges/schools to ensure that students study a range of subjects/topics to achieve a balanced diet of core skills is obviously raising the profile of the humble skill.

If core skills are assessed separately, and/or recorded as a separate profile component in the record of achievement as well as forming the basis of credit transfer for those students changing courses in mid-stream, this is yet a further indication of their importance. The only reservations on the incorporation of core skills in specific syllabuses, is the work of Wolf, Kelson and Silver [6] who found that youngsters who learn to tackle problems outside the occupation for which they were training did better than youngsters who deal only with situations closely related to their job training. The impact of educational research on curriculum changes has always been minimal, and it is therefore unlikely that this broadside will stop the advancement of the core skill initiative.

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The changing arrangements for in-service training

How are INSET funding arrangements affecting provision of environmental education training? Geoff Hopkinson views trends with some concern.

Geoff Hopkinson

Inspector for Environmental Education. Staffordshire LEA

The introduction of Grant Related In-Service Training (GRIST) monies in 1987 gave local authorities the opportunity to bid for central government funds to finance part of their in-service training programmes. The nature and volume of the bids varied from authority to authority but in most instances it made possible a new style twelve month programme of varied activities.

For many working in environmental education, it was the first opportunity to enjoy the privileges normally accorded to what we now know as the 'core curriculum'. The earlier Schools' Council *Project Environment* and the development of 'O' and 'A' courses in Environmental Studies/Science had provided a framework and an impetus for teacher meetings and working parties, but in the absence of specific national funding, the work was often piecemeal and impoverished compared with the efforts put into such major schemes as the grant aided Nuffield Science.

The initial 1987/88 allocation, being percentage based, varied according to the financial status and perceptions of the authority making the bid, but it gave environmental education inspectors and advisers the opportunity to get teachers out from their classroom during the working day. After years of 'twilight' and Saturday morning meetings, it was also possible to get practitioners across the authority borders into congenial surroundings to work in an appropriate fashion on the tasks of the moment and the grand designs for the future.

The appointment of advisory teachers on short-term contracts was another major impetus, running parallel with the momentum created

by the Education Support Grants for specific priorities, and which were proving to be the comparative 'big spenders' in these areas of education. By 1989 GRIST had succumbed to LEATG or Local Education Authority Training Grants, which expire on 1st April, 1991 and which, for many, will be the end of the 'halycon days'.

For environmental education, Grants for Education Support and Training (GEST), 1 April, 1991 holds a rather sinister message. The central government pro-forma contains twenty six activities under which bids may be made, of which the local authority is required to provide approximately 40%. For some, rate capping dominates a financial debate and those particular authorities will submit a nil return. In other words, in some areas there will be no specific sums allocated for in-service training, irrespective of subject definition. In addition, all authorities carry the problem of Local Financial Management (LFM) and the devolution of funding to the schools. Within this delegation of powers, headteachers may or may not have a sum for in-service training. If they have such a sum they exercise complete autonomy (as a school) over its disposal.

It is a certain fact that despite the publication of Curriculum Guidance 7, and the recent government White Paper on the Environment, accompanied by the current immensely high profile of environmentally styled activities, environmental education has a much lower rating than many imagine, with the schools needing to get the core curriculum and the assessment procedures in good order. In other words, it is very low on the list of priorities.

There is however, a specific section (column 7e), on cross-curricular activities, within the formal authority submission to the DES. Where bids are made and granted, then presumably this will be shared out between Careers, Health Education, Personal and Social Education, Economic Awareness and Environmental Education. Who gets what is an authority decision but the outlook is far from rosy for many working full time in this field.

Of course there are large blocks of environmental education in all core and foundation subjects, but if an authority is struggling financially, the question is how they will finance basic in-service training in those areas, rather than how much they can spare for specific environmental education developments.

There are one or two possible loopholes. Management and assessment feature large in the bid structure, while maths and science training provided by Institutes of Higher Education receives a mention. It is possible that in a very few cases some environmental education slots may be provided under these headings but the opportunities do seem to be limited.

The urban and outdoor education centres have been key features in the training operations carried out over many years and particularly since 1986, and their structure and traditions make them ideal meeting points for teachers on an authority, regional or national basis. Under present financial conditions, some have closed, many are threatened and it is fair to say that staff morale is generally low. Many more will be unable to continue if required to charge at economic rates under financial delegation requirements either in force or within current budgetary discussions. It is ironic that NCC Document No7 makes more than one favourable reference to outdoor education centres in its choice of exemplar projects in environmental education. On the one hand we have a system controlled by central government that advocates a policy favourable to centres and at the same time produces a financial climate that reduces or even eliminates their effective use by teachers!

'Despite the publication of Curriculum Guidance 7, and the White Paper on the Environment, environmental education has a much lower rating than many imagine.'

What are the requirements from this time onwards? Leaving aside the almost monthly changes in the format of the National Curriculum requirements, and without getting involved in the minutiae of the assessment procedures, then for environmental education the following forecast is submitted for discussion:

a Scientific rigour or the need to give a whole range of teachers greater experience and confidence in scientific methods and familiarisation with the scientific units employed in scientific reports. There is much woolly thinking and performance in topic and thematic work, which is exacerbated by the unfortunate tendency of the media to highlight and invariably distort basic scientific research pertaining to the problems of the biosphere. (A mastery of Science Attainment Target No.1 would go a long way to plugging this deficiency.)

b Confidence in ecological technique and particularly in the purposeful direction of pupils engaged on fieldwork, be it in the playground, shopping centre, mountain slope. Increasingly, there is the need to work nearer to home but the effective practitioners in this area represent a minute proportion of the teaching force. Its successful execution as a valid cross-curricular activity requires rather more than a trundle wheel and a tick sheet.

c The identification and support of **cross-curricular specialists** in all the Key Stages must be a priority. Although a genuine cross-curricular approach represents an alien way of working for many it is nevertheless a sensible, cost effective teaching structure. In the case of environmental education, it is the only way the inherent messages of what lies ahead for Planet Earth, can be integrated into our education system.

The heartening fact is that there does exist a core of experienced, able and dedicated teachers who will continue to practise the style and philosophy that has developed over the last two decades, delivering a message and a content that is appropriate for their pupils. It would be sad if support were not forthcoming. ■

Environmental education and initial teacher education

Are training institutions providing courses in environmental education? Chris Oulton reports on a brief survey.

Chris Oulton
Lecturer in Education, University of Bath

The UK commitment to the Resolution by the European Council of Ministers that Environmental education should form part of the education of persons at all levels in education'[1], the commitment to promote environmental education made in the White Paper on the Environment[2] and the establishment of environmental education as a cross-curricular theme in the National Curriculum[3] are important steps forward for the development of environmental education in this country. A teaching force willing and able to deliver such a curriculum is required if these policies are to be realised. What therefore are the implications of such policies in terms of initial teacher education?

Curriculum Guidance 7 (CG7) describes how environmental education may be delivered as one of the cross-curricular themes, permeating most of the subjects of the National Curriculum [4]. However, it is recognised that teachers of science and geography will have a major role to play in this process particularly at key stages 3 and 4 (pupils aged 11 to 16). Therefore one could assume that environmental education will need to be given a higher profile in the training of science teachers.

The following analysis is based on my experience as a tutor on a Postgraduate Certificate in Education (PGCE) secondary science course, working with a science method group consisting of students from a range of science disciplines, and with a group of environmental science students. In addition, I shall refer to data collected by questionnaire from seven other teacher education institutions which train secondary science teachers through the PGCE route.

Environmentally educated teachers

Philip Neal[5] sees 'environmentally educated teachers' playing a crucial role in the development of environmental education. Neal suggests that 'all teachers should have received a foundation course in environmental awareness'. He offers a list, first proposed in Connect[6] of the capabilities that such a teacher might have.

The environmentally educated teacher should be able to:

- Apply knowledge of educational philosophy and achieve both general education and environmental education goals.
- Be competent to use appropriate strategies to allow learners to recognise the role of values in environmental decision making.
- Utilize current theories of knowledge/attitude/behaviour.
- Select, develop, and implement strategies to achieve effective environmental education goals.
- Develop strategies to ensure that learned knowledge, attitudes and cognitive skills will be transferred to the learners' choices and decision making concerning lifestyle and behaviour.
- Use sound methods to achieve environmental education goals.
- Use effective methods of instruction.
- Infuse appropriate environmental education curricula and methods into all disciplines.
- Evaluate the results of environmental education curricula nad materials.

it is a daunting list, although one might wish to argue about the appropriatenss of some of the aims. However, many of them are the same as the general aims of any initial teacher education programme, in this case applied to environmental education. Given the limited time available on a 36 week PGCE course, it is clear that, if such a curriculum is to be delivered, it must permeate the normal elements of the course.

If environmental education is to permeate initial teacher education courses a number of questions need to be posed. How is environmental education being delivered currently on such courses? Are teacher trainers themselves environmentally educated and thus able to ensure that a policy of permeation is effective? When the students work in schools on teaching practice will teachers reinforce the ideas about environmental education that the students have developed at their initial training institution?

A crucial issue to clarify at this point is the meaning ofenvironmental education. Presumably, if one is to be able to 'use sound methods to achieve environmental education goals', one must have a clear view of what is meant by this. The authors of CG7 have chosen to reuse the idea of education **in, about** and **for** the environment. It is helpful to consider environmental education in this way but it is essential to remember that each of these three facets must be present if a child's environmental education is to be comprehensive. Thus, whilst environmental education begins with developing knowledge and understanding, it must go on from there to include the development of pupils' attitudes and values and, some would argue, prepare them to take action. For teachers to be fully prepared to contribute to environmental education they should consider how their subject can contribute to the development of each of these three facets.

The situation in training institutions

All pre-service teacher education courses must comply with criteria set out by the government.[7] The Council for Accreditation of Teacher Education (CATE) uses these criteria in its task of advising the Secretaries of State on the approval of courses. The criteria state that: 'On completion of their course, students should be aware of the links and common ground between subjects and be able to incorporate in their teaching cross-curricular dimensions, themes and skills'.

Environmental education is specifically mentioned in the criteria as one of those themes.

To gain an initial impression of the degree to which courses are currently designed to introduce students to issues in relation to environmental

education, I asked members of the Association of Science Education Tutors (ASET) to respond to a short questionnaire. Seven institutions responded. While this is a small sample, an interesting spread of provision was revealed.

Responses to the question 'How does environmental education fit into the course as a whole?' included: 'It doesn't, not here!'

Six of the seven institutions claimed that environmental education was integrated into the course as a whole although the degree to which that integration occurred varied markedly as the quotes below indicate.

'It would *most probably* fit into the 'methodology' part of the course. I don't think we have ever analysed our work in those terms - perhaps we should.' (my emphasis)

'Accidentally. There are obvious environmental education aspects in the geography course, and possibly in others. But not planned into the overall course or indeed the whole PGCE.'

'We have a focus week which is compulsory for all science and technology students. There are several written assignments. All science technology students do a project on alternative technology.'

Two institutions ran short, optional courses for students who wished to consider environmental education further.

Institutions were not asked to comment on the three facets of environmental education directly but they were asked to give examples of the types of activity, undertaken by students, which they considered to be related to environmental education.

Preparing students to teach ABOUT the environment Three courses had at least one assignment for all science students specifically targeted on aspects of environmental education. These include making posters on an environmental issue; collecting newspaper articles on a controversial topic and showing how it can be used as a basis for teaching; evaluating the effectiveness of laboratory experiments for teaching about pollution. Two other institutions indicated that many students chose environmental contexts for assignments, for example producing a teaching aid.

It would appear that in at least some student teachers' experience, awareness raising sessions and other opportunities are provided for them to explore some of the issues in relation to teaching pupils ABOUT the environment. However, in other institutions students may get little or no experience in this area.

Preparing students to teach pupils IN the environment Five of the seven institutions mentioned fieldwork as part of the students' preparation for environmental education. In two of these institutions, environmental education issues were tackled directly on the field visit. In the other three, environmental education appeared to be incidental to the fieldwork. Two institutions provide fieldwork for all students, two institutions for biologists only and one for biologists and geologists only. With the move to broad balanced science it is surprising that all science students do not have a fieldwork component in their initial training courses.

Preparing students to teach pupils FOR the environment This was more difficult to infer from the data. At least two institutions introduced students to methodological issues in relation to roleplay and simulation work and the implications of teaching about controversial issues.

Developing the environmental education component of courses Without wishing to read too much into limited data, it seems reasonable to suppose that the provision for science students in relation to environmental education is patchy across the country. While some institutions are clearly tackling the issue directly others have yet to do so.

Only one institution had a tutor who took specific responsibility for environmental education, although two other institutions indicated that all science tutors were interested. Taking into account the rather patchy response in some institutions it seems fair to ask: who will train the trainers? Currently the Department of Trade and Industry and the Training Agency are spending £3.5 million, over three years, on the Enterprise Awareness in Teacher Education (EATE) project[8]. Will a similar amount be available for environmental education?

It must also be remembered that environmental education is only one of five cross-curricular themes within the National Curriculum, each of which needs to form part of the initial training of teachers.

The situation in schools

I would argue that, currently, secondary science pupils get a good deal of education **about** the environment and, if they are lucky, they may get some education **in** the environment. The programmes of study and attainment targets for the National Curriculum for science include a number of examples of environmental issues and work in the environment is specifically prescribed.

'it seems fair to ask: who will train the trainers?'

In my judgement, education **for** the environment is not a common experience for many secondary science pupils. HMI[9] give some indication of the type of activities that pupils might engage in as part of such an education.

'Pupils may be encouraged to engage in activities in which the ideas for change and improvement can be tested. This may take the form of practical work in the school grounds; conservation work outside school; writing to the local council about a local issue; raising money to alleviate the affects of natural disasters in other parts of the world. Pupils may come to form definite views about such matters as the use of pesticides and fertilisers or nuclear energy and may wish to make these known in some way'.

The authors of CG7 make it clear that education **for** the environment should be developed within the context of a whole school policy. I would argue that science teachers have an important role to play in that process.

To what extent have science teachers considered the development of the three facets of environmental education in relation to their own subject? There has certainly been an increase in the number of 'pollution posters' on classroom walls and environmental issues are now more clearly identified within the curriculum. But, how complete is this environmental education if pupils are just being given the facts and no more? What does a child do with knowledge about global warming if the teacher offers that child no actions that he or she might take?

In my experience of INSET work with secondary science teachers it is possible to get a proportion to accept that environmental education must go beyond teaching knowledge. They will also recognise that to achieve this they should use activities such as role play, simulation and discussion. But some indicate that they do not have the expertise to organise such activities. Others also say that they dislike those activities and chose science options at school to avoid them.

The publication of Curriculum Guidance 7 will, it is to be hoped, stimulate many teachers to include aspects of environmental work in their teaching programmes.

However, encouraging as these advances are, we would be foolish to think that there is not still a long way to go. Parry[10] has indicated a number of factors which mitigate against schools establishing a school policy on environmental education. Given the beleaguered state of most teachers coping with the National Curriculum, the introduction of a non-statutory part of the curriculum may well be a low priority.

A further real concern is that, while some institutions of teacher education will raise students' awareness about the need to develop environmental education within their teaching, the students may not see positive role models in their teaching practice. Nor may they be encouraged to experiment within this area themselves. The incidence of students on teaching practice being told that they must not deviate from the set lesson plans provided by the school is still all too common.

If environmental education is to form an effective part of the National Curriculum there is clearly a great deal of INSET work to be done to support teachers not only in their own teaching but also in the development of a whole school policy. In this case the INSET materials being developed by CEE will be most welcome. Given the need for some teacher training institutions to develop their own expertise in this area it may be sensible to work through an IT/INSET model of training where teachers, advisers, student teachers and their tutors work in a collaborative fashion on mutually agreed topics.

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A core curriculum for the Youth Service

Tony Penney

Senior Youth and Community Officer, Herts and Chairman of the Youth Committee, CEE

Down among the Youth groups something has been stirring in 1990. Or rather, some body has been stirring - and it's the same body that stirred the schools, earlier, with a big spoon marked 'National Curriculum'.

Most professional youth workers see themselves very much as educationalists and so the term 'curriculum' held no terrors for them but it was difficult to imagine that a national prescription could be written to cover the activities of organisations as diverse as those making up the panoply of the youth service.

This was the task presented in December 1989 when Alan Howarth, Parliamentary Under Secretary for Education and Science, sponsored a conference where he asked the service to consider the shape and nature of youth work in the 1990's. Among those things that he asked the conference to address were the general aims, objectives and value base of the youth service and the concept of a 'core' curriculum. The keynote of the whole process was to be one of consultation, with the National Youth Bureau taking on the enormous task of conducting an exercise, to the usual tight deadline, which would give all interested parties the chance to respond.

It was evident from the start that some areas, such as the age range of the service, would be difficult to resolve. The voluntary sector would wish to retain its work with young children whilst others, principally the 'statutory' service, would want an emphasis on work with teenagers.

One thing for certain was the golden opportunity it offered for special interest groups to get their subjects firmly on the agenda if any agreed curriculum for youth work was about to emerge with government blessing - here lay the prospect of future funding. Members of CEE Youth Committee had this in mind when they met in March, 1990.

'A belief in the need to protect the environment' actually appeared in the national consultation document as an example of how youth work might change the attitudes and beliefs of young people, but our concern was that environmental awareness should be given a much higher profile at the second ministerial conference, in the autumn, which would consider the responses to the document.

On behalf of the committee, the CEE Youth Unit responded by writing to the principal youth officers of all local education authorities in England, Wales and Northern Ireland and the heads of national voluntary youth organisations. In the eight page commentary the case was effectively argued for environmental youth work in relation to all the sections (target groups, priority issues, outcomes etc) of the national consultative document. The accompanying letter made reference to 'establishing environmental education as a fundamental aspect of the personal and social development of young people' and ensuring their 'understanding (of) the implications of their actions at local, national and global level'.

Having done our lobbying we then had to wait, through the summer of 1990, to see the results. Certainly, there was every evidence that the youth service recognised the seminal importance of the whole DES consultation process with specially, if hastily, arranged meeting taking place throughout the country.

The second ministerial conference had been planned for early November. The conference papers, when circulated, contained an analysis of 155 detailed responses to the consultation document. What had the lobbying achieved? Well, quite a lot. We had not, admittedly, hit the bullseye of getting environmental

awareness mentioned in the basic 'mission statement' for the youth service, but this in itself was subject to significant redrafting with many respondents having commented that it was too long, user-unfriendly, or simply muddled. Many respondents had, however, highlighted environmental awareness as an area which the mission statement had overlooked (along with international awareness and the community dimension of youth work). In a list of 39 priority issues environmental education was ranked sixth, topped only by various facets of those items, such as equal opportunities and political education, which have pre-occupied youth workers for the last decade.

The discussion and redrafting which took place at the second ministerial conference redressed this oversight, and the recommended Statement of Purpose (mission statement) for the youth service now includes:

'Youth work offers young people opportunities which are: ...participative - through a voluntary relationship with young people in which young people are partners in the learning process and decision-making structures which effect their own and other young people's lives, and their environment.'

The task now facing the youth service is the identification of nationally agreed learning outcomes, as regards skills, knowledge and attitudes, a process in which CEE is already involved on behalf of its members.

Did the CEE lobby make all the difference to the prominence of environmental education in the consultation responses or was it simply an idea whose time had already come? We may never know but, certainly, the environment is now firmly established on the youth work agenda - just in time for the publication of *Earthworks*, the resource materials resulting from CEE's 3-year Youth and Environment Training Project.■

Scotland's REEFS

An innovative scheme of regional networking is promoting environmental education in Scotland.

William Blazek
SEEC Development Officer

The REEF project is not a plan to entice tropical fishes to herring-depleted Scottish waters but a locally based Scottish Environmental Education Council (SEEC) initiative to provide a network for environmental education providers and users.

Regional Environmental Education Forums (REEFs) were piloted from 1988 in Central Region and Lanark Division of Strathclyde, helped by a grant from the Carnegie UK Trust. The success in these areas led to further funding to take the project forward for three years, with financial support from BP (Scotland), Countryside Commission for Scotland, NCC (Partnership in Practice) and WWF (UK).

So far six local forums have been established - in Borders, Central and Fife Region, Edinburgh Green Belt, and Ayr and Lanark Divisions of Strathclyde. Typically, the forums are composed of 30 to 40 people - teachers, advisors and representatives from voluntary and statutory environmental organisations, community groups, ranger and museum services. Members of these local forums have found benefit from working on collaborative projects, information exchange, and joint training-initiatives.

To date, five of the forums have produced resource directories and these publications are made available to schools, libraries, resource and community centres. They also provide a useful tool for people working in environmental education, promoting better communication between environmental organisations, local authorities, and education centres. Each new directory benefits form the lessons of previous work. The most recently constituted group, in Ayrshire, is designing a directory which will contain matrix sheets indicating how individual providers of environmental education can meet Scottish curriculum requirements in various subjects. One benefit should be to promote co-ordinated, interdisciplinary studies among schools within the area. Another should be to improve the quality of visits to environmental sites. Ayrshire Environmental Education Forum received advice and sample materials from the Lanark Environmental Education Forum, and is now sharing information which can be used for the next annual directory up-date in Lanark and elsewhere.

Important though they are in providing information and giving the REEF's a strong focus, the directories represent a starting point for several other local projects. Among them are regional newsletters, environmental award schemes, school-link programmes, in-service workshops for teachers and community groups, and continued development of the Global Rivers Environmental Network (GREEN).

Recently, some forums have been responding to environmental charters adopted by local authorities, and there is value in having existing networks which can build from this more challenging level of co-ordination and co-operation, and address the needs of both the formal and informal sectors.

The enhanced exchange of ideas and information between REEF's is one priority for the coming year. The publication of the first issue of the newsletter *REEF NEWS* in September 1990 was among the important steps in

the inter-REEF design.

Ultimately, the net worth of any network depends on the amount of benefit it gives to individuals in the goals they are trying to achieve, and the work they are trying to accomplish. To keep the halo of enthusiasm from fading, self-interests must be served and self-satisfaction must derive from tangible accomplishments. The REEF project has gathered strength from such achievements, and local environmental education networks are evolving to meet current circumstances and to realise future prospects. Like their ecosystem counterparts, REEFs exist on a solid foundation of the past but thrive only by individuals functioning together in symbiotic relationship. Not quite an eponym, then, but a metaphor to live and work by. ■

A unique year - Milton Keynes Year of the Environment

Mark Yoxon explains how a whole year event which successfully translated European Year of the Environment ideas to the local level and involved all sections of the community was mounted.

In Milton Keynes, a wide range of organisations work to bring local people into contact with their environment in ways which will be of long term benefit. Most are represented on a co-ordinating group, the Milton Keynes Environmental Education Liaison Group (MKEELG). The group usually meets seasonally to exchange information, work co-operatively, avoid duplication of effort and work on a 'common ground' approach. The group had developed broad expertise in running events and projects such as teacher days and the production of local resource guides before its ambitious plan for an environment year for Milton Keynes.

Mark Yoxon

Liaison Officer, Environmental Education, Open University and former co-ordinator for MKYE

Inspired by the European Year of the Environment (EYE) and the work carried out by the group during EYE, a decision was taken in 1988 to translate EYE ideas and thinking to the local level and so the concept of Milton Keynes Year of the Environment (MKYE) was born.

Getting started

A group was formed from MKEELG to develop the concept and a programme of events and projects which they felt would translate the good practice implicit in EYE into a unique local initiative. This group became the management committee for the project. From the outset it was clear that the project would need to be self-financing with full time co-ordination and management. The strength of conviction shown by the management committee was translated into financial support from Buckinghamshire County Council, the Borough and Development Corporations of Milton Keynes and UK2000. The County Council also provided office space in a local education centre. With this core funding, a co-ordinator for MKYE was appointed in April 1989, giving a lead-in period of five months before the planned launch in September 1989. This time was vital in the preparation of the project. It was used to develop a funding strategy for the Year, begin work on projects and begin establishing a profile for MKYE in the local community. More time for preparation would have proved valuable, especially on fundraising which in fact continued through the year - diverting some time away from management of the component projects.

The Year had three straightforward educational goals:

- to inspire people;
- to let them know what they could actually do to help their environment;
- to get them involved in the doing.

The practice of translating these goals into a local reality involved working with all sections of the community. The lead-in time allowed some basic market research, to match the offerings of MKYE to the needs of the locale. For example, consultations took place with the education system at many levels - and the work of MKYE complemented schools' activities most notably by securing £10 000 for an environmental award scheme.

Gaining support and funding

Communication with the business sector was of paramount importance to the success of MKYE. Involving the sector of society which produces the wealth has often been overlooked when the environment is the issue. In crude terms, MKYE was looking for financial support from the business community to make the 40 draft projects for the Year come to life. The long-term benefits for the environment which developed from establishing working relationships with a range of local organisations may very well outweigh the monetary gains made.

From the outset, MKYE attempted to find sponsorship for projects rather than simply try to create a pool of donations. We were guided by the work of Gillies[1] in adopting this strategy. MKYE became a member of the local chamber of commerce and used the service of the chamber to approach a wide range of local companies. Targeted mailshots were produced to set out the business plan for the Year alongside costed opportunities for involvement. Other national and regional organisations including those representing the public sector and charitable trusts were approached in a similar way. The mailshots were followed up by telephone calls and discussion with potential sponsors when appropriate. Careful preparation and negotiation was needed to ensure mutual benefit to both

MKYE and the funding organisation.

This strategy had two important advantages. It undoubtedly meant that the level of broad support generated was much greater than unrelated donations would have produced, and that local organisations who supported the Year were actively involved in it - some degree of ownership was transferred in the process.

As a result of this activity, a growing network of help and support from the business community was established which also provided important feedback. In retrospect, the Year would have benefitted greatly from direct involvement and advice from the business community at a much earlier stage in the inception of MKYE.

The funding breakdown is interesting. Of the £111 000 raised, either in cash or by the provision of costed services, public sector organisations provided 54%; Network SouthEast provided services and funding totalling 23%; local and regional business provided 14% and charitable donations from trusts made up the balance of 9%. As can be seen, the backbone of financial support was provided by the public sector. MKYE's analysis fits closely with the national picture for support revealed by Susan Forrester (pers.comm.) while researching for her book *Business and Environmental Groups*[2].

A key part of the communication process was to set the scene locally. Well-established structures existed in Milton Keynes in all sectors of the community and these were utilised to good effect during the five month pre-launch multi-media campaign. A calculated risk was taken to borrow against salary funding and over £3000 was invested on a range of materials including the artwork and production of full colour A2 and A4 posters, business stationery, essential office equipment and consumables. The investment was returned with interest. The co-ordinator's work was complemented by an ever enthusiastic management committee and several active local patrons including the local MP and the Mayor of Milton Keynes. It was a measure of its success that enquiries were received from as far afield as Hampshire and the Scottish Highlands. Local queries resulted in several new projects. From this stage onwards the main limiting factor on growth was the lack of full time secretarial assistance for MKYE. The co-ordinator had to share the centre secretary with six other LEA staff.

Into action

MKYE was fortunate to secure the services of Professor David Bellamy to help launch the Year in September 1989. His profile and infectious enthusiasm coupled with a diverse programme of events which included schools, the business community and the general public gave MKYE regional profile at a stroke with coverage on three television channels as well as national, regional and local media. Following the launch, work started on implementing the twenty projects for which support had been gained. Only a flavour of the projects that the Year actually developed can be given in this short article. £34 000 was made available to community groups and schools to support their ideas for practical projects and these can now be seen in the fabric of the landscape. A considerable volume of recycled paperwork was produced, making up nearly twenty separate publications which included *50 Ways to Help the Environment*, an air quality study pack, *It's Yours* a seasonal childrens' newsletter containing ideas and comment, and *45 Ways to Help* for local businesses. Many local groups have carried out special projects as their contribution to MKYE, including a new natural history guide for the area, a major regional photographic competition and a local poetry competition. Four national theatre groups appeared, including one with a specially commissioned work for MKYE which ended up on national tour. A programme entitled 'Earthtalks' helped link the local with the national and global and included such guest speakers as Rod Hackney and Jonathon Porritt. The full picture is documented by Yoxon[3] in the final report for MKYE.

> ***'Perhaps one of its most important roles was to identify and involve sections of the community who are not normally associated with environmental activity.'***

Evaluating the Year

The Year met its original aim well and inspired positive action from many sections of the local community. Through production of relevant educational materials and creative use of the media, most notably a good working relationship with one local newspaper, it succeeded in letting people know what they could actually do themselves and involved over 15 000 people in environmental activity of various sorts, or over 24 000 if two major exhibitions are included in the calculations.

The Year proper ended in September as did the co-ordinator's post. In an ideal situation, the co-ordinator would have been employed for a further period of three to four months in order to bring the project to a complete close. This was proposed in the original business plan. In practice, much of the concluding work was carried out by the co-ordinator while the Year was still underway, a less than satisfactory situation. Work did not actually stop on the 31 August and work needed to be taken on by the management committee. This was expected to continue until early 1991.

Apart from promotional activity, it was felt that work started during MKYE should have a future in the Borough. Perhaps one of its most useful roles has been to identify and pull together many threads, often involving sections of the community not normally associated with environmental activity, and leaving some constructively tied knots. Over 60% of the work begun by MKYE has a secure future, either by the fact that it is published material such as trails and leaflets or because features have been created in the landscape. Much of the educational activity will have an impact beyond the confines of a calendar year. Several initiatives have now been taken on board by the MKEELG. The 'Earthtalks' series is to continue, now seasonally. The beginnings of a networking approach so successful in other parts of the UK has been taken on board by MKEELG and at the time of writing a working group is engaged in meetings to propose a structure for a local environment network and will report back in early 1991. Discussions are also taking place to establish a 'Green Award' scheme for local business.

In the same way that European Year of the Environment was designed to be a continental beginning, Milton Keynes Year of the Environment was designed to be a local beginning to focus and extend good environmental practice. The signs are that it was.

References

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Environmental education information technology and I.T. CERES - raising environmental awareness through education

An innovative international project is researching and developing the potential of I.T. for environmental education.

Professor Norman Longworth and Alan J Pritchard

International I.T.CERES Centre, University of Southampton, United Kingdom

Worldwide increase in public awareness in environmental matters is likely to lead to worldwide increase in the demand for environmental education during the 1990s. Such a massive expansion of demand cannot be provided using the lead times normally associated with the development of new courses - ie. from idea, through curriculum development into classroom practice in schools and universities, leading to eventual assimilation in society as a whole. Nor does the related urgency of raising enviromental awareness in the community at large permit such a delay. The problem is further compounded by the need to present environmental subject matter in a holistic way so that the essential interconnections between issues can be preserved, and the insights and understandings so necessary for effective solutions can be gained.

This article describes the work of International I.T.CERES, an Environmental Education Development Centre based at Southampton University. I.T.CERES uses its expertise both in the uses of Information Technology for education and in the environmental sciences to research, develop, evaluate and deliver materials, courses and strategies for industry and the formal education systems. The article shows how the uses of Information Technology as flexible tools for learning can help to satisfy the needs for environmental education in innovative ways and how the use of networks, databases and interactive educational software can enhance the quality of learning about the environment.

International I.T.CERES - Using Information Technology for environmental education

The ultimate goal of I.T.CERES (Information Technology Centres for Education and Research in the Environmental Sciences) is to establish and link Environmental Education Centres on a global scale to identify and meet regional needs collaboratively. Already universities in eight EC member states are working together and with industry to produce materials and courses in the Environmental Sciences at a European level under the aegis of the European Commission's COMETT II Programme. This project - I.T.CERES Europe - is co-ordinated from the University of Southampton.

A 50% European Commission COMETT II Programme grant has been made to administer the I.T.CERES Europe network. It has also approved a grant to establish a technical infrastructure which enables global environmental data to be distributed from sources such as the UNEP-GRID Centre in Geneva, the MARC database in London, the CORINE database in Brussels to Education in Europe (The CERESdata Programme). The network is about to be extended into Eastern Europe through the TEMPUS Programme and will include Centres from Poland and Hungary. Expansion of the network to the developing world, where issues are most acute, and to other areas of the developed world will be made as resources become available.

'such is the urgency of the present environmental situation, a mass audience will be necessary in order to bring home the issues and the need for change.'

International I.T.CERES has four major target audiences for its environmental and education work:

- Industry and commerce
- Schools and teacher training
- Universities and higher education
- The community and the public at large

and it is developing project partnerships to satisfy these populations. One feature of all of these is the use of Information Technology (I.T.) as an enabling and delivery tool so that more appropriate learning can be provided for more people more quickly, more interactively and more effectively.

The following are short examples of how I.T. can be used to enhance environmental education.

1 - Networking

Networks are nothing new, and are the essence of co-operative action in many fields. But the addition of an electronic component through which messages, concepts, responses, information and debate can be traded quickly and inexpensively between people, represents a huge increase of capability. Such electronic networks have existed for some time and include electronic mail and Computer Conferencing Systems.

Internation I.T.CERES is exploring the capabilities of networks for environmental education in the following areas:

a) Networks of scientists working on environmental programmes. Many of these are already in touch with each other through their own scientific networks. Such networks could become a very valuable resource for teaching, learning and materials development.

b) Networks of education and curriculum developers worldwide - operating through I.T.CERES Centres which assess environmental education needs for the region in which they operate. The collaborative development and testing of courses and materials through such a network would be a great boon. The electronic facilities would be used for distribution of course modules, ideas for new courses, assessment of needs and much else.

c) Networks of teacher training institutions in universities and colleges - for pre-service and in-service training of teachers in schools, for the development and testing of environmental education materials locally, for accessing

the information needed to create new courses and for the exploration of cultural differences. There is a great value in being able to perform this work over days rather than months.
d) Networks of schools, universities and industrial training establishments - either together or separately, the sharing of access to environmental data and research, the ability to combine in practical participation projects on environmental subjects locally, nationally and/or internationally.
e) Delivery and feedback networks for environmental education and training courses at distance - in which the use of conferencing systems would enable student-teacher and student-student interaction to compensate for the physical absence of the teacher, and in which the components of the course would be a combination of database access, textual materials, graphics and voice - plus the use of the networks to contact 'experts' as well as the teacher.

2 - Databases

As environmental data is always changing, it is important to have up-to-date information available to environmental courses and materials. I.T.CERES, through the CERESdata project, is working on the infrastructure to bring relevant databases to education through networks and by other means.

Environmental databases abound in many places. They range from Global Monitoring Systems at MARC and UNEP-GRID, through the national data from CORINE and NASA, to local databases established for local use in regions by local government authorities. Further, in purely educational terms, they represent one of the frontier posts in the development of responsive learning techniques (I do and I understand). There are perhaps three main ways in which databases are valuable in environmental education:
a) As accessible resources to underpin teaching and learning, from which the learner makes scientific inference. This is a skill which is often neglected in both schools and universities and so there is a need to incorporate data analysis techniques into environmental courses which use databases.
b) As teaching and learning strategies in which the environmental database it built up by the learner, or groups of learners, either by original observation or through the secondary use of existing data. This will include information handling skills right from the collection stage through storage, analysis and dissemination, as well as the opportunity for high order skills such as problem-solving, decision-making, thinking etc.
c) The technique of using the database as a teaching tool in its own right. This not only means mastering the access to software but also of incorporating additional learning software, usually based on hypermedia techniques (see 4 below), into the database, which helps to give insight as well as information. Research is being undertaken at the Southampton University School of Education I.T.CERES Centre into these techniques.

In isolation, databases have limited teaching and learning value. When they are used together with textual materials or other powerful I.T. tools and techniques they can be used to great effect. Recent developments in quality mean that educational software now has potential to become the medium through which environmental education can be delivered.

3 - Educational software using the PC

In the past, educational software (computer assisted learning - CAL) has not been taken up by the vast majority of teachers. Fear, lack of training and of good hardware and software have all contributed to this state.

For environmental education, technology development in both hardware and software offers the possibility of future growth in three areas.
a) Hypermedia - a relatively new development in computer software. The possibility of incorporating new presentation techniques into educational software and of having far more learner control over both the subject matter and the methodology of learning is an exciting new development. Hypermedia differs from CAL in that it presents new information and concepts as hierarchies to be accessed as required; it gives the facility to flip in and out of the mainstream program and, probably most importantly, the ability to present graphic material, digitised pictures or maps and diagrams, on the screen.

'educational software now has potential to become the medium through which environmental education can be delivered.'

An example is the 'water program', developed at the Southampton University I.T.CERES Centre. In this innovative program, a combination of diagrams, digitised and labelled pictures, multi-choice prompts, text, maps and graphics give a thorough and stimulating overview of how water passes from river to tap. Such versatility has not existed before outside a large mainframe machine and even then extensive training would have been needed.

Nor have the limitations of hypermedia tools been reached - there is obvious scope for expanding the use of the medium to explore relationships between issues, systems and ideas - for example to build up a picture of the connectivities between the build-up of greenhouse gases, ozone depletion, pollution control measures etc with pictorial, diagrammatic and textual back-up in a way that is understandable and manipulable by ordinary people. I.T.CERES is working to produce a prototype along these lines as an initial module for industry.
b) Using models and simulations to test 'what-if'? Simulations which allow the learner to explore 'what if' situations are becoming increasingly fashionable and the use of expert systems shells which incorporate the use of Artificial Intelligence techniques are making it easier for programmers to devise such programs.
c) Audio-visual software - Increasingly the major computer manufacturers are producing software specifically aimed at course design for the industrial training market. Much of this is highly sophisticated, combining the best ease-of-use features of authoring systems with visually stimulating television techniques involving split-screening, voice-overs, motion, textual presentation, access to external networks and databases, graphics, maps interactivity, colour coding etc. An example of this is the IBM Audio-Visual Connection and it opens up an entirely new dimension in the presentation of environmental courseware. I.T.CERES is experimenting with this new innovative medium and will be producing new environmental materials based upon it.

4 - Open and distance learning, a panacea for mass education?

Whereas the development of environmental educational software might be described as working at the 'Micro' level because its potential audience at any time is fixed and static, the development of networks and databases in EE becomes a much more 'Macro' activity, because the targets are much more diffuse and potentially larger. However, such is the urgency of the present

environmental situation, a mass audience will be necessary in order to bring home the issues and the need for change. Thus, open and distance learning techniques, and strategies for more cost-effective delivery of education become imperative.

Distance learning is a subject which fills many books and it would be impossible to precis these here. The essentials, however, are well-known:

- the choice of a suitable means of delivery is important. This can be text-based via books and assignments, video-based through satellite, direct broadcasting through TV or the distribution of tapes, or education technology based through PC screens, Videodisk, CD-ROM, CDI or DVI etc - or any combination of these.
- the means of feeding back comments, questions and discussion between the students and the lecturers and between student and student is also important. Because the lecturer and students are not physically in the same place, information Technology represents the most effective way of stimulating this interaction.

There are few precedents in environmental education at distance, except perhaps for mass market TV programmes, some of which are excellent in identifying and exploring issues but most of which are unable to go into sufficient detail for educational purposes. One of the advantages of having a university base for International I.T.CERES is that it also gives a research base for its educational and environmental activities. At Southampton, the focus of such research in distance and open learning.

The ECOMASTERS Project - A mid-career post-graduate degree course in environmental sciences.

International I.T.CERES is developing the ECOMASTERS course in collaboration with its sister centres abroad. This course is unusual in that it welcomes students from industry, education and government into the same course. It is a Masters Degree course, or its equivalent in other European Countries, which has other interesting features. For example the course is modular, interfaculty, is tailored to the needs of each individual student, and involves a period of study at an IT CERES Centre in Europe.

The ECOMASTERS course will be useful for managers in industry, teachers in schools and teacher training colleges, environmental officers in national and local government, and voluntary workers in community projects, and the first pilot course starts in October 1991 at Southampton University.

Summary - International I.T.CERES and environmental education

Information Technology is already highly active in monitoring, managing, digitising, recording, analysing, communicating and synthesising environmental affairs. By the same token, I.T. has also long been established as a potential tool for the development and dissemination of education in several ways. I.T.CERES exploits its knowledge in both these areas to create much-needed environmental education and training for people and organisations.

Lastly, although I.T.CERES operates at an international level, it also operates nationally in the UK and locally in the Wessex region. Thinking globally and acting locally is a practise to be encouraged and I.T.CERES uses its international contacts and network to make that happen. It is currently putting together a membership programme. Interested companies and other organisations should contact the authors at International I.T.CERES, School of Education, University of Southampton, Southampton, Hants, SO9 5NH. tel: 0703 593213. ■

The Environment, Community, Arts Network - partnership through quality training

Pete Hawkins

Lecturer, Losehill Hall, the Peak National Park Centre, and member of the Steering Group of the ECA Network.

Have you been to Grizedale Forest and seen the sculptures? Have you ever wondered how they got there? Who decided that the Red Indian sitting on top of the rock was the most appropriate way of interpreting the forest? I am quite sure it wasn't the users of the forest, the local residents or the visitors. The same could be asked of the many examples of art found in our towns, cities and rural areas put under the heading of Public Art. Did the community have a say in their design and construction?

And what about the message? Ask any artist why they do what they do and you could be in for a long treatise on how their work displays the quintessential links between the powerful forces of nature, human relationships and existence! The worst cases of this must surely be when artists are allowed to impose their work on a community without allowing the recipients to have their own say. This is where the Environment, Community, Arts Network comes in. The ECA Network was established following a meeting of environmentalists, community workers and arts workers which was held during February 1990, at Losehill Park, the Peak National Park Centre. Its aim is to organise a series of high quality training courses around the country which will bring together these three potentially disparate groups to promote the creative exploration of environmental issues within community groups.

The network is still in its infancy and being asked to comment on it at this stage is a little like being asked to pass judgement on a meal before you've eaten it. The ECA network currently is at a similar stage. The ideas look fine and the blending of environmentalist, community workers and artists has an appealing aroma about it, but as we are still in the kitchen perfecting the recipe nobody can sample it yet!

From the initial meeting which raised many questions and answered none, a group of approximately fifteen volunteers came forward willing to devote their precious time to furthering the project. Since that time we have refined our thinking and produced a 'manifesto', which is reproduced below.

Manifesto

- *The loss of natural resources and world-wide pollution are issues at the top of the agenda in government, business and industry, in the media and for the individual. Protection of the environment must come first, and it's up to everyone to do something about it.*

· *Existing educational provision tries hard, but lacks the freedom to use the impact of cross-disciplinary work.*
· *ECA Network advocates community involvement using creative, imaginative arts based techniques to enable groups and individuals to tackle local and global issues effectively. Participation builds real understanding which enables communities to take more pleasure in, and responsibility for, their world.*
· *ECA Network aims to develop environmental understanding through creative community involvement, and believes that quality training is the primary tool.*
· *The training programme will involve environmentalists, educationalists, arts workers, community development workers and local activists. The training will be national in profile but will be regional in character and content.*
· *These courses will be targeted at existing group organisers and will help participants to:*
1 Acquire practical and enabling skills
2 Instill a sense of magic and fun into their work
3 Gain the confidence to work together
4 Use the arts with community groups to address environmental problems.

ECA Network Training programmes will include 5 day residential courses and long weekend packages at centres around the country.

With so many bold claims in the manifesto the network has a tough job to do. But...

What do we mean by community?

Everybody, whether they be minorities or majorities, housebound or active, children or adults, urban and rural. We are seeking to encourage everybody who wishes to take action about their environment to become involved because through involvement will come concern, and through concern, action.

What kind of art?

Art is a widely used and much-abused term. It can range from grand orchestral concerts to graffiti walls. To the ECA Network,the medium is not important. The method of using that medium is vital though. If we are to fulfil our aims we need to employ techniques in which the community can participate fully. By participate we do not mean standing and watching, we mean getting in there, doing and influencing and merely using the 'expert' as a facilitator and enabler. People can do anything if they are empowered to do so.

'People can do anything if they are empowered to do so.'

Why training?

Training is the key to change. Without giving people the skill and the confidence to use arts skills with a community, then things will not happen. Training allows things to happen and puts people in touch with like-minded individuals who can give support and encouragement. The training will be, we believe, unique by drawing together the different interest groups. By working with the other disciplines, common issues can be explored and different strengths can be utilised.

Why a network?

At the moment we are concentrating on setting up the training programme, obtaining funding and finding a suitable umbrella organisation to provide us with a legal framework. How we develop beyond this will largely depend upon the desires, wishes and skills of network members and the availability of volunteers to develop the project further. The word 'network' gives us the flexibility to develop!

What have we done so far?

The steering group has met regularly, as have the subgroups who have been pursuing such areas as training, funding, coordinators job description and other key tasks. From these have come the promise of funding from a number of statutory bodies, including a possible grant from the Local Government Training Board, to produce a major report which will be sent to all local authorities advising on good practice and future directions.

We hope to appoint a coordinator when funds allow, and are running a pilot course planned for May '91 in Tyneside, based on a course format which the group has devised.

So what can I do?

Get in touch! We are looking for quality people with quality ideas. We want people with skills in anything from fundraising to marketing, newsletter writing to community action work. We are also looking for those who merely think it is a good idea and would contribute if they had the time! As the project develops we can then call on individuals to take us through the next stage.

So that is what the ECA Network is all about. Hopefully you agree that what we are trying to do is right and can help us achieve our aims. If we can get communities involved in thinking about the environment and acting positively to secure its future, then we will have made significant steps forward. The ECA Network knows it has a tough job in front of it but is convinced that the basic ingredients are right. But, as they say, the proof of the pudding is in the eating. Bon Appetit!

If you would like to put your name on The ECA Network mailing list or more information, please contact; Pete Hawkins, The ECA Network, c/o Peak National Park Centre, Losehill Hall, Castleton, Derbyshire, S30 2WB. Tel 0433 20373. The same address can be used if you can help fund the Network. ■

Research

Environmental education and primary school teachers

A report on a study on the understanding of the nature of environmental education among primary school teachers and the effect of this on practice.

Christiane Dorion and Chris Gayford

Chris Gayford is Head of Department of Science and Technology Education, University of Reading, Christiane Dorion is a former postgraduate student. University of Reading.

While important initiatives have been taken at international and national levels to promote the introduction of environmental education in the school curriculum, there have been problems of implementation at primary level - partly due to a lack of agreement concerning the nature and role of such education at this level. In practice, it can take various forms, including the use of the environment as a resource for curricular subjects, consideration of the environment as a classroom topic and use of first-hand experience to encourage environmental awareness and a sense of participation.

This study was conducted as part of a research project, carried out over a period of three years from January 1987 at the University of Reading and had the following objectives. To determine:

1 Teachers' understanding of the nature and aims of environmental education and the extent to which they acknowledge the affective and moral dimension involved;

2 Their understanding of the scope of such education and the extent to which they acknowledge its holistic approach;

3 The strategies favoured for its inclusion in the school curriculum;

4 The nature of the work undertaken and major problems encountered;

5 The nature of in-service training courses undertaken;

6 The teachers' views on possible action to improve school practice.

Review of literature

Two major studies have provided evidence of how primary teachers in the UK interpret environmental education. In the WWF project [1], it was found that teachers tended to emphasize cognitive aspects and that teaching strategies involving the affective domain were infrequently used. The political and controversial aspects involved were perceived as a constraint by a great number of respondents. Gayford's findings [2] suggested that emphasis in school programmes was on the acquisition of knowledge and the development of simple skills such as observation, description and identification. Activities involving higher order skills, such as data analysis and problem-solving, were less often undertaken. The respondents also made little use of methods which directly confront the child's attitudes and values. The most significant findings of both studies were utilized in the development of the research instruments for the present study.

The methodology

The study was limited to three local authorities: Hertfordshire, Berkshire and Avon. The main instrument was a questionaire used amongst teachers already aware of the importance of environmental education and who had developed some expertise in this area.

The investigation also involved interviews with key people within these authorities and analysis of documents produced by schools, field studies centres and local authorities. A network of 'key' people involved in the management and implementation of environmental education in each authority helped identify names of teachers known for their concern and previous work in this area.

The questionnaire was based on findings from previous studies and discussion with teachers and advisers. Questions of both 'open' and 'closed' types were used, and related systematically to the research objectives.

Overall, 172 questionnaires were distributed and 112 returned. At a time when major changes were affecting schools, the high proportion of completed questionnaires (65%) indicated the strong interest amongst the teachers selected. The responses were tabulated using SPSS (a computer analysis software package) and then analysed. Analysis of the 'open-type' questions and comments of the respondents helped to enrich the results obtained from the statistical work.

The findings

Nearly all teachers (98%) agreed that environmental education should be an integral part of the curriculum rather than a separate school subject. Additionally, 33% of these considered that it should also be a subject in its

Table 1
Teachers' understanding of the concept environment

	Yes (%)	No(%)
1. Local area	95	5
2. World we live in	72	28
3. Interdependence between local and global issues	37	63
4. Wildlife/plants/animals	92	8
5. Countrywise	77	23
6. Towns/cities	45	55
7. Built environment	59	41
8. Community/people	61	39
9. Economic aspects of society	10	90
10. Political aspects of society	7	93
11. Historical houses and heritage	35	65

own right. Over 90% thought that enviornmental education can enhance the child's learning in other curricular areas such as geography, science, moral education, art, history, English and mathematics.

In contrast with previous research findings [1,2], the views expressed by the teachers in this study revealed a rather broad interpretation of environmental education, involving both the cognitive and affective domains. The need for developing in children knowledge and skills through first-hand experience was emphasized by the majority.

Most teachers also stressed the need for encouraging environmental awareness, concern and action. Over 90% stressed the importance of involving children in the conservation and improvement of their local surroundings. Over 75% regarded the development of an awareness of the environment, appreciation of the natural environment and concern for wildlife and endangered species as very important.

The majority interpreted the scope of environmental education as the investigation of the 'natural' environment in the local area (see Table 1, items 1, 4). Ninety-two per cent understood the environment as wildlife and 77% defined it as the countryside. Fewer mentioned in their definition of 'environment', the built environment (59%), towns and cities (45%) and heritage (35%). The political and economic processes in the environment were also regarded as less important (see Table 1, items 9, 10).

The majority acknowledged the importance of including controversial issues related to the environment in primary education. About 25%, however, indicated various constraints which made it difficult to introduce such issues in current practice. Although 86% agreed about involving children in issues such as energy, acid rain and population, only 42% currently dealt with acid rain, 24% with nuclear power and 19% with population. The respondents considered the pupils' background and the nature of the subject itself as particular limitations. Issues currently dealt with in the classroom related mainly to the protection of the natural world such as conservation (88%), pollution (85%), natural disasters (78%) and endangered species (73%). Further, the focus seemed to be on scientific aspects of these issues to the exclusion of ethical dimensions. Problems involving controversy arising from political, economic and social factors were regarded as less appropriate at the primary level.

'Evidence showed a certain mismatch between the teachers' stated views and what was actually taking place in their schools.'

Most teachers often, or fairly frequently, involved their classes in activities directed towards the acquisition of knowledge and skills through interaction with the surroundings: identification of plants and animals (90%), exploration of the surroundings through perceptual work (78%), walks in the local area (73%) and tending plants and animals in the classroom (64%). Emphasis was on learning about nature. Projects focusing on the man-made world such as appraisal of the built environment, town trails and organization of cultural events seemed to be less popular. Less than 20% frequently undertook projects based on controversial issues. Nevertheless, examples of work based on local issues were provided by some teachers: pollution of the local river, the problem of rubbish in the locality, the impact of housing development on the natural surroundings and the effect of acid rain on wildlife.

The majority (68%) seemed to undertake action-based projects with their classes. Children's participation consisted generally in the establishment and maintenance of conservation areas in the school grounds. In only a few projects did participation involve decision-making skills in relation to real-life issues such as anti-litter campaigns, recycling materials, campaigns against the gassing of badgers, or construction of a play house for infant children.

The results show that 86% of teachers had participated in in-service training in EE in the last five years. This high percentage is possibly an indicator of their personal interest and the rather special nature of the three local authorities chosen. Most of those who never attended any courses were either headteachers or teachers involved in the development of such courses. On the whole, teachers expressed positive opinions about the benefits of the training (58% thought it to be very useful and 42% fairly helpful).

In relation to the major constraints limiting the introduction of environmental education in the curriculum, 96% of teachers emphasized the need for in-service training dealing with ways of incorporating such education in current practice. Also, 66% identified as an obstacle their lack of expertise when approaching controversial issues. Less than 50% drew attention to other difficulties related to the nature of the subject, the children's background or external constraints. When teachers were asked to identify problems related to the school itself, the majority stated that lack of time (71%) and transportation (65%) were the most important.

In terms of possible action to be taken, teachers tended to agree on the need for designing school policies for environmental education and for increasing collaboration amongst staff. As regards important steps for the improvement of current practice, about 75% mentioned the development of the National Curriculum,, the production of overall policies at the local authority level, the production of materials and the training of specialists.

Discussion and implications

The views stated by the teachers in this study appear to corroborate the ideas put forward elsewhere [3,4] concerning the need to encourage environmental awareness, concern and action at the primary school level. The results suggest that a wider understanding of environmental education is slowly finding its way amongst teachers who are particularly committed to this area of the curriculum.

The evidence concerning ideals and ideas in relation to practice show, however, a certain mismatch between the teachers' stated views and what was actually taking place in their schools. Although the importance of the affective and moral aims of environmental education was acknowledged by most teachers, emphasis was placed on acquisition of knowledge and skills. Few activities seemed to directly confront children's values and attitudes towards the environment. This may be related to a number of contributing factors.

Firstly, the implementation of the affective and moral aims may challenge the teaching methods currently used in primary schools. Most respondents identified participation in the environment as a valuable feature of environmental education programmes. However, in practice, children's involvement seemed to be limited generally to understanding and experience of the natural world only. In addition, few activities were directed towards enabling children to develop decision-making

skills in relation to real-life issues in their surroundings.

A second factor lay in the complexity of raising controversial issues in primary classrooms. The results suggest that teachers' perceptions of their role in the educational process could restrict their use of approaches which confront children's values, attitudes and behaviour. Many teachers tended to regard their role as being one of an expert and having to provide children with all the 'answers'. They expressed the difficulty of transmitting information on controversial issues and providing all sides of the argument in an unbiased way.

Thirdly, the findings point to the difficulty for teachers in implementing a holistic approach to environmental education within existing classroom practice. Although the idea of a global perspective is slowly finding its way into the curriculum of some schools, most activities suggested a rather fragmented approach to the investigation of the environment and related issues. Work in schools centred on the study of specific elements of the environment without seeking a more global understanding of the processes and structures which regulate the interactions of these elements. Further, although most teachers identified the scope of environmental education as the 'world we live in' (see Table 1, item 2), classroom practice seemed limited to the child's immediate surroundings and local area. Few teachers included an international dimension.

The findings of this study provide evidence for the need for further professional training, particularly in these areas of practice. Strategies for fostering in children responsible attitudes and behaviour towards the environment and which can be implemented within the prevailing realities in schools should be included. Examples of good practice already exist and were identified as part of this research. These can form an important resource for other teachers. Primary teachers are often concerned about the major demands made by the National Curriculum in terms of their own knowledge and understanding of the content. It is therefore essential for environmental education that appropriate methodologies are given a high priority in post-experience training.

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Lessons from the Bergen experience

Tim O'Riordan assesses the implications for environmental education of the major NGO/Ministerial conference 'Action for a Common Future' held in Bergen, in May 1990.

Timothy O'Riordan

Professor of Environmental Sciences, University of East Anglia

Bergen is to Brundtland as ECO 92 is to Stockholm. It all sounds like a bizarre crossword clue. Stockholm refers to the UN conference on environment and development held in Stockholm in June 1972. Brundtland is, of course, the report of the World Commission on Environment and Development chaired by the Norwegian Prime Minister Mrs Gro Harlem Brundtland.

This Commission asked all the UN regional groupings to comment on the many challenging issues raised by the notion of sustainable development, and what they collectively were going to do about them. Bergen was the regional Conference for the Economic Commission for Europe (ECE) meeting held between 8 and 16 May 1990. ECE includes not only the 32 European states, but also the US and Canada. So Bergen was the first opportunity for newly democratic, but, environmentally ravaged, eastern Europe and crisis-torn USSR to debate the role of the environment in development. ECO 92 is the follow up UN conference, 20 years after Stockholm, the logical conclusion of the global post-Brundtland process. This will be held in Rio de Janeiro in Brazil and will seek to establish permanent global commitment to sustainable development.

The Bergen experience was more than a tetchy ministerial meeting. It brought together five major non-governmental organisation (NGO) groupings to influence the ministerial declaration and subsequent action. In its own way, this was mega environmental education.

The five NGO inputs came from industry, science, the trades unions, environmental cause groups and youth - those who would actually have to live with the consequences. Each of these five impressive coalitions involved exhaustive preliminary negotiations to establish preliminary bargaining positions, but the youth stole the show. They were organised, active, serious yet humorous, and dedicated. They were also media darlings. One cannot help but regard their role as environmental education in action, for so sophisticated were their campaign tactics and media representations. This is not to say the others did not perform admirably and influence effectively. The key ministerial negotiating and drafting teams had to respond to all of them, although the reaction was too late to change anything of substance. It was the very act of NGO access to ministerial preparation that made Bergen such an unusual experience, and established crucial precedent for even more participation prior to ECO 92. It is of interest that the British delegation is pushing for even greater NGO input for ECO '92 than is presently wished by other governments.

In educational terms, the Bergen experience was rewarding. It created a form of environmental education through mobilisation and intellectual struggle that was genuinely exhilarating. Initially the ministerial delegations were set to look at four themes:

1 Industry, environmental protection, recycling, and auditing.

2 Energy, and sustainable management of atmospheres and oceans, and fuel resources.

3 The economics of sustainable development, notably the appropriate valuation of environmental functions such as cleansing, absorbing and shielding, and pricing of environmental services such as extraction and discharge.

4 Information, participation, education and involvement in the process of transition to sustainable economies.

For those interested in environmental education, the coupling of the ministerial theme of participation and the two science conference reports (on integrated science and science policy relationships) provide the most interesting outcomes, though the whole Bergen experience was pretty lively and stimulating.

Environmental information

In particular, there are implications in terms of the accessibility and quality of environmental information. What is beginning to emerge is a new push towards comprehensive reporting on environmental change, to be made available via reports, digests, computer printouts and visual displays. The right to know about environmental conditions is becoming accepted as a matter of social justice. The emergence, from two generations of despair, of new liberated eastern European countries who have been denied any information on the state of the environment that is killing their children and old people has transformed the political atmosphere about international data collection, scientific exchange, and the real need to make scientific monitoring and prognoses intelligible to everyone.

The British have announced that they will publish much more comprehensible and readable environmental statistics in the forseeable future. The Environmental Protection Act of 1990 establishes a statutory duty on dischargers and regulators to make information public regarding levels of actual emissions and their statutory limits. True, there will be much argument about sampling integrity, about interpretation of data, and about the levels of staffing and support cash available to the principal regulatory agencies. This will be a messy and inconclusive process, muddled further by the promise of an election and the sparring of green credentials by all the contending parties. But the disputes should be healthy in that more quantity and improved quality of environmental information will be made available to the public as the years pass by. That will give much more scope for environmental educators to develop case work on trends in environmental quality, on the political issues involved in setting air, water and land quality standards, and on the relationship between environmental deterioration (or improvements) and the nation's health.

Precautionary principle

Second, Bergen grappled with the issue of the precautionary principle. This is jargon for the old adage 'better safe than sorry'. In a nutshell, the major global environmental problems all involve prognoses of future outcomes where scientific evidence is still preliminary. In the case of climate warming studies, for example, even the best modelling will only provide reasonable answers in a decade, possibly much longer, such are the enormous complexities of the systems being analysed. Precaution is the political act of courage - to commit governments and industry to investments, possibly involving many billions of pounds, in advance of scientific certainty.

The application of the precautionary principle will provide an interesting challenge for environmental education. For it to work, the Bergen Ministerial Declaration in favour of a well educated public mobilising itself to effect political change compatible with sustainable development, will have to be supported by a firm commitment in the National Curriculum and in teacher training and back up resources, for an educational process that is genuinely proactive.

One way to approach this is to ensure that curricula include basic principles of environmental valuation of various possibilities for action, including the consequences of delay in the face of uncertainty. This will mean integrating the sciences more, so that pupils can combine the best of scientific prognoses with economic valuation techniques and the application of environmental ethics to the choices before them. Ethics come in because all options involve trade-offs between human and non human well being, and the rights of future generations compared to the rights of those living today.

'Right now, most of environmental education is not ripe for this radical thinking.'

The Germans and Dutch are all for acting now in the spirit of best practice and technology. The British and Americans adopt a more wait and see attitude, favouring better science and prolonged softening up of public opinion, before the really hard choices have to be made, often too late and possibly unnecessarily expensively. Yet it also has to be said that precipitous international actions taken without due regard for the economic consequences of hurried analysis, could turn out to be even more costly.

This leads to a proposal to fuse the four ideas of information, uncertain science, participation and policy-oriented science into a practical whole.

Visualising the future

A number of researchers are looking at ways of visualising the future via computerised images of possible outcomes, based on the best science available, into which the participating public can programme their own preferences for policy. Say, for example, a video screen depicted a portion of eastern England, or coastal Bangladesh, on which property value and population densities were depicted. Future states of sea level rise could be imagined according to different proposals for carbon tax, energy regulation, energy efficiency standards and investment in floodwalls and hazard warning schemes. The participating public could thus cost in policy options, be made aware of the implications for household expenditures, national taxation and international aid, and see just what combination would be morally, or economically, or politically be most acceptable.

This is not space age dreaming. Interactive videos are already well established. The concept of visualising futures has a long history in anthropology as well as environmental science. It is possible to imagine such programmes becoming commonplace in schools, and beyond the classroom. Of course computer assisted approaches to the evaluation of possible environmental futures is not the only way. In the poorer countries, as well as in the rich, much can be done via art, mime, dance and storytelling. Human imagination is

vivid and wealthy. Variations of the imaging-participatory schemes can be adapted to any educational budget and innovative teaching skills.

Right now most of environmental education is not ripe for this radical thinking. Indeed, science generally is ill-suited to meet the challenge of more integrated analytical approaches set in a disciplinary context. This will require the use of good case studies, imaginative teaching and learning skills, and a lot of experimentation. The resources are not there to allow this to happen at the pace required. If the Government is as serious about global environmental change as it indicates in its recent White Paper, then the resources and the training facilities will need to be provided post haste.

Government will have to listen to youngsters over such matters, for it is their future that is at stake. The Bergen experience may well have set an important educational trend in motion.

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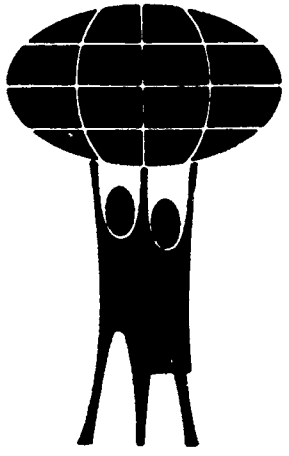

The evangelical approach to environmental education

Where does environmental education end and environmental 'evangelism' begin? Michael Storm sounds some concerns.

Michael Storm
Former staff inspector, Geography and Environmental Studies, ILEA

For as long as schools have existed, they have provided platforms for moral exhortation, as well as arenas for instruction. The early chapbooks and penny histories were preoccupied with the child's personal salvation, painting horrific retributions for juvenile idleness, deceit or misbehaviour. The most common pedagogical device was the fable which recounted the dismal progress of the sinner, inexorably proceeding from carefree self-indulgence to inevitable misery. Hogarth's sequence 'The Rake's Progress' might stand as the definitive adult statement of this narrative. During the somewhat more complacent Victorian period, the guilt was transferred to the an outer, darker world of savage heathens awaiting the enlightenment brought by Christian missionaries. In the last quarter century 'development education' strategies have commonly sought to inculcate a sense of guilt for world hunger and poverty - albeit collective, and historical (Western collonisation and capitalism) rather than individual. The guilt, it was suggested, would be expiated by more and, fairer trading terms, and a change in Western life-styles.

It would be surprising if environmental education was unaffected by this well-established pedagogical tradition - ie. establish guilt, portray awful retribution, demonstrate how salvation may be attained. Indeed, much current literature and practice exemplifies this model. The pedagogy, though powerful, is problematic. Emotional commitment may not be entirely compatible with cognitive grasp: 'Are you Saved?' may come to dominate 'Do you understand?'.

An early indication that it is easier to acquire approved sentiments than to build the necessary intellectual infrastructure appeared in the 1977 ERIC/Ohio study [1] which surveyed the environmental attitudes of 11 000 English teenagers. Near-unanimous assent was given to such notions as 'safe waste disposal is important if the well-being of man and the environment is to be preserved' and 'increasing human populations and demands for greater industrial and agricultural productivity have resulted in increasing levels of environmental pollution.' Yet factual knowledge questions often revealed a shaky grasp of environmental actualities. Thus, most pupils thought that only 40% or less of the UK land was used for farming, and more than half exaggerated both the size and increase rate of the UK population. The research showed evidence of 'distancing'; environmental issues were seen as national or global in nature, rarely acknowledged as evident in the pupil's own experience. Thus, one hazard for environmental education is the fragility of attitudes which rest upon an inadequate knowledge base. If views about the UK environment are based upon misconceptions, they are likely to be tenuously held and readily discarded.

'Where do we draw the line between alarming children and enlightening them?'

A second hazard of evangelical environmental education has attracted a good deal of attention recently. There is accumulating evidence of a revival in the ancient technique of *frightening* pupils towards salvation. A handsome new series 'Last Frontiers for Mankind' provides some instances of this. In one book, which includes a section on the effects of global warming on sea level, young readers are warned that '15 million homes might be lost' through flooding in the UK in the next 50 years. [2] They are regularly alerted against 'greedy and stupid' people, and urged to disassociate themselves from the forces of darkness. The exhortatory element climaxes in capitals at the end of a sister book on *Conserving the Jungles* - 'DO YOU WANT TO TAKE YOUR HAND OFF THE CHAIN SAW?', followed by the addresses of agencies which 'rely heavily on our donations'. The sequence, guilt - retribution - salvation is strongly in evidence.

The appearance of the Geography Working Group's National Curriculum proposals (June 1990), prompted a curious article in *The Sunday Times* [3] which seemed to imply that the Group had been hi-jacked by rabid Greens. But the article reported conversations with primary children which did show evidence of the effects of evangelical environmentalism - 'car pollution could cause the sun to go red and destroy everything'; 'pollution is making a hole in the

ozone layer and the earth could go bang'; 'flooding caused by the greenhouse effect will put much of Britain under water'; 'the chopping down of trees will leave humans with no air to breathe.' The article generated correspondence. A worried mother wrote of her small son asking if the destruction of greenhouses would help to avert disaster, whilst his older sister did not expect to reach adulthood, being confident that some massive ecological cataclysm would occur in the near future. Further evidence was presented, in a more self-congratulatory framework, in an article 'Underage thinking' in the February '90 issue of *Green Magazine*. Primary children in Hackney and Manchester contributed approximately apocalyptic reflections - 'there's air pollution from factories. It makes the air very bad for us and we're all dying'; 'we're all going to shrivel up into burnt sausages 'cause the sun's too hot'. These and similar thoughts are, disturbingly, set out as illustrating the *achievement* of environmental education. Another flavour which comes through is a sort of martyred self-righteousness, always a characteristic of the 'Saved'. MPs, presidents, rich people, and consumerist mums and dads are all targetted; 'just because we're kids, the MPs and the people in the Government they don't take no notice of us'.

It would be naive to assume that these sentiments were necessarily related to the activities of schools and teachers. The 1977 ERIC study showed that less than 40% of young people identified education as their main source of environmental knowledge and this finding was echoed by more recent research which found that only 8% cited schools as the main source. [4] This was acknowledged in a reflective article by Rosalind Coward, which charted the persuasive green tinge of juvenile popular culture. [5] She observes that 'guilt is certainly central' but also argues that 'the absence of conflict is probably another reason why there has been far more approval for spreading the environmentalist message than there ever was for spreading the anti-racist and anti-sexist message. Teaching tolerance for different domestic arrangements (Sally lives with Bob and Arthur, etc) is obviously considered far more dangerous than pressurising schools into creating wildlife gardens or introducing recycling schemes.' The *Green Magazine* anthology demonstrates Coward's contention that, 'almost all these products, books and programmes encourage children to 'shame' adults, to pressurise adults about their consumerist lifestyle'.

I think that there are signals here that should cause some concern for environmental education. Can frightened children learn effectively? How do we cope with the fact that the swelling ranks of 'green' teachers evidently appear to contain more 'committed' teachers than 'committed/qualified' ones? The most common intrigue of environmental education relates to issues - how can pupils be made aware of the complexity of issues, of areas of debate? Given that no teacher, even if aiming commendably for balance, is omniscient, this is always going to be an intractable problem. But it should not be confused with a much more basic worry about the amount of straightforward misinformation being disseminated under the environmental education banner.

In its cruder forms, the evangelical approach substitutes slogans for analysis, and exhortations replace explorations. It has more to do with environmentalism than environmental education. And it doesn't work. Young children are alarmed and confused; teenagers as always are adept at spotting the approved sentiment, but remain deeply resistant to the self-indulgent teacher who is tempted to harangue rather than to explore. As Rosalind Coward concludes, 'It remains to be seen whether adults will be able to resist using children as a moral dumping ground and equip them with the broader knowledge that the situation requires'.

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Teaching about the greenhouse effect

What problems are involved in tackling the 'big issues'? We asked David Wright to explain how the WWF/Hodder 'Greenhouse Effect' pack was produced. In his words, he 'raises as many questions as he answers'.....

David Wright
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How did you get involved with this topic?
There I was, thinking about something quite different, when the telephone rang: 'WWF here: could you do some teachers' notes for a video on the greenhouse effect - and a few pupil activities?'. Answer: 'Yes'. It's so easy to say yes. It was an interesting topic, and WWF is a good organisation. From then on, the project grew and grew. The notes became a teachers' book, and the pupil activities became another book, all written when spare moments permitted. And therein lies the key problem: my day to day involvement with schools and student-teachers provides the vital element of 'classroom-friendliness' but it also takes away the time to do the job. Does anyone have the answer to that problem?

Is the main problem how to get a controversial topic like this into the curriculum?
Not really: it's *there*. The challenge is to reassure teachers that they are positively invited to 'take the plunge'. So, in the Teachers' Book, I quote from lots of sources to justify the topic: GCSE syallabuses and National Curriculum documents in both science and geography clearly indicate that we are welcome to include the greenhouse effect in our teaching. Equally important are quotations from HMI/HMG publications

which indicate that open exploration of a controversial issue such as this one is a welcome and desirable feature of education. Such publications are very familiar to readers of this journal, but not easy to track down if you are at the chalkface, where it is all too easy to believe the rumours that controversial topics are no longer permitted. We need more thought on getting these messages through to the schools ..... any ideas?

How do you reach the 80% of schools which are not at the forefront of curriculum innovation?
This is the main challenge, and these are the schools which are my main interest - the other schools can look after themselves! I feel that far too much of the writing and curriculum development in environmental education is directed to 20% (or is it 10%) of schools which have everything in their favour, and this seems all wrong.

I therefore emphasise how the greenhouse effect can enrich and revitalise the teaching of familiar topics, such as the carbon cycle in science, or coastlines in geography. These familiar topics become much more dynamic and interesting to teach when they are linked with possible changes in the environment. Even if the pedagogic style does not change, at least the content has changed for the better.

Another challenge is to make the huge political implications of global warming more visible. I suspect that some activists will find the pack very disappointing on this score, but this softly softly approach is deliberate. If the pack seems overtly 'political', it might be rejected by many teachers. The political issues are present, but the focus is scientific and geographical. Is it sometimes better to start from the current position of schools, rather than wait in hope for major changes in structures?

How do the resources get created?
In some cases I extracted data from scientific papers provided by the Climate Research Unit at UEA, and made them pupil-friendly. Equally important are the flashes of inspiration at unlikely moments. The ideas get onto the backs of envelopes, and eventually roughed out into a pupil activity sheet. There is no secretarial or research assistance available for work of this type.

For some topics, I involved PGCE student-teachers, and we tried the ideas out with some pupils. They were mostly deprived pupils in a closing school - definitely an '80%' school.

It is rare to hear how resources for EE are created. If we knew more about the processes, perhaps we could understand more about better ways forward?

How do you handle controversial topics?
Most things about the greenhouse effect are controversial.

Controversies over policy offer lots of interesting opportunities for pupil activities: I provide the data, and I invite pupils to draw conclusions. Some of the data are statistics: I enjoyed developing the activity where the top ten polluting countries are compared with the top ten countries by population. In other cases, the opinions of people are the key resource - the family, the neighbours, the people of Canvey Island and Wells-next-the-Sea.

A more difficult problem was the lack of controversy. For example, how should I have responded to the editor's letter to me: '..... the controversy of course lies more in the implications (of the GE) than in its reality'? It is the 'of course' that worries me most. Has the greenhouse effect become an article of faith among practitioners of environmental education? If I admit that I am not as sure as he is, might he regard me as a traitor or a heretic?

Do you feel that there is a lot of nonsense talked about the greenhouse effect? How do you handle it?
Full frontal! 'Beware of false prophets' is a headline in the book. Originally I planned to reprint a *Sunday Times* newspaper article, and ask the pupils to spot the nonsense, but they refused permission. So I had to summarise the main points instead, then pupils are invited to replace 'will' and 'would' with 'may' and 'could'. It makes quite a difference. After that, they have to think of arguments against the more ridiculous predictions ('Hotter climate means fewer babies', etc).

It is not only the newspapers which make possibilities into certainties: some experts do so too - and that includes environmental education experts. It is not only better science to keep question-marks present; it is better pedagogy too. A lesson with a question is much more likely to get pupils thinking actively than a lesson which states what is going to happen. I keep emphasising that nothing is certain, but there is no question mark in the title; are my question-marks bold enough?

Does doom and gloom demotivate pupils?
It can do - and that worries me a lot. My starting point is that motivation is vital. Motivated pupils are a joy to teach, and are willing to understand much more and to think more deeply. Too much doom and gloom can indeed be a demotivator. So the poster in the pack includes a cheerful photograph of vines flourishing beside a medieval church in Norfolk, at 53 degrees north: the message is that the greenhouse effect can be good news, if it brings us hot dry summers.

I now feel guilty about this photograph. In the pupils' book, there is a study of the threat of flooding to the crowded deltas of the world: 'this is a real horror story, which could make most horror films look like children's television'. It is we, the rich people, who cause most of the air pollution, and one result could be that millions of people lose their homes and livelihood, or even their lives. In such a context, rejoicing over better grapes in Norfolk is almost obscene. I have failed to resolve this dilemma: can anyone help me?

How do you deal with the difficult bits?
I miss them out, and I don't even feel guilty about it. If the pupils won't understand, it's not worth trying. If they might understand, but would find the topic boring and difficult, it is still much better to omit that topic.

Nevertheless, I felt it was vital to try and explain and clarify the different causes and types of air pollution. Environmental education is more effective if it has a sound scientific base - otherwise it can become just a load of hot air. I still wonder if I should also have discussed the role of the oceans in possibly absorbing excess carbon dioxide. There are a lot of decisions like that which ultimately come down to personal hunches. Am I being too honest? I'd better stop.....

There is an interesting problem here. The more an adult author works on a topic, the easier it seems to him. Hence he perceives less and less need to explain the topic clearly and simply. Is this why experts so often fail to communicate? Have I fallen into that trap?

What is the role of the video?
Probably - as with every other video? - it provides a peaceful 30 minutes for the pupils to snooze through. But I provide ten suggestions for 'Using the video creatively in class', and lots of background notes and suggestions for the follow-up. You cannot see the many hours of work involved in rejecting miles of unsuitable film, but if you saw the

original TV programme (*Can polar bears tread water?*) you will notice that the schools video is very different. I had to argue strongly that most of the footage with experts holding forth needed drastic cutting, and the result is a bit more pupil-friendly.

I hope that the existence of the pack will help to get the greenhouse effect on to the agenda of schools, and, via the pupils to their parents' agenda too. I also hope that any environmental education people involved in INSET work will pinch any ideas they like, and use them. Better still, they could improve on them.....

David R Wright is author of *The Greenhouse Effect: Causes and Consequences*, published by WWF UK & Hodder, 1990. ■

The National Youth Agency and environmental education

David Stead reviews far-reaching changes in the voluntary youth sector which may affect the course of environmental education in the youth service.

David Stead

Deputy Director, National Council for Voluntary Youth Services (NCVYS)

Unheralded and without consultation, in April of this year, the then Secretary of State for Education announced the establishment of a National Youth Agency (NYA) to be in operation from 1 April 1991. It would be a 'high profile', clearly focussed, national agency charged with providing extensive support to work with and for young people.

For organisations concerned about the environment and environmental education this new development requires some close attention. There could be gains - perhaps an opportunity to give environment a higher profile in the youth world. However, there could be losses. Environmental concern has gained only a tenuous foothold in youth work. The experiential approach to environmental education has made inroads and is being valued in personal and social development terms, but the successes need consolidating. Change in national support machinery at a time when many other changes are affecting youth work represents a volatile situation. The environment interest needs to be 'in there' arguing its case, illustrating the practice and pointing the way whilst, at all times, emphasising partnership and avoiding division. Environmental concern should be a pervasive influence in youth work, and not seen as the preserve of the specialist agency and lobby.

But what is the new NYA being set up to offer and what is it replacing? Briefly, the stated range of education-related functions includes:

- The development of curricular content and methods.
- The development, endorsement, accreditation and provision of training.
- The collection, dissemination and publication of information.
- Support for managers of youth service organisations and operations, particularly in the voluntary sector.
- Response to international interests and programmes.
- Direct support for Government initiatives and programmes.

At present the DES funding of such functions goes to the National Youth Bureau, the Council for Education and Training in Youth and Community Work, the National Council for Voluntary Youth Services and the National Association for Young Peoples' Counselling and Advisory Services. The first two of these agencies disappear into the NYA. NCVYS loses its DES funding and has decided to seek the best deal for the voluntary sector from the new agency whilst retaining the option of a continued existence based on its membership subscriptions. NAYPCAS has decided to remain independent and seek DES funding although much of its current work would appear to be within the NYA's brief. A fifth agency, the British Youth Council, the representative voice of young people, was also referred to when the NYA was announced, but it has chosen to remain independent and has recently secured DES funding.

These agencies all have a track record on the environment and it must be hoped that as each fights for the inclusion of its work programme in that of the NYA, environmental education support will not be lost.

NCVYS, whose highly regarded style and delivery of support work and extensive membership are most at risk by the NYA development, has held a particularly notable history of helping to make meaningful links betwen the environment and young people. Its short *Briefing* publication on this topic is still a seminal read for youth service managers and workers. NCVYS has linked closely with CEE in trying to take the environment message into the youth service in a practical way.

The NYA cannot be considered in isolation from a number of other developments affecting youth work. First and foremost, has been the DES led effort to establish a core curriculum for the youth service. There are fears of a narrow nationally imposed curriculum, in a similar vein to that imposed on schools, which in turn would be used as funding criteria. These fears have been refuted by the Government and at a recent national conference, Alan Howarth, the relevant DES Minister, underlined the concept of a core rather than any nationally prescribed strait jacket.

The NYA will be playing the major role in supporting curriculum development, its work guided by these core curriculum deliberations. It is essential that the spirit and outcomes of the extensive consultation process that has gone on regarding the curriculum finds open and true expression in the NYA's work.

Environment has had an out/in, out/in existence in the core curriculum debate - which underlines the need to monitor developments closely.

Another arena to consider is that of local authorities. Quite a number of authorities are reviewing the place and function of the youth service. Nationally led developments like the core curriculum and national voluntary youth organisation grants are having a significant influence which in turn, bearing in mind the NYA's functions, will place it in an influential position. Furthermore the DES has commissioned consultants to look at the local management of the youth service and their far-reaching report is due out shortly and will cause more soul searching by the service.

So we have a confused and

confusing period of change - major developments with many connections, and some not appreciated as much as they should be. The NYA is central to all this and is being put in the position where it could be a driving force for much good. For this to happen, a real partnership between government and the field must exist which is not narrowly defined and has a major influence. Environment is hanging in there by its fingertips and must, through coordination from specialist and non specialist agencies, be part of this influence. ■

International

Recent developments in environmental education in the Netherlands

Environmental education is becoming increasingly well-established in the Netherlands.

Chris Maas Geesteranus
Secretary of the Commission on Environmental Education

After the famous Nature Conservation Year in 1970 and the Tbilisi conference in 1977, environmental education in the Netherlands was developed along lines that now pay off in terms of political attention. And it can be said that the publication of the World Conservation Strategy opened many people's eyes after 1980. It made clear to the educational community that the environment - in its broadest sense - should be dealt with in the light of the lifestyle and culture our society has chosen to adopt. Consequently, there has been a broadening of the subject matter of environmental education, an increase in the diversity of interested target-groups, and strengthening of organisational support structures from local to national scales.

However, environmental education has not yet been accepted by every politician or even every environmentalist here as an indispensable tool or strategy that is needed to manage our environment wisely. There is a tendency still to solve environmental problems with technical, economic and legal means. But the position of EE is improving. Increasingly, Parliament and other similar institutions on a lower administrative level (like the provincial and local level) discuss the need for environmental education. Motions have been introduced, and policy documents have been written.

A plan for environmental education

After so many years of promising a government policy plan on environmental education, in 1988 the plan was finally published. While some ministries like Agriculture, Nature Mangement and Fisheries; and Housing, Planning and the Environment had been active in the field for a long time, other ministries had been involved to a lesser extent. But now their policy plans could be discussed at length. The plan takes responsibility for two kinds of activities:
- advance and maintain a system of connected activities on the national level, directed towards the support of (organisations in) environmental education;
- develop activities, directed towards policy development in environmental education.

However vague these statements may be, they have proved their importance as a basis for policy development. In ordinary language they mean that government will subsidise activities of non-governmental organisations and that it will support and stimulate developments with an innovative character, all within the field of environmental education. The paper concludes with a number of specific items, divided into three main policy strategies:
- a general ecological basis forgeneral target-groups
- a further, specific basis for selected target-groups
- support for environmental education organisations.

One may criticize the still incomplete policy intentions. (For example the paper does not speak of the need for an infrastructure of environmental education facilities 'around the streetcorner' in order to enable *everyone* to learn about the environment and it does not say that *every* schoolchild should leave secondary school with a minimum knowledge and skill basis in relation to the environment). But the fact remains that now both national, provincial (12 provinces) and many local governments (hundreds out of 750) are now working on this new field. And that is the yield of many years of 'pulling and pushing'.

Support structures

In Dutch we always speak of the 'field of environmental education', meaning the diversity of organisations and institutions on all possible levels which are involved in this matter. They are countless in number, in approach, in goals and in target-groups they reach. What is so special about that? In many of our Western European countries we see the same pattern: lots of unstructured local activities and sometimes a national government that shows some interest. But in the Netherlands, we are lucky to have co-ordination and co-operation structures on all levels. I do not claim that everything works out fine - by no means - but the basis for an efficient and effective operation is there.

As an example, a great many environmental organisations have joined the

National Advisory Centre for Environmental Education (like CEE and SEEC) which was set up with a view to ensuring better harmonisation of activities on the national and regional level. It has an important role in furthering co-ordination, information and documentation, counselling, training of environmental education workers, promotion of teaching materials and research in this specific field. On the provincial level there exists a network of consultants (except one province) who are all collaborators of the same national organisation but - and this is the secret of their success - who work for everyone (and every organisation) in their province in need of help with respect to any environmental education programme. Volunteer groups, visitor centres, museums, zoos and botanical gardens, school teachers and community workers will all be helped by these consultants.

On the local level, we find a great variety of volunteer groups, professional centres and institutions which take care of the local public, of individual schools, of local communities, of out-of-school-youth, of farmers and of industrial managers. All in all, there is no reason to be dissatisfied with the organisational development of environmental education.

Some recent developments

But what is actually happening? In some cases, there are interesting results being obtained. The most clear development can be seen in the formal school system. The minister of Education and Science is to decide, within a few months, about the curricular goals of all subjects in primary and (a part of) secondary school. It is clear that environmental education, now definitely seen as part of the subjects and not as a separate subject, will be included in those goals. As a whole, primary school is still - in the present proposals - underdeveloped in this respect whereas subjects in secondary school seem to pay a lot of attention to environmental aspects. But, symptomatic of the thinking in our society, one of the most vital subjects - economics - nearly excludes or at best continues to consider 'nature' as an exploitable production factor.

Apart from this interest in environmental education of the minister, the Institute for Curriculum Development and some other non-governmental institutions have now produced a development plan for environmental education in all primary and secondary schools. It is expected that the actual implementation of period will last some 10 years. Political approval by Parliament has been given recently but, it must be said, government is not yet very compliant in accepting the financial consequences.

The second example relates to the fact that environmental education organisations have quite suddenly discovered that many target-groups, apart from the ones they were used to servicing, are interested. It is now generally experienced that sectors of society like agriculture, transportation and industry such as energy production and distribution, refineries, and some others, are eager to be approached with environmental messages. This is to be welcomed because they do have an enormous impact on the environment. Why not include them in the educational work?

This 'expansion operation' is now underway and the market seems endlessly big. But the environmental education field should not, in my view, try to educate these specialised groups directly. We do not have the specific knowledge or skills and they do have their own educational circuits (trade unions, women's organisations, inservice training etc). Environmental education here should try to make clear the fundamentals of the sector's involvement with the environment and should go as far as to suggest how in an educational way these can be incorporated into the existing programmes. The rest should be left to the groups themselves. They are, finally, themselves responsible for working towards a sustainable society.

The Commission on Environmental Education produces advice on the development of environmental education policy for the minister of Agriculture, Nature Management and Fisheries. ■

Our Common Future and the case of the missing chapter

Tensions exist within the concept of education for sustainable development suggests John Fien, reporting on an international conference held in Australia.

John Fien

President, Australian Association for Environmental Education

Three hundred delegates attended Australia's first international environmental education conference in September 1990 on the theme of 'Our Common Future: Pathways for Environmental Education'. Most, of course, came from Australia but others came from Bangladesh, Canada, England, Finland, India, Kenya, Malaysia, Mauitius, New Zealand, Pakistan, Scotland, Thailand, the USA and Wales.

Mostly, we all knew the sole two references to environmental education in *Our Common Future* (OCF) - on pages xiv and 113 - and were aware that the World Commission on Environment and Development believed that 'the worlds' teachers .... have a crucial role to play' in translating the message of sustainable development 'into a language that can reach the minds and hearts of people young and old'. And we appreciated the Commission's challenge for environmental education to play its role in helping bring about 'the extensive social changes needed to correct the course of development' by fostering 'a sense of responsibility for the state of the environment and teach(ing) students how to monitor, protect, and improve it' through 'the involvement of students in the movement for a better environment'.

How environmental education could meet this challenge was not explored in *Our Common Future* and, hence, the goal of the conference was to produce 'the missing chapter'. How can industry, the conservationists and educators work together? What does it mean to educate for sustainable development? Who should be involved? What strategies could be used? What goals should be

short, medium and long term priorities? These were the practical questions the conference organizers asked delegates to address in order to help produce 'the missing chapter'.

However, some delegates came to the conference to ask *critical* rather than practical questions. For example, they wanted to know if OCF had got it all wrong, especially in its focus on continued economic growth and population control? They also wanted to explore whether these tenets of OCF were at all compatible with the counter-hegemonic or oppositional orientation of environmental education, at least as it has been conceived in the rhetoric of the Belgrade, Tbilisi and Moscow international UNEP-Unesco conferences.

One wit has said that I should have called this report 'Our Common Future and the case of the missing missing Chapter' because the debate that resulted between practical and critical orientations meant that the week of the conference was a time of deep reflection - rather than active writing - for many delegates. Maybe it was a little too ambitious to think we could write, let alone agree, on a succinct four to five thousand word chapter in one week - with 300 people participating!

However the conference did go a long way towards developing the foundation for the chapter. The conference structure of 'pathways' and 'pavers' helped a lot with this. The 'pavers' were the 'people-sized' conference experiences that helped make up the pathways, and these included workshops, seminars, poster sessions, graphic displays and field trips during which delegates explored and shared their experiences in educating for sustainability.

The directions for the 'pathways' for environmental education were explored in the conference themes by several international keynote presenters. Here is a selection of the key messages for environmental educators from these speakers - and a flavour of the ideas that must be synthesised for the missing chapter to be written.

1 Sustainable Futures - Global Dimensions

Warren Lidner, Centre for Our Common Future, Switzerland. 'The challenge before us ... is twofold: to change the quality of our growth, ensuring that it rests upon a solid foundation of sustainable utilization of natural and human assets and, secondly, to ensure that that growth is equitably shared by us all - to ensure that it is not destined solely for the developed world.

The commitment of education systems to this process of change is perhaps the most fundamental condition of all for assuring that the concept of sustainable development takes root and subsequently, as it must, permeates the thinking of the societies of the future. Teachers and the institutions they serve are the builders, if not the architects, of the social conciousness of the next and future generations. Their personal influence on the thinking of young people is profound, and with the rest of society they share the imperative obligation to build in young minds an enlightened comprehension of the realities their future society will face. Because those realities will most certainly be very different from our own, it is essential that teaching today draws on the emerging trends and dynamics which are inevitably shaping our immediate and long-term future.'

2 Pathways and Pavers

Michael Atchia, UNEP, Nairobi. 'Environmental education is showing signs of becoming distinctly more scientific and technical than before with the strongest possible accent on direct application. Its main characteristics can at the onset be boldly defined through two intimately linked goals:
- Education towards protection and enhancement of the environment;
- Education as an instrument of development for improving the quality of life of human communities.

Hence environmental education for the 1990's must become Sustainable Development Education or 'SDE'. The four major components of SDE as advocated here .. are: the teaching and learning of the theory and practice of...
a Environmental *monitoring*,
b Environmental *protection*,
c Environmental resources *development* and *management*,
d Environmental *enhancement*.

Referring to the Brundtland definition of sustainability we educators have one remarkable advantage over everyone else, politicians, scientists, technologists, planners included - the future generations, at least those of the immediate future, are'in our hands'. Consider for example an imaginary girl of 6 years of age whom we shall call Victoria who in the year 2040 at the age of 56 will become the Prime Minister (or President) of Australia. How grateful would those of the next century be if we took all six year old Australians of today by the hand and taught them these elements of positive environmental action based on a respect for nature and a devotion to human well-being. And what is true for the future President of Australia is true for all other citizens of this and all other countries.'

John Huckle, UK 'The contradictions surrounding sustainable development would suggest that *education for the environment* should be a shared speculation with pupils on those forms of technology and social organisation which can enable people to live in harmony with one another and with the natural world. It should be a form of social education cast in ... the emancipatory mould. This seeks to empower pupils so that they can democratically transform society. It does this by encouraging them to reflect on their experience in the light of critical theory and to act on the insights gained. It is a form of praxis which by allowing pupils and teachers to reflectively deconstruct and reconstruct their social world, develops the critical and active citizens who are capable of bringing about the transition to sustainable development. Shor, Freire & Shor, and Giroux all provide extended accounts of emancipatory or socially critical pedagogy which has the following characteristics:
- learning is active and experiential;
- classroom dialogue introduces elements of critical theory and encourages pupils to think critically;
- pupils begin to see themselves, their histories and futures, in new ways. They develop a sense of their own power to shape their lives;
- values education develops comprehension of the sources of beliefs and values, how they are transmitted, and the interests they support;
- pupils reflect on the structural and ideological forces that influence and restrict their lives and on democratic alternatives;
- pupils are taught how to act democratically with others to build a new social order.'

3 Industry, Economics, Ecology and Education

Herbert Thier, University of California 'The approach, termed *issue oriented science*, is to teach the science, content, processes, and problem solving skills necessary for individuals to make informed, personal, evidence-based decisions... The implementation of issue-oriented science can change teaching practices and have lasting impact on student science learning and performance.

Issue-oriented science is not an add-on that explores societal concerns on Friday, nor does it aim to foster student activism for a particular environmental cause. It has as its goal the develop-

ment of an understanding of the science and the problem solving processes related to social issues without taking an advocacy position. These issues might be quite personal to students, such as whether to buy organic fruit in the supermarket, or based in the community, such as deciding on where to site a new landfill, or even global, such as deciding on policies regarding the use of freon.

Students in issue-oriented classrooms learn to understand scientific evidence and its limitations, to assess risks and benefits, to ask questions, and to make evidence-based rather than emotional decisions. Teachers in issue-oriented classrooms create situations where understanding can grow, where issues can be explored and where students can interact...

Although it does not belong in the science program, students should also learn about the importance of advocacy of a point of view and how to effectively decide to take a stand on an issue as a member of our democratic society.'

The contrasts between the practical and critical orientations of the keynote addresses were quite marked, as you have just read. The ideas from these speakers were discussed and refined in panel discussions and a series of daily reaction groups.

The aim of the last day of the conference was to bring everything together - not just as public ideas, but in our individual plans and resolves for environmental education also - for us to make personal as well as international pathways of our individual pavers.

However, to be honest, I don't think I acheived this aim, although many other delegates may have. I am yet to build my pathway for environmental education because much of the contestation between the practical and critical approachs to environmental education aired at the conference is still unresolved, at least for me. Maybe, I need that elusive missing chapter...

Fortunately, the conference proceedings are now in production and will provide a valuable compilation from which a chapter on educating for sustainable development can be written - too late to go into *Our Common Future*, but maybe a contribution towards the environmental education section of the report of the 1992 UN conference on Environment and Development to be held in Brazil in 1992.

Copies of the conference proceedings are available. Please request order forms from AAEE Inc., c/o Mr Brian Foreman, Arbury Park Outdoor School, Arbury Park Road, Bridgewater, Australia, 5155 (Facsimile: 61-8-3393313). ■

Caretakers of the Environment

A report on the 4th International Caretakers of the Environment conference for secondary school teachers and students held 25-29th June 1990.

Richard Parish

Churchill School. Bristol and Co-ordinator of the '90 conference

The conference was attended by nearly 200 delegates from 37 countries from all parts of the globe, Anguilla, Brazil, Canada, Czechoslovakia, Denmark, Eire, Ethiopia, England, France, Greece, Guatamala, Hungary, India, Indonesia, Kenya, Netherlands, Nigeria, Panama, Peru, Phillipines, Poland, Portugal, Scotland, Spain, Tanzania, Turkey, USSR, United States of America, Vietnam, West Germany, Yugoslavia, and Zambia. Each delegation consisted of a minimum of one student aged 16-18 and one teacher.

To ensure that the conference was open to all potential delegates, sufficient money was raised to not only keep the cost down to £35, but ensure that up to 100% grants towards travel and other costs for delegates from economically less well-off nations could be made.

The theme chosen for the conference was 'Environment: Conflict or Cooperation'. Efforts were made to ensure that the delegates could experience the techniques of environmental education as practised in this country and a team of 20 Avon teachers from a variety of different subject areas helped develop the programme.

The conference involved a variety of different activities and lectures:

- active study of environmental issues in south-west England such as coastal quality and nuclear power, acid rain and food manufacturing and processing, government agricultural policies and urban traffic problems.
- visits to sites of environmental interest such as the Wetland and Wildfowl Trust Centre at Slimbridge, Cheddar Gorge and the Somerset Levels.

- lectures by David Heathcoat-Amory, Under Secretary of State for the Environment and Alan Howarth, Schools Minister at the Department of Education and Science; and leading environmentalists in the UK: Jonathon Porritt, Chris Baines, David Shepherd and Pete Wilkinson (formerly with Greenpeace).
- British Gas launched their new environmental education slide pack during the conference and the Wildfowl and Wetlands Trust at Slimbridge asked delegates to form a pilot group to create an International Wetlands Watch Educational campaign.
- a variety of social events ranging from a fish and chip supper to a banquet with cabaret by the English Speaking Theatre; from Morris Men and a folk group to discos. The organisers considered the social events to be of great importance since that is where the relationships which will help establish international links developed.

A major success of the conference was the contribution made by the delegates themselves. The exhibition of environmental work carried out in their own countries by school children was amongst the most vibrant and positive ever seen in this country. Cultural and language barriers were broken down as the students and their teachers discussed ways of improving environmental education, international links and generally how to create a better world to live in.

Initial reports back from delegates seem to be very positive both in their enjoyment and experience of the conference and regarding activities stimulated by the conference. Indonesia, Vietnam, India, Zambia,

Kenya, Hungary, Eire and Scotland have already reported back regarding projects which will take place to consolidate the contacts made at the conference.

Caretakers of the Environment is a non-profit making, independent organisation which organises these annual conferences, publishes a journal and sets up international links between schools. The conference in the UK was sponsored by nearly 100 organisations including local and national government, UNEP and many companies, organisations and individuals who gave time, goods and money.

The 5th Caretakers of the Environment Conference will be held between 26th August and 1st September 1991 in Cusco, Peru. Further details can be obtained from Richard Parish, Caretakers of the Environment International, 3 High Street, Banwell, Avon, BS24 6AA. ■

'Touch '90: Breaking through barriers' - an East-West initiative on environmental education

Geoff Cooper

Low Bank Ground OEC (Metropolitan Wigan). Co-organiser of Touch '90

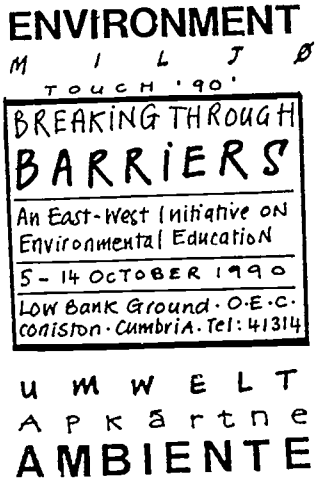
This conference could not have been more timely. Over the past year, the political divide between Eastern and Western Europe has crumbled. Dramatic changes in Eastern Europe have given a tremendous opportunity in some countries for new ideas and approaches to be implemented. But 'barriers' still remain. The conference focussed on East-West perceptions and understanding and considered how education throughout Europe might be directed towards sustainable environmental management.

The Spirit of Sec The conference was held over nine days in October at Low Bank Ground, Metropolitan Wigan's outdoor centre at Coniston in the Lake District and was a follow-up to the 'Touch '89' conference held in Sec, Czechoslavakia. It was jointly organised by the Centre for Global Education, Metropolitan Wigan and WWF UK who were keen to maintain the style and atmosphere of the original gathering in Sec. The conference was deliberately kept small, with an equal number of male and female delegates who were each encouraged to present a talk or workshop. The aim was to create a relaxed but stimulating environment where participants were given the confidence to share ideas quickly. The spirit of participation and conviviality engendered at Sec was a vital ingredient in encouraging the personal and social awareness which underpins all environmental education.

Delegates from over 20 countries including Poland, Czechoslavakia, Romania, Hungary, Latvia and USSR attended the conference. They were drawn from both informal education (the media, pressure groups, conservation organisations) and the formal education sector (schools, colleges and universities). There were educationists, teacher-trainers, scientists, journalists, sociologists, artists and community and youth action workers.

Holistic approach It soon became clear that within the conference there were different perceptions of environmental education. In many of the former East-European countries a scientific approach prevails. 'Ecological education' is a term commonly used to encompass both natural and cultural aspects of the environment. Through workshops in art, drama and global education the conference organisers promoted an holistic approach to the environment.

Many delegates felt that a personal response to the environment was fundamental in gaining awareness and commitment. The emotional and aesthetic areas of education were discouraged under state socialist regimes and it is likely that the new democracies of Eastern Europe will experience a re-awakening of the arts. These could make an important contribution to environmental education.



A new environmental ethic A strong message from the conference was that neither Western capitalism nor state socialism have provided a suitable framework for sustainability. A third way, incorporating a new environmental ethic is needed. The old East European countries have as much to offer in educating for a new society as the West. Their advantages lie in the strength of their community and spiritual life, and the fact that as yet, their societies are less materialistic and less wasteful.

Education for action The conference discussed the role of education in changing society. Many delegates questioned whether there is time for the process of formal education. We need to educate decision-makers such as industrialists, trade-unionists, community leaders and politicians. It is important that we continue to develop models of environmental education for schools but at the same time we need to campaign to change adult behaviour. Greater co-operation is needed between educationists and environmental and community action groups. The importance of understanding and using the media for effective communication was stressed throughout the conference.

Childrens' Hearing One successful model of environmental education and action was presented by Kristin Eskeland, of the Norwegian Campaign for Environment and Development. It was designed to help children develop attitudes to the environment and have an opportunity to express their views to leading politicians. From a simple invitation the response was tremendous; thousands of home-made cards containing pictures, poems, questions and ideas were received from schoolchildren. From this material, a 'Childrens' Appeal to World Leaders' was drawn up. A childrens' Public Hearing was held at the major conference on Environment and Development in Bergen, Norway in May 1990. Norwegian leaders were challenged by a selected 10 children from various parts of Norway to a debate about the state of the world. It was a great success; the children presented their arguments clearly and there was wide

media coverage. There was a feeling that young people can make a valuable contribution to the political process.

As a result of this presentation, plans are already in progress in Hungary and Britain to encourage politicians to take greater notice of the views of young people. It is hoped that the Bergen model will also be used as the basis for a Global Children's Hearing at the UN Conference on Environment and Development in Brazil in 1992.

Beyond Touch '90 One delegate from Eastern Europe remarked, 'I am not accustomed to show my emotions, to laugh so much and to cry openly. I lost my shield of self-defence during the conference and my confidence grew. In our society, everyone is defensive; we need to use methods like these to rebuild confidence and self-esteem. Without this how can you expect people to love and fight for nature?'

The conference generated very positive feelings. The enthusiasm and commitment of delegates has already led to other European and regional initiatives, for example:

a Plans are being made for international summer camps involving young people from Estonia, Czechoslovakia and Hungary.

b A book of ideas and good practice arising out of the Touch conferences is due to be published in late spring '91.

c Metropolitan Wigan is exploring the possibility of links with a similar sized authority in Czechoslavakia or Hungary with a view to running workshops in arts and environmental education and exchanging ideas and staff.

d The further growth of this European environmental education network is being considered.

And finally, a Touch '91 conference is being planned to keep alive the spirit of friendship and cooperation that was initiated at Sec. ■

Global education

1990 has been an important year for global education, not least because the World Conference on Education for All, jointly organised by UNICEF, UNDP, Unesco and the World Bank and held at Jomtien, Thailand, from 5-9 March, endorsed a reconceptualisation of basic learning needs of potentially far-reaching significance.

Dr David Selby

Director, Centre for Global Education, University of York

A **narrow focus** conception of basic learning needs (as encompassing literacy, numeracy, and a limited range of coping and survival skills) was superseded by a 'new vision'; a bolder, **broad focus** conception embracing the knowledge, skills, attitudes and values necessary for the empowerment of the individual within a complex, interdependent and fast changing world. That process of empowerment, the World Declaration on Education for All (the conference final document) made clear, should be directed at enabling individuals to, *inter alia*, 'further the cause of social justice, achieve environmental protection, be tolerant towards social, political and religious systems which differ from their own, ensuring that commonly accepted humanistic values and human rights are upheld, and work for international peace and solidarity in an interdependent world' (Article 1.2). Global education - and environmental education - were thus identified as crucial aspects of basic learning in a document representing 'a worldwide consensus on an expanded vision of basic education'[1].

The Jomtien *Declaration* will give further encouragement to those who have been calling for a North-South dialogue around global education. The first stirrings of such a dialogue have been evident over the last 18 months, initiated principally by UNICEF, and it is likely that, following the recent appointment of a Senior Education Officer for Development Education to the UNICEF Secretariat in New York[2], one or more North-South encounters on global education will soon take place.

1990 has also witnessed the beginnings of an East-West dialogue around global education. Following the 'velvet revolutions' in Eastern Europe, the need to consolidate the new democracies through programmes of democratic and human rights education has been widely acknowledged. At the same time, the need for environmental education programmes as component parts of a wider environmental protection/recovery strategy has been accepted. global education, bringing together human rights, environmental, development and peace issues, has thus proved an attractive proposition for a number of Eastern European educators. The centre for Global Education at the University of York is now in active discourse with environmental and human rights educators in Czechoslovakia, Latvia and Poland. Joint projects are likely to follow.

References

1 *World Declaration on Education for All/Framework for Action to Meet Basic Learning Needs*, WCEPA Inter-Agency Commission, New York, April 1990, Preface.

2 Nora Goodwin, Development Education Unit, UNICEF House, Three United Nations Plaza, New York 10017, USA. ■

Updates and News

Briefing day on the White Paper on the Environment and CG7 'Environmental Education'

On 26 October 1990, CEE held a Briefing Meeting on the Government's White Paper on the Environment and NCC's Curriculum Guidance 7 *Environmental Education*. The meeting was addressed by David Heathcote-Amery, Under Secretary of State for the Environment who commended CEE's submission to the White Paper *Environmental Education and Environmental Policy - a necessary alliance* as 'timely and thoughtful...I can assure you that it has been both well read and influential'.

He went on to point out that 'the White Paper's contribution to environmental education is not limited to those parts of chapter 17 clearly headed 'education'. The whole document could be regarded as educational since it provides people with significant information about environmental issues and choices'.

He emphasised that the White Paper was not intended to be the last word on the environment, but a springboard for future action. Taking up this point, the second speaker, Stephen Sterling who had worked on the White Paper for CEE, welcomed the document as a major endorsement of environmental education. However the White Paper did not yet amount to a comprehensive and coherent policy for environmental education. It was up to the 'environmental education movement' to make the most of the unprecedented opportunity that publication of the White Paper represented.

In the afternoon, Tony Thomas spoke on CG7 *Environmental Education*, putting it in the context of other NCC documents, and drawing attention to the questions and issues that CG7 raised.

CEE is now considering future strategic action in the light of these key documents. Briefing papers on both documents are available from CEE (price 50p each plus SAE). ■

Global education

Within the last fifteen months, the Centre for Global Education in York has been working on four new curriculum development projects.

Its WWF-funded three-year Global Perspectives in the National Curriculum project began in September 1989. Working in conjunction with LEA-based cross-phase teacher groups representing all the core and other foundation subjects (plus, additionally, and RE Group and two primary specific groups), Centre staff are endeavouring to produce work programmes across key stages 1-4 that meet National Curriculum requirements but are imbued with a global perspective. The outcomes are expected to be published in 1993. A two-year Theatre in Development and Global Education project (September 1989-August 1991) funded by CAFOD, Christian Aid and Oxfam, involves the production of a handbook for upper primary and secondary teachers on using drama and role play techniques to explore global issues. Just completed is a one-year NCC-funded Global Perspectives on Economic Awareness project, the outcome of which is a file of some thirty primary and secondary activities exploring the environmental, ethical and values implications of economic practices and policies and counterbalancing mainstream perspectives with other, including green, perspectives.

The Centre's most recent project - still in its preliminary phase - is the North East Environmental Education Initiative (NEEDI). Funded principally by IBM, the aim of the project in its first phase

Dr David Selby
Director, Centre for Global Education

(fifteen months from January 1991) is to develop and field test teaching/learning materials designed to explore the interrelationship between the local (North-Eastern) and global environment. A cross-curricular teaching resource and a computer software package will be developed for both primary and secondary levels. Throughout the first phase, CGE staff will work in conjunction with a core group of twenty primary and secondary teachers from Durham and South Tyneside LEAs. The teachers will contribute to the design of the teaching resources and software packs and will be responsible for undertaking field tests. By March 1992 the materials will be ready for commercial publication. In the second phase (April 1992 to at least March 1993), Centre staff and the core group of teachers will be involved in disseminating the materials through staff development events in the North East. Following a September 1992 launch of the published materials at a national conference, Centre staff will also conduct workshops for agencies in the UK and abroad wishing to replicate the project model in their own region. An in-service education pack giving guidance on school-based staff development will also be prepared, field tested and published.

(See also David Selby's report under the 'International' section of this issue.) ■

Curriculum audit, monitoring and profiling environmental education in the National Curriculum

CEE and WWF-UK are initiating a two-year research and development project related to curriculum audit, monitoring and profiling experiences and attainment in environmental education.

The project arose out of concern that unless monitoring and profiling models are developed, the full implementation of environmental education could remain little more than a statement of intention in the National Curriculum. The research and development phase will be followed by dissemination and training using materials developed by the project. These may include computer software.

The model adopted or developed will apply to the entire cross-curricular education of pupils, and will take account of progression and coherence. More details from CEE. ■

The CEE/CEGB In-service Teacher Training Project

John Baines
Project Development Consultant

After two years of development under Dr Chris Gayford as Project Director and trials within several local education authority schools, the first phase of the project is coming to a conclusion with the publication of three modules. Each module will be published as a 70-page booklet by Longman and will cost around £20.00. The titles of the modules are:
Introducing Environmental Education (November 1990)
Science and Environmental Education (Spring 1991)
English and Environmental Education (Summer 1991)

The activities are designed primarily for use at in-school, in-service training days. They vary in length from half an hour to two hours. They are straightforward and require only a little preparation by one of the teachers who should act as tutor for the session. Each module has an introductory section describing how to handle the training sessions and some of the issues that might arise. This is followed by up to 9 separate activities. Each one is laid out to a standard format and contains instructions that are easy to understand and follow. Some of the pages are designed to be used by the participants, and these are reprinted on separate sheets and placed in a folder so that they can be photocopied easily.

Everyone, including the successor companies to the CEGB are keen for further modules to be developed. Geography is considered to have the highest priority and should be started as soon as the National Curriculum document for Geography is published. Other titles planned include Environmental Education for Parents and Governors, Art and Design and Environmental Education, Mathematics and Environmental Education.

The time seems ideal for the publication of such materials. The Government White Paper on the Environment published in October 1990 identifies the training of teachers in environmental education as a high priority. ■

Ken Brooksbank

Mr Ken Brooksbank DSC, MA, MEd, Chairman of the Council for Environmental Education from 1978-85. Died Februrary 1990. John Baines, former Director of CEE remembers him.

When Ken Brooksbank, as Chairman of CEE, Keith Wheeler as Chairman of the Executive and myself as Director met for the first time in 1978, we felt daunted by the task of making the organisation an effective focus for the environmental education movement.

There were a lot of questions to be asked and answers found before we could prepare the plans that would enable CEE to fulfill its original purpose. But even harder, we had to find the money to survive beyond the two years of the grant that was made available by the Department of the Environment. They were difficult times and I often wonder if we would have succeeded without Ken and his professional know how. He knew who to approach, and how and when to approach them. He negotiated for CEE with the government, LEAs and the University of Reading. Without his contribution it is unlikely that CEE would have survived. Without CEE it is unlikely that environmental education would have made the progress it has. We have a lot to thank him for.

Ken was genuinely concerned that staff should be secure in their jobs, receive adequate salaries and not be overworked. Even after he had handed over the Chairmanship to Tom Hadley, he still maintained his interest and attended CEE annual meetings where he would seek out the staff to find out how they were. Our lives were enriched by working closely with Ken and we will not forget him nor what he did for CEE. ■

The European Resolution - recent developments

It appeared that new life was being breathed into the 1988 European Resolution on environmental education when, in September 1990, government representatives were invited by the European Commission to attend a meeting of experts in Brussels on 'Education and training on matters of the environment'.

Through the mediation of the Nature Conservancy Council, CEE combined with other national voluntary bodies from Wales (Welsh Centre for Environmental Education) and Scotland (Scottish Environmental Education Council), to organise a briefing meeting with the DES prior to the meeting.

Dr Ewan McLeish
Director, CEE

It was understood that the agenda for the Brussels meeting would cover current developments at Member State and Community level and then concentrate on four areas identified in the original Resolution:
- Information exchange;
- Better documentation for teachers and pupils;
- Incorporation of education on the environment in current Community activities;
- Co-operation with non-governmental bodies.

The briefing meeting concentrated on these areas, while attempting to broaden the educational focus of some of the original statements in the Resolution.

The Brussels meeting itself on September 20 was attended by representatives of ten member states, largely from the respective education departments, including our own DES and HMI. It is understood that the discussions were very much at a preliminary level and that the meeting was largely an exchange of information. Regrettably, there was no commitment to a specific programme following the meeting, although Member States are being required to submit reports on their activities. One concrete outcome was the possible development of a European 'directory' of higher and further education opportunities for environmental education.

At the briefing meeting with the DES prior to the Brussels meeting, it was emphasised by the organisations present that it was essential there should be significant NGO input into any subsequent developments. In the absence of any such developments for the time being, CEE will be monitoring the situation closely, and looking for further opportunities to influence and stimulate the debate on the Resolution, the wording of which held out so much hope for many in the field two years ago. ■

Learning Through Landscapes Trust

September '90 saw the national launch of a new body which will influence the way school and college grounds will be enhanced and designed for learning.

Sponsors for the first two years, BP, invited organisations concerned to Britannic House, London, where the Trust's chairman Lord Remnant, thanked the sponsors, including WWF, Countryside Commission and Hampshire County Council for their tremendous support in the formative years. Hampshire's Chief Landscape Architect, Merrick Denton-Thompson, pulled no punches in a critical appraisal of the condition of much of the existing 120 000 acres of education land on 24 000 sites representing a value of about £25 billion and an annual maintenance bill of £100 million.

Thus, some 25 000 acres are the potential asset for the Trust's work in improving

Phil Turner
Assistant County Planning Officer, Hants

quality. Schools are already taking steps to improve land which has been environmentally impoverished, sterile and exposed to climate. Such landscapes have failed to generate a sense of pride and belonging. The bleak school playground generates aimless activity which results in serious head injuries and upper limb fractures.

So far, the nation has failed to produce a performance specification for school grounds in terms of social inter-action, micro-climate, scale or even a policy for outdoor seating. Play, as the foundation for the learning process, is poorly provided for around most schools. In new schools the external works budget is often reduced to fund the buildings.

Eileen Adams, Director of the first phase of the work, has produced a major study of the current situation', pointing to the great potential for learning which school grounds can offer, demonstrating good practice in design, management and teaching related to child development. Bill Lucas, newly appointed Director of the LTL Trust inspired all at the launch with his clear grasp of the task ahead. It was a difficult time for teachers, he said: 'I know schools are under pressure, but so is the environment'. The enhancement of environments of learning was 'not an added extra, but essential to the work of schools in the National Curriculum'.

Michael Fallon, Parliamentary Under-Secretary of State for Education gave credit to the Coombes Infant School, Arborfield, Berkshire and Head Teacher Susan Humphries for pioneering the model of a school environment for all seasons.

Mr Fallon underlined the surroundings of the school as being complementary to global concerns. They linked with teaching environmental education in the National Curriculum. The Technology and Geography NCC reports had already identified school grounds in attainment targets and programmes of study.

Eleven local authorities, mainly in the south of England, had already 'signed up' to support the Trust, and Michael Fallon was pleased that those in urban and industrial areas of the north were poised to join in. Delegation of management to schools meant taking control of school life as a whole, with freedom to target resources to local needs and priorities. To emphasise the importance of school landscapes in the scheme of things he was pleased to announce that the Department of Education and Science had published the

same day the Building Bulletin (71) - *The Outdoor Classroom* which has drawn from the Learning Through Landscapes research project for much of its material.

The Learning Through Landscapes Trust has pinpointed 'concern for the best possible use of valuable and scarce resources to bring colour back into the educational landscape and to the minds of young people', said the Minister.

1. *Final Report* £28 (£18 to members) plus £2 postage and packing from Learning Through Landscapes, Third Floor, Technology House, Victoria Road, Winchester, Hants SO23 7DU. Telephone (0962) 846258, FAX, (0962) 869099. ■

Reviews

The legacy of Sir Patrick Geddes

'Patrick Geddes: social evolutionist and city planner'
Helen Meller, Routledge, 1990, ISBN 0-415-00938-3

Review article by
Keith Wheeler
Vice President CEE

I first visited the Outlook Tower in 1968 - that significant year in the history of British environmental education when CEE was established and the Society for Environmental Education, (the first of its kind for teachers), was founded.[1] It was an extraordinary experience to enter the disused building on the Royal Mile, then owned by the University of Edinburgh, and to find scattered about the dusty rooms Geddes' original publications and remnants of former Civic and Regional Survey displays. I realised, as I stood on the Tower's parapet overlooking the wonderful view of the city, that here, where Geddes created the 'world's first sociological laboratory', was a major starting point for the environmental education movement struggling in the late sixties to establish its principles and practice.[2] Indeed, it was encouraging in those contentious days to discover environmental education had a history going back to 1892 when Geddes began his educational work at the Outlook Tower.[3]

By any reckoning Geddes is one of the world's outstanding environmentalists, but unlike many of his contemporaries working in similar fields of endeavour, his ideas continue to be highly relevant to today's environmental concerns.[4] His passionate advocacy of socio-cultural evolution, based on developing a creative relationship between man and his environment, still maintains for many a charismatic attraction. Hence Dr Meller, in her welcome new book, admits that her, 'quest for Geddes has been like the Holy Grail, and I have had to go through fire and water in pursuit of him'. The result is a scholarly account of Geddes' career shedding new light on the origin and application of his ideas, his curious system of 'thinking-machines', and his methods of working. Importantly, she places Geddes' environmental philosophy in the context of 19th century environmental concepts - notably, Darwinian evolution; Ruskin's economics; Comptian positivism, and Fredrique Le Play's sociology. Of special interest is her account of Geddes' interaction with the emerging 'New Geography' then being promoted by H J Mackinder, and by A J Herbertson who had been taught by Geddes. The geographers took the 'regional idea' as an organising concept for their discipline. Characteristically, however, Geddes used the concept pragmatically to plan the city-region, and was not concerned with the academic necessity to define the region which lead eventually to a dead-end for geography. Geddes saw the weakness of the geographer's descriptive approach and urged, 'Make your geography into geotechnics!' - by which he meant the science of making the earth habitable. Surely, it this 'science' which environmental education seeks to teach?

The range, international spread, and practical outcome of Geddes' almost single-handed pioneering of town planning, innovatory museums, architectural conservation, and the social sciences; and his efforts to raise funds to get his projects implemented, his successes and failures, are detailed in Dr Meller's fascinating book. But even so, she does not succeed in dealing with the whole of Geddes! For example, she does not consider the influence of Goethe, Alexander von Humboldt, and Ernst Haeckel, the originator of ecology, on the development of Geddes' ideas.[5]

The book does contain, somewhat scattered throughout its pages, a valuable survey of Geddes' unconventional educational ideas and methods. These remain as inspirational today as when he formulated them. At the Outlook Tower he experimented with an approach quite contrary to traditional academic learning with its reliance on chalk, talk, and book study. Instead, Geddes demonstrated the vital importance of 'learning by doing' which required interdisciplinary investigation in the laboratory and by fieldwork; and he was opposed to examinations because he believed they dulled the student's curiosity. Indeed, Geddes argued, 'he was pioneering a movement towards sympathetic studies which had educational and social bearings for the future. Such an education would develop a new generation more in tune with the ideals of creating the eugenic age devoted to the nurture of people.....'.

In the last chapter, oddly entitled, 'Regional Survey in the International Context: the legacy of Geddes', Dr Meller discusses that legacy as if it only had relevance abroad, and appears unaware of Geddes' legacy to British education and to environ-

mental education in particular. The fact is Geddes was the first to discern the relationship between the quality of the environment and the quality of education. Furthermore, as explained by Dr Meller, he devised a methodology, Civic and Regional Surveying, to promote that relationship. However, she omits to point out that, as a consequence, many of Geddes followers, practicing this method, contributed much to such developments as educational fieldwork in the environmental disciplines, notably geography; the introduction of interdisciplinary environmental studies in teacher training; and the setting up of what is now the Field Studies Council through the work of G E Hutchings and others.[6] The Outlook Tower is also the prototype of the many urban studies centres active in our cities.[7] Thus in these, and many other ways, a case can be made for claiming Geddes to be the 'father of environmental education'.[8] Indeed, the first known use of the term 'environmental education' was made in 1947 by the Americans, Paul and Percival Goodman, who were familiar with Geddes' ideas.[9] Similarly, the term 'environmental geography', now used to describe a geography Attainment Target in the National Curriculum, stems from Geddesian ideas. [10]. Furthermore, the birth of the progressive school movement owes much to Geddes, and several forward-looking educationalists, like John Dewey, came under his spell. The dissemination of the Geddesian approach did much to prepare the ground for activity-based teaching in our schools. In short, an account of Geddes' legacy to education remains to be written.

Meanwhile, Dr Meller's book, with its comprehensive bibliography, is for those who want a stimulating study of Geddes the social evolutionist and planner; but for those drawn to reading about Geddes for the first time, then Paddy Kitchen's biography is recommended.[11] Moreover, the Geddes legacy can be seen at work today where, opposite the Outlook Tower, (now a Landmark Trust Tourist Centre, but also housing the Patrick Geddes Centre for Planning Studies), there is the exemplary Castlehill Urban Studies Centre practising the kind of environmental learning advocated by Geddes a hundred years ago!

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Lessons from the '80's for the 90's

'Australian Journal of Environmental Education' Vol 6, August 1990.ISSN 0814-0626. Australian Association of Environmental Education, School of Education, Deakin University, Geelong, Victoria, Australia. Subscription $A20.

Review article by

John Huckle

Head of Geography, Bedford College of Higher Education

Ian Robottom starts his editorial to this edition of AJEE by reminding us that the 1990's could be a significant decade for environmental education. The world order is in a state of flux and the environment appears to be moving up the international political agenda. A global coalition for sustainable development is emerging which could displace the currently dominant coalition seeking sustainable growth. There would appear to be much to play for including the establishment of environmental education as *a significant part of the political fabric of our culture in a way which has not been seen before.*

To celebrate ten years of promoting environmental education in Australia and its first international conference (see John Fien's in this issue), AAEE's editorial board has put together a collection of international perspectives focussed on the theme 'Environmental Education in Retrospect and Prospect: Lessons from the 80's for the 90's'. Contributors from North and South America, Western Europe and Australia describe key developments of the 80s and set challenges for the coming decade.

While the lack of voices from the South and East prevents a truly international perspective, there is much here of interest and value. Augusto Medina, who works with the World Wildlife Fund in Washington, describes programmes in the Dominican Republic, Peru, and Argentina, designed to encourage appropriate curriculum development in EE amongst local teachers. He describes the underdevelopment of these societies which constrains all elements of teachers' work and then explains how NGO's and other institutions, working outside the formal sector, have used training workshops and local support networks to empower teachers and free them from the demands of inappropriate curricula based on ideas and materials from the North. By working alongside teachers in difficult circumstances to meet local needs, he and his fellow workers have ensured that they *feel that the programme is permanent, that the trainers will be back and that they are part of a larger effort.*

In North America, the setting and principal actors are somewhat different. John Disinger and Donald Floyd describe the waning of EE in the Reagan years and its gradual re-appearance. Some states like Wisconsin and Pennsylvania sustained EE to a greater extent than others but the public agencies which promoted it were generally those concerned with environmental management and protection rather than education. They were joined by various environmental groups and business interests and it is significant that the best known, most widely used elementary and secondary school EE teaching material in the United States during the 1980s were developed *under the sponsorship of groups outside the formal education sector*, in some cases with government funding. Three such projects aimed at schools are reviewed before Disinger and Floyd turn their attention to the non-formal sector, higher

education, and a growing professional alliance to promote EE. This alliance is obviously proving successful as legislation before Congress seeks to establish an Office of Environmental Education within the Environmental Protection Agency with considerable influence and resources. While demand for and participation in EE seems likely to grow, the authors remind us that much EE in the USA remains essentially nature study, outdoor education, and conservation education. Unless it adopts perspectives which subsume economic and political realities, as do the projects they review, the link between more EE and a more healthy environment remains at best tenuous.

Over the border in Canada, Paul Hart picks up and amplifies the note of caution in Disinger and Floyd's summary. In outlining the difficulties of identifying and establishing a genuinely Canadian approach to EE, he laments the uncritical adoption of dominant North American forms of EE and RDDA (research - development - diffusion - adoption) models of curriculum change. These have been further legitimated by developments in the wake of the Brundtland Report with a range of 'tried and true' local, provincial, national, and international programmes being imposed on teachers. Hart reviews such initiatives in Alberta and Saskatchewan before drawing on Robottom's work to highlight their contradictions. While the rhetoric of EE is that of critical reflection and action to bring about social change, such programmes rob teachers and students of power and seek social control. Genuine alternatives should emerge from our growing understanding of the politics of environmentalism and education, and are likely to draw on an action research approach to curriculum development underlain by critical theory. By recognising EE as a political activity, engaging in ideology critique, and testing their own curriculum in action, teachers in Canada, like those in South America, can gradually close the theory-practice gap.

Peter Fensham's article on EE in Australia is largely concerned with recent reforms by the Victorian Curriculum and Assessment Board, and is likely to remind English readers of Ivor Goodson's study of the battle to establish Environmental Studies as an 'A' level subject. Fensham describes how Environmental Science grew out of Agricultural Science to become a popular HSC subject and how in a period of curriculum rationalisation and reform, it has only survived by changing its name to Environmental Studies and leaving the science field of study to join the geography field. Scientists were unable to accommodate the epistemological perspectives adopted by the proponents of Environmental Science and these did not find sympathy with the bureaucrats within the Board. Each of the 44 reformed studies, grouped in 17 Fields, now has a Study Guide which, like National Curriculum documents, sets work requirements and Common Assessment Tasks (CATS). By carrying out a content analysis for EE in 12 of the studies, Fensham shows that the reforms have reduced the status of EE and that it has failed to penetrate such high status studies as Economics and Mathematics. As with some National Curriculum documents, there is more potential for EE within some studies than most teachers will realize and in-service education will be crucial in advancing EE as a cross-curricular theme. The work requirements and CATS do require a considerable amount of education for the environment, but there is already pressure from some university quarters and the traditional teachers to modify these.

As we might expect, more than half of Monica Hale's article on recent developments in Britain is concerned with the National Curriculum. In her introduction she suggests that in the twenty years since European Conservation Year, there has been a massive re-education and shift in the public's perception and appreciation of their environment. She may be correct, but some of us suspect that the shift is less than massive and that the failure to advance critical understanding of our environmental predicament is part cause and effect of relatively limited progress in EE. This is revealed in the recent advice from the NCC (Curriculum Guidance 7, *Environmental Education*) which could have been written in 1970.

Hale touches on the work of NGO's such as WWF and the activities surrounding European Year of the Environment, before outlining initiatives to improve school grounds and the work of the MSC's Community Programme. She then gives a descriptive rather than interpretive account of the National Curriculum; welcoming the establishment of EE as a cross-curricular theme but giving little attention to the ideological flavour of the attainment targets in science and geography which seem likely to be its main vehicles of delivery.

Peter Posch, from Austria, describes the international OECD/CERI Project: 'Environment and School Initiatives'. This involves eleven European countries, including Britain, in developing school programmes which promote environmental awareness alongside such 'dynamic qualities' as initiative, independence, commitment and the readiness to accept responsibility. Participants are expected to gain from sharing policies, innovation strategies and research findings and it would seem a pity that this Project appears little known amongst UK environmental educators. The article describes a project which combines teaching through participatory environmental enquiry with professional development via action research. John Elliott has urged its participants to reflect about their *personal* agency in the environment and to holistically understand the value complexity of environmental problems. Such outcomes may not be quite what the OECD ordered but then again, the project may not be quite the critical and empowering experience which Medina and Hart recommend. The correspondence between educational, economic and social change is complex and Posch left this reader unsure as to whether the 'Environment and Schools Initiatives' project was serving truly emancipatory interests.

An article by Sandro Sutti on a Water Analysis Project in Italy and two reviews complete this volume of *AJEE*. Noel Gough's review of *AREE 1989* urges UK environmental educators not to conspire in the political neutralisation of critical forms of their own practice and in the light of this review, his message would seem relevant elsewhere in the world. If EE is to become a central element of the emerging international movement for sustainable development, there is an urgent need for us to engage in critical dialogue across frontiers. AJEE's editorial board are to be congratulated on assembling so much of value. ■

When the bough breaks... Our children, our environment

Lloyd Timberlake and Laura Thomas, Earthscan Publications 1990, £6.95, 1 85383 082 8

Review by
Dr W A H Scott
School of Education, University of Bath

Hush-a-bye baby
On the tree top,
When the wind blows
The cradle will rock,
When the bough breaks
The cradle will fall,
And down will come baby,
And cradle and all.

When the bough breaks... is a book about children - yours and mine to an extent, but particularly in the developing nations. It was written to accompany a TV documentary produced by Central Television in association with the *Observer* newspaper and the Television Trust for the Environment. That particular documentary, one of many which Central has commissioned on environmental issues, was itself broadcast to reflect the 1990 UN report on *Children and the Environment*.

The book covers much ground in its 262 pages featuring such diverse issues as Britain's lamentable record on the take-up of post-16 education and our endemic skill shortages, air pollution in cities, pesticides in the food-chain, the history of the polio vaccine, global warming and climatic change, the threats to the forests and the seas, and the lethal effect of so much of the developing world's water supply. The recurrent theme running through all these issues, and many more too numerous to list here, is the lot of children. The book closes with a cheerful picture of children in Niger 'facing the future boldly', and with a weary realization that governments alone cannot be relied upon to bring about necessary social, political and economic change - either nationally or internationally. There follows a call to action for us all.

The book is packed with information on a wide range of diverse subjects, and in a publication such as this, which covers so many issues, it is inevitable that topics cannot be treated in a comprehensive, well-rounded way, and that risks are run of somewhat incomplete presentations. You will find the book stimulating, but perhaps not wholly satisfying.

I need to end on some disappointments: the book would have benefitted from an index - the absence of which in such a wide-ranging text is inexplicable. The poor reader who just wants to dip in, or read about a particular issue, is badly served. A glossary of terms - especially acronyms - would also have been of use. The book would have benefitted from decent quality reproduction of its photographs. The soft-grey, diffuse, obscure images found in my copy might be wonderful on a studio wall, but are out of place in a publication such as this.

It's also a pity about the poem which begins the book and which was especially written for it. The wordplay is on the use of baby - meaning here both children and adults - and on cradle which represents both society and civilization. The problem is that the verse, beyond these simple associations is not convincing enough. This review began with one verse - with which you will be familiar. It's perhaps appropriate to end with the seventh and last:

Hush-a-bye babies
Sleeping tonight,
When the earth turns
Your cradles will rock,
When the earth stops
Your cradles will fall,
And down will come babies
And cradles and all. ■

First Steps to Sustainability - the School Curriculum and the Environment

Peter Martin, WWF/BBC Education, 1990, free with SAE from WWF

Re view by
Julian Agyeman
Environmental Education Co-ordinator London Borough of Islington

'If you are thinking a year ahead, sow seed.
If you are thinking ten years ahead, plant a tree.
If you are thinking a hundred years ahead, educate the people.'

These words by Kuan Tzu, an ancient Chinese poet, on the back cover of the document summarise its message. It is not primarily intended as a practical guide to the delivery of an environmental education, rather it is a philosophical overview of the need at global, national, local and personal levels to effect change, and includes regular swoops into whole curriculum planning. On the last page comes a real piece of wisdom which should be memorised by all those involved in such planning: 'Environmental education is more than a sum of the parts'.

A particularly useful distinction is made between education about the 'ecological or geophysical aspects of the environment', which the author correctly argues is insufficient in itself, and that about 'the ones that cause the problems ... people'. There then follows an argument for the need to understand human behaviour as regards the environment in terms of values, politics, culture, history and economics.

The importance of this distinction cannot be overemphasised, as the author notes, because without the latter, environmental education is reduced to a study of processes and phenomena. 'Active involvement' must be encouraged by comprehensive programmes which combine the human and the ecological aspects of environmental education.

Punctuating the philosophical thread of the first few pages are a series of boxes of factual information, which are perhaps superfluous in that the likely readership will already be well informed on key environmental issues. I felt that the space could have been better used developing some of the later arguments.

In some ways, this document is a philosophical 'WWF Curriculum Guidance 7'. My only criticism of an otherwise thoughtful treatment is that the notion of human equality, which is intimately related to environment quality, is tacitly ('improve the quality of the environment and of human life') rather than explicitly acknowledged. ■

Greening the Staffroom

Graham Pike and David Selby, WWF UK/BBC Education, 1990, £25.99, 0 947613 234

Review by
John Howson
Education Officer, Friends of the Earth

This pack, written by the two most prominent figures from the Global Education Centre in York, is intended for facilitators of staff development courses in environmental education at primary and secondary levels. The pack comes complete with a video - a BBC programme *Greening the Classroom* from 1989. The video makes a good starting

point for a training day, and although now perhaps a little dated it relates environmental issues to education very well.

Perhaps the best measure of the worth of such a pack is whether one would use it oneself. This pack has my endorsement, despite a few criticisms.

The first section consists of a selection of newspaper stories, advertisements and clippings on environmental education. Although interesting they did not, in my view, in any way extend the pack - rather they provided a distraction. Nor did I think that the models for environmental education that followed were useful to teachers. I can visualise the average teacher trying to work out where to actually start reading.

I read to page 40 before I found any really useful information for a school thinking of running a staff development course in environmental education. Even then, a better way of teachers becoming informed on the NCC's view of environmental education would be to read CG3 (*The Whole Curriculum*) and CG7 (*Environmental Education*).

Sections 4 (Running a staff development course) and 5 (Staff development programmes in environmental education) provided the main introduction for the course itself. These sections are well written and to the point. The green charter for the school in section 6 should provide most schools with a useful checklist.

The second part of the pack is divided into four sections each of which contains ideas for activities. These are divided between 'seed sowers', group discussion, experiential activities and feedback and evaluation. They can be put together in a number of different ways and some course outlines are given on pages 53 to 55. Many of the activities are very imaginative and some quite wacky - for example selling your mother for a redundant East European currency (in this case mother eventually represents 'mother earth'). Another activity involves auctioning such unauctionable things as 'beauty is in the eye of the beholder'. In my experience, some activities of this type, although having fun potential do not go down well with all teachers and this point should be made in the facilitators notes. However - I am sure most mums will be pleased to find out - there are many more conventional activities too.

All of the activities are set out in a very clear and readable way and all in all make up an excellent course. I think that it is a pity that the pack itself is produced on high gloss non-recycled paper - not making the same link between awareness and action as the pack hopes to engender in teachers. ■

'Why joke about the ozone layer? It's serious ...' (Dallas, aged 15)

A review of young people's green books led by Jill Edbrooke, former CEE Youth and Environment Projects Officer

Most young people I know complain that there is little information available for them to learn about environmental issues outside school. So when asked to review the apparent 'plethora of green books', I was a bit surprised. However, off I went off to the largest bookshop in Birmingham. I left with The Young Green Consumers Guide, The Blue Peter Green Book and Wildlife in the News - (not about broad environmental issues, but related at least). So much for the plethora I had been led to expect! Further searching in other bookshops revealed seven titles in all. It may have been simpler to go to CEE's library, but it did highlight that some books will only be reaching well-motivated customers.

Being in my dotage, I then took the books to a more representative customer group - a class of 14-15 year old environmental studies students. None of them had set foot in a bookshop for over six months! For simplicity we tabulated the responses (see **Table 1**).

The views are subjective, taken from a narrow age range, and so on, but I would think that they could make interesting reading for publishers wanting commercial returns or campaigning groups concerned about increased ethical awareness/ interest:

- are books really a good way of communicating environmental concerns to the less committed, aware or literate? The group felt *50 Simple Ways to Save the Planet* explained difficult words well and they got a great sense of satisfaction from learning these.
- if they are to be successful, design, layout and language are more important than the actual content. Artwork in the *Young Green Consumers Guide* annoyed many of the group as they found it 'immature and it makes jokes of serious issues'.
- marketing is crucial and overrides most other aspects.

I would imagine that sales of the *Young Green Consumers Guide* are enormous because its linked to the adult version and to a national competition that schools can enter. The two books that the group chose to keep for their library were both BBC publications with familiar TV personalities smiling from their pages.

General interest in the books relates to layout and design, not content! The group struggled to get through some of the books, but when they had, they acknowledged that their contents were useful - it is unlikely they would have got that far if the review wasn't going towards their GCSEs!

This is a very superficial review - we didn't look at some of the social messages that the books were putting across, or the inaccuracies and conflicting information that some contain. However, you do have to get a horse to water before you can even start to think about getting it to drink.

With thanks to pupils and staff from Parkview Upper School, Birmingham for their enthusiasm and time. ■

Table 1

	Readability	Attractiveness	Setting out	Interest	Useful information	Popularity
Blue Peter Green Book	55	63	59	60	62	*1st*
Saving the Planet	47	22	31	39	56	*7th*
Caring for Planet Earth	52	64	56	57	56	*3rd*
50 Simple things to Save the Planet	42	29	36	41	60	*6th*
Young Green Consumer's Guide	47	42	48	40	51	*5th*
Friends of the Earth Yearbook	55	63	57	55	57	*2nd*
Wildlife in the News	56	61	55	53	57	*4th*

(Scores out of possible 70 points - 7 groups allotted marks out of ten to each book, on each criterion)

Annual
Review
of
Environmental
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Chris Patten, former Secretary of State for the Environment, in the Annual Review of Environmental Education 1990/91.