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FEATURE ARTICLE

The introduction by European Union directive of Integrated Pollution Prevention and Control

IPPC (Integrated Pollution Prevention and Control) has come about by a European Union directive (96/61/EC) which became effective in member states in October 1999. In the UK, implementation of the directive is by means of the Pollution Prevention and Control Act (PPCA) 1999 which updates the Prescribed Processes defined in Schedule 1 of the Environmental Protection Regulations. This update has recently gone through its fourth and final consultation – a fifth consultation being expected in the first quarter of 2000. Consultation documents also contain notes for interpretation.

Estimates of the number of authorisations required by industry indicate they will approximately double to over 5,000 by 2007 when the IPPC directive must be fully implemented. These additional authorisations arise for four main reasons:

i. tightening the controls in Part A processes (which are now divided into Part A(1) and Part A(2))
ii. inclusion of industrial sectors not previously covered by IPC (Integrated Pollution Control)regulation (i.e. slaughterhouses, intensive agriculture, food/drink, tanneries)
iii. companies' energy and raw material consumption details are regulated
iv. contaminated land surveys and remediation are required when companies acquire/develop and dispose of land.

It should be noted that the PPCA has a wider scope than the EU's IPPC directive, covering about 600 'extra' installations.

Industry should eventually benefit from IPPC implementation because it is expected that:

- permit charges will be reduced due to fewer authorisation reviews
- permit application procedures are simpler resulting in manpower savings
- permit authorisation times are shorter.

Permit applications, decisions and permits themselves should be made available to the public.

BREFs

Affected businesses will follow guidelines written in BREFs (*Best available technique REFerence*

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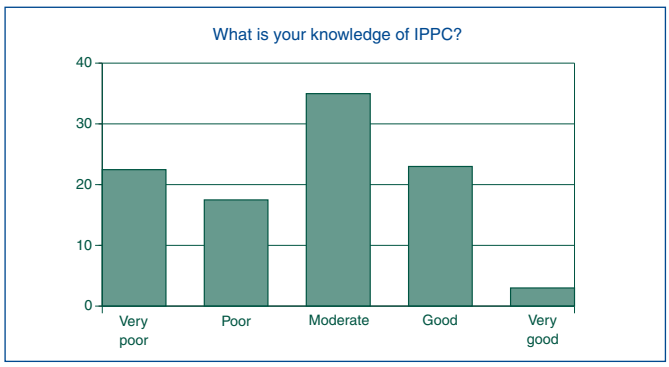
documents) which separate industries into a number of sectors – a BREF for each – although several may apply to a particular installation. These are being produced, and are at various degrees of completion by the EIPPCB – European IPPC Bureau.

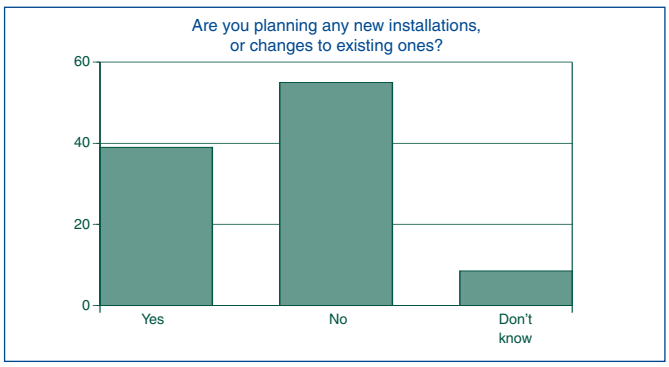
The Environment Agency (EA) has produced a transitional timetable for IPPC implementation, and is preparing IPPC guidance notes (similar to those produced for IPC) based on the BREFs. The transitional timetable is required because only new and significantly altered installations will need immediate IPPC authorisation (for which IPC guidelines will be followed unless an IPPC guidance note or BREF is available). Other industries come under IPPC as indicated by the phase-in dates given in the transitional timetable.

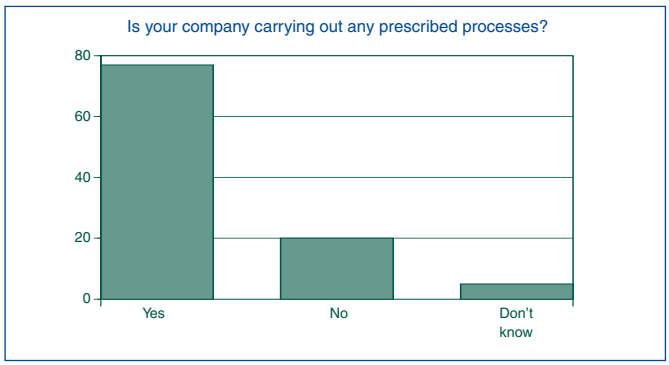
The dates for Part A(1) processes are being shifted towards the A(2) dates because the DETR has been delayed in its implementation of IPPC. It is possible

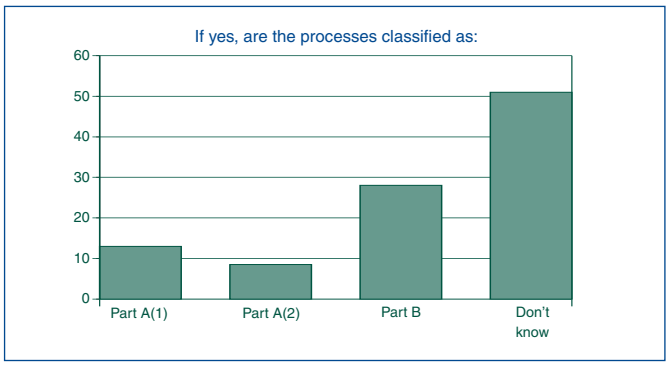
Industrial Sector	BREF workplan start dates	Phase-in date A1	Phase-in date A2
Paper/Pulp	1997	2000	2001
Primary/Secondary Steel	1997		
Textiles	1998		
Tanneries	1998		
Cement & Lime	1997		
Ferrous Metal Processing	1998	2001	2002
Non Ferrous Metal Production & Processing	1998		
Glass	1998		
Chloralkali	1998		
Smitheries and Foundries	1999	2002	2003
Large Volume Organic, Without Batch Processes	1999		
Food and Milk.	2000		
Livestock Poultry	1999	2003	2004
Asbestos	2001		
Ceramics	2001		
Polymers	2001		
Large Volume Solid Inorganic	2000		
Slaughterhouses 1 Carcasses	2000		
Surface Treatment of Metals	2001		
Landfills (begin phasing in from 2003)	2002		
Livestock Pigs	1999	2004	2005
Hazardous Waste Incineration	2000		
Municipal Waste Incineration	2002		
Waste disposal and recovery (other than landfill and incineration)	2002		
Batch Organics in Multi- Purpose Plants	1999	2005	2006
Large Volume Gas & Liquid Inorganic	1999		
Speciality Inorganics	2002	2006	2007
Organic Fine Chemicals	2002		
Coating activities etc using organic solvents	2001		
Refineries	1999		
Large Combustion Plant	2001		
Coal Liquefaction	2001	2007	2007

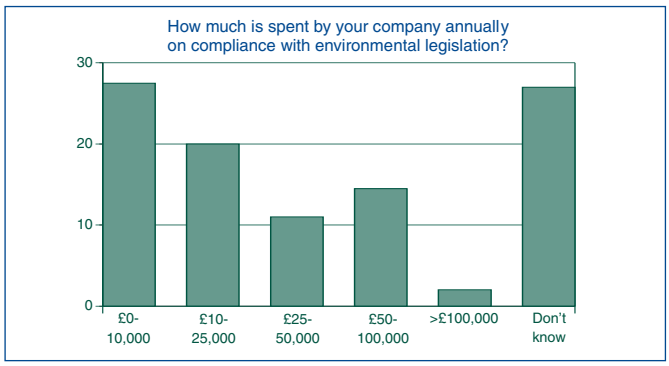
Figure 1: Questionnaire survey results (%)

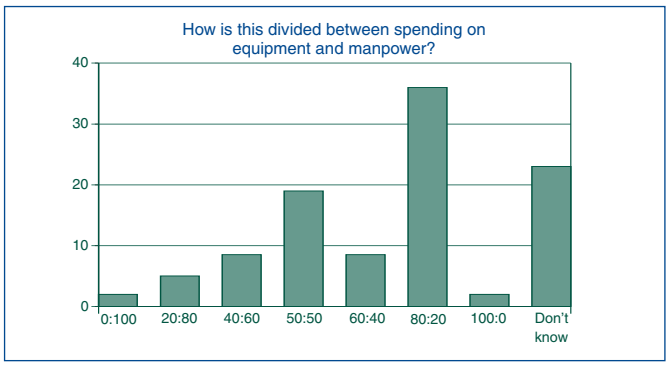


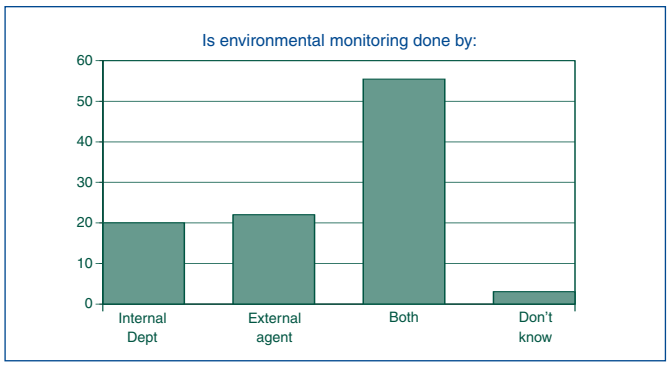


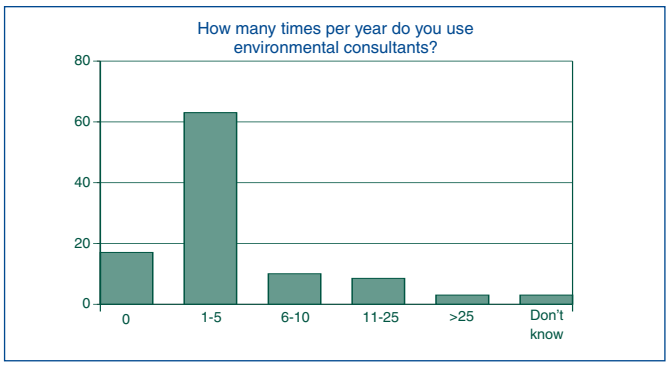


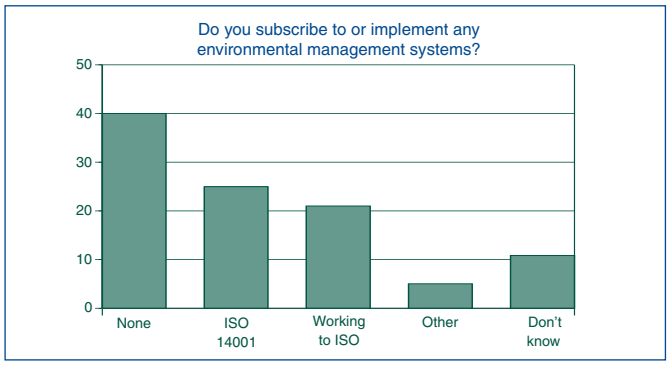












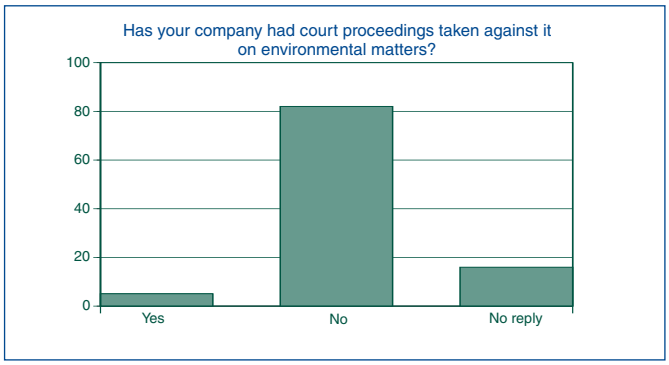
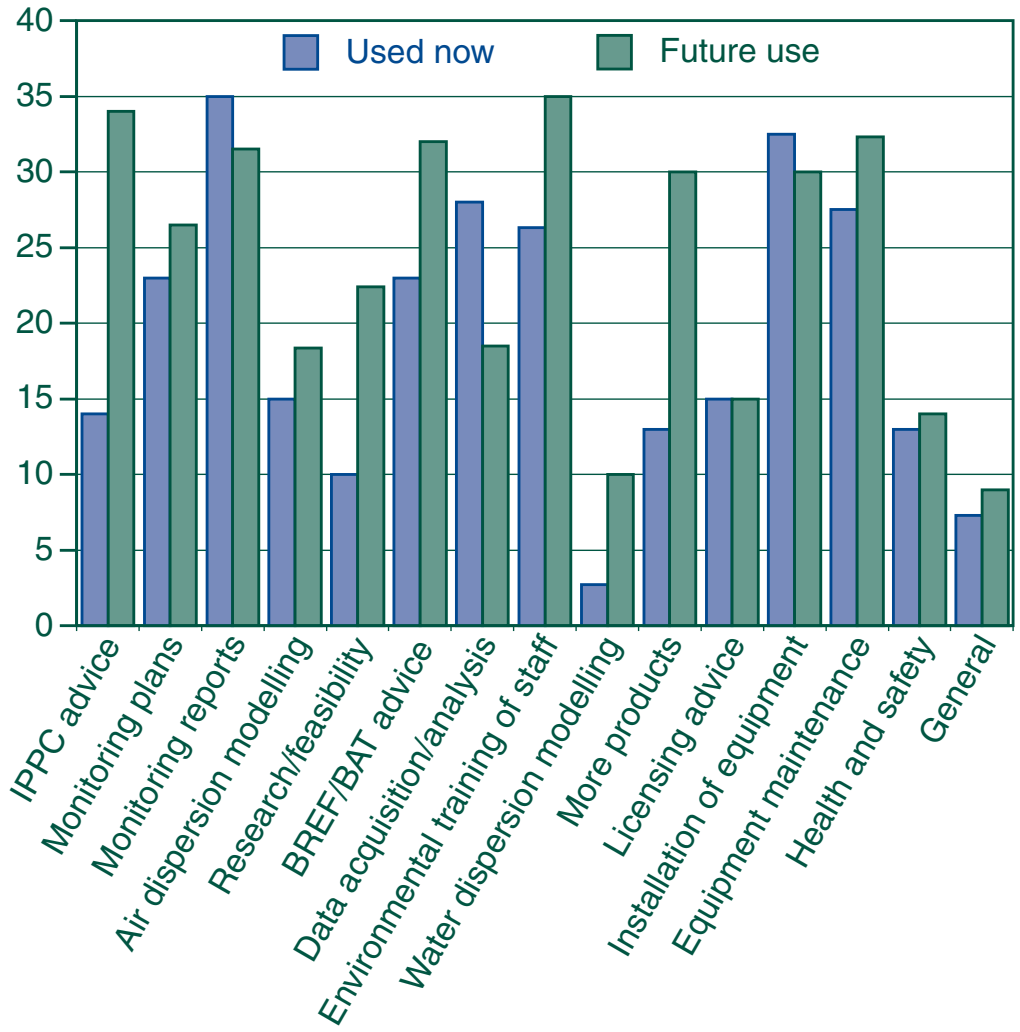


Figure 2: Customers' requirements



that because of the fifth consultation document, the regulations will not be in force until after October 2000.

IPPC guidance notes for energy conservation are being produced in conjunction with ETSU, the DETR's energy consultancy, which will provide benchmarks and technology lists for use in permits. The ETSU data may become available in early 2000. Also during 2000, the following technical guidance notes should have been produced by the EA: Intensive Livestock Farming, Food and Milk, Common Issues Guidance, Noise, Energy Efficiency, Decommissioning, Use of Raw Materials/Waste Minimisation, Hazardous Waste/Recovery, Non-Hazardous Waste Disposal, Pulp and Paper.

The EA have increased their enforcement budget and expect that the policy will be more effective than previously under IPC.

Other comments supplied by people completing the questionnaire were:

Support is provided by trade organisations:

- Castings Development Centre
- North Wales Waste Network
- Keighley Waste Minimisation Forum
- Engineering Employers' Federation
- British Metals Castings Association

Information required about:

- Technology and management
- Climate change levy
- Changes in regulations as they happen
- Contaminated land
- Discharge management
- Advice about hazardous waste
- PM10 and PM5 equipment

Miscellaneous remarks:

- IPPC implementation is expensive
- IPPC implementation is unfair: industries in some continental countries have less strict timetables, disadvantaging those in the UK.

Other than the guidance notes and BREFs, industry can obtain help about IPPC from EA leaflets, trade associations, EA and DETR consultations and consultation documents, environmental consultancies, and at conferences and workshops (e.g. attendance is planned at a conference in Newcastle on 15 th December, and

the EIPPCB have planned a BREF workshop in Brussels for l0-11 February 2000 – deadline for registration is 15 January).

Some industries, particularly large ones and those producing monitoring instruments, may benefit from looking at and completing a questionnaire about the monitoring BREF (this is primarily aimed at regulators and authorities to help reach the goal of international standardisation of methods) produced by EIPPCB.

The pathways described above also enable businesses to have input into the implementation of IPPC. EUCETSA has joined the EIPPCB technical working group in the Wastewater sector: members can express views at meetings and in surveys the association distributes.

Concerns

It can be argued that this method of implementation is wrong: it is the risk of pollution that is important, not the industrial sector producing it. By this argument new regulations should affect the businesses that pose high risks to public and environmental health first.

Another argument postulated is that new businesses and those which are likely to be expanding over the next few years will be more interested in compliance with IPPC than those which use outdated and inefficient technologies. This is due to both ability to afford required upgrades and a more progressive way of thinking.

BREF documents are inherently lengthy and complex. Their importance for regulatory authorities and companies with IPPC installations cannot be over-stressed, for technological improvement, production of guidance and environmental protection.

Company survey

A questionnaire was distributed around a number of companies to find out about their knowledge of the new IPPC regulations, and other environmental aspects of their operations.

Total number of companies listed	= 376
Total number of companies contacted	= 180 *
Total number of responses	= 76
Overall response rate	= 42%

** Does not include companies closed down/ unobtainable/relevant person not available/engaged.*

The responses to the individual questions are graphically represented in Figures 1 and 2.

ENVIRONMENTAL NEWS

A decade of dramatic improvement in air quality predicted

Meacher launches new air quality strategy to start new century

Levels of key air pollutants in United Kingdom towns and cities should fall dramatically over the next five years and road traffic pollution will be more than halved over the coming decade, according to Environment Minister Michael Meacher.

Launching his new Air Quality Strategy, Mr Meacher pointed out that the air we breathe is steadily getting cleaner, although figures can vary reflecting different weather patterns.

Over the next five years, dramatic improvements in quality were expected, he said. These ranged from 12 per cent cuts for particles to 62 per cent for benzene. Key to continuing improvements, which would reflect factors both within and outside the UK, would be the transport sector where recent estimates predicted over 50 per cent cuts in pollution in the coming decade, as a direct result of integrated transport policies, cleaner fuels and improved vehicle technology.

The strategy is part of the government's overall aim to improve the quality of life for people in the UK. It sets out a framework in which everyone, from individuals to big business, has a role to play in improving outdoor air quality.

It focuses on the most common pollutants in the air which affect our health, our plant life and buildings and:

- speeds up the timetable for cutting benzene, 1,3-butadiene, carbon monoxide and lead to deliver cleaner air more quickly;
- sets a tough new objective to cut the level of lead in air by a further 50 per cent by 2008;
- retains the existing goal for sulphur dioxide but brings in a new objective to protect ecosystems from its effects, and retains the ozone target;
- tightens the hourly nitrogen dioxide objective and sets a new objective to protect vegetation from its effects;
- Adopts a staging post target for particles, but work will be taken forward rapidly towards consideration of new objectives.

The strategy sets out the roles that Government, industry, the Environment Agency, local government, business, individuals and transport have in protecting and improving air quality.

Mr Meacher also pointed out that scores of air monitoring stations and an award-winning Web site provided round the clock information updated by the hour on the quality of the air we breathe. This was not just to protect the vulnerable, but to encourage daily action to protect and improve air quality.

Poor air quality can aggravate conditions such as asthma and puts at risk people with chronic breathing and heart conditions. Between 12,000 and 24,000 premature deaths in the United Kingdom each year are attributed to air pollution, as are many cases of discomfort, illness and hospital admissions.

As the strategy is taken forward, individuals and organisations have immediate access to a wide range of up to date and accurate information. This can help them make a range of decisions on actions which affect local air quality –

from whether or not to use their cars on a particular day to types of energy use.

The United Kingdom's national air quality monitoring network of over 100 stations provides continuous information about the levels of a wide range of air pollutants. Local authorities also have their own networks, providing valuable information on local pollution levels. Regularly updated information is readily accessible through the internet, freephone and on Ceefax (page 410) and Teletext (page 155).

The DETR also provides a detailed air quality website, on which the full strategy appears, at:

http://www.detr.uk/airq/aqinfo.htm.

Michael Meacher commented: 'Our air is now on course to become cleaner earlier. The extensive public information available will enable everyone to "do their bit".

'We are today setting some challenging objectives, especially for London and other major cities. We know that, as a result of the measures we have taken over the past two years, we are on course to achieve some of these. Others will take a greater effort. But delivering cleaner air and a healthy environment more quickly are things worth working for. This is not a job for government alone. The strategy clearly sets out roles for everyone: individuals, local authorities and business.

'The potential health effects of particles are particularly important, and we are anxious to set our sights beyond the immediate need to comply with the EU limit values. So we have started further work on the health effects of particles; the costs and benefits of reduction; and the effects of recent policy developments on particle levels. This will allow us to consider a new objective towards the end of the year.'

Notes

1. The first Air Quality Strategy was published by the previous administration in March 1997. It fulfilled the Environment Act 1995's requirement for a national air quality strategy, setting out policies for the management of ambient (outdoor) air quality. The Government endorsed this strategy in July 1997 and the objectives were included in regulations for the purposes of local air quality management. At the same time, the Government announced an urgent review of the strategy in order to look at the prospects of delivering cleaner air more quickly.
2. The review looked at the prospects for meeting the objectives in the existing strategy sooner and for introducing tougher health-based objectives, where feasible and justified. The review was wide-ranging, covering the legal framework, the scientific, economic and technical basis for decision-making on air quality policy and the case for changes to the scope and content of the strategy. The conclusions of the review were published for consultation in January 1999.
3. Over 100 organisations and individuals responded to the consultation, and their views were taken into account in preparing the draft of the revised strategy, published for consultation in August 1999. The new strategy takes into account views expressed in response to that consultation paper.
4. Roles for players in the strategy:
   Government: setting a policy framework with challenging and realistic objectives, appropriate legislation, financial incentives, and promoting public awareness.
   Industry: innovation, environmental management and voluntary measures from industry will supplement their legislation-driven activity.
   Environment Agency: regulation of industrial processes, seeking to protect and enhance the local environment, taking account of national standards and objectives when licensing processes.
   Local government: Local Air Quality Management is their major tool in tackling local pollution hotspots, supplemented by a range of other powers and tools such as Local Air Quality Strategies, smoke control and local traffic management powers.
   Business: considering the environmental impact of business travel in fleet management, preparing green transport plans.
   Individuals: prudent home energy use, avoiding products which damage the environment, using public transport, walking or cycling wherever possible.
5. The new strategy sets out a comprehensive strategic framework within which air quality policies will be taken forward in the short to medium term. The original strategy set objectives for 2005 for the eight air pollutants which have the greatest impact on health. The new strategy strengthens the objectives for a number of the pollutants:

- benzene, 1,3-butadiene, and carbon monoxide: the date for achieving the objectives has been brought forward by two years to 2003;
- lead: the date for achieving the objectives has been brought forward by one year to 2004, and a new, more stringent objective has been set for 2008;
- nitrogen dioxide: the annual objective remains unchanged, but the hourly objective has been tightened. A new objective for the protection of vegetation has been set;
- ozone and sulphur dioxide: the objectives remain unchanged, but a new objective has been set for sulphur dioxide for the protection of ecosystems;

New chair appointed to Environment Agency

Sir John Harman, formerly leader of Kirklees Metropolitan Council, has been appointed Chairman of the Environment Agency for the next four years. He took over on January 1 from the first Chairman, Lord De Ramsey.

Sir John Harman has been a member of the Environment Agency board since 1995, and before that served as a member of the Environment Agency advisory committee. He was appointed Deputy Chairman in March 1999. He is a member of the Government's New Deal Task Force, a member of the UK Round Table on Sustainable Development and a Board member of the Energy Saving Trust.

Sir John, who is 49 and lives in Huddersfield, is a former Vice-Chairman of the Association of Metropolitan Authorities.

He will be standing down from the Local Government Association, where he is the Chair of the Urban Commission; and from the Regional Assembly for Yorkshire and Humberside, which he also leads.

- particles (PM10): the original objective is to be replaced for the time being with the less stringent, but more realistic, EU limit values.

6. The original objective for particles was set on the basis of the limited knowledge at the time and it is now clear from our better understanding of the sources and types of particles that it will not be achievable, at least in the short term. Transboundary pollution from Europe accounts for a significant proportion of annual mean concentrations of PM10 and so is outside our control. Concerted action is needed at the European level to reduce particles, an issue which is being pursued with other member states.
7. In view of the health effects of particles, the Government is setting its sights beyond the immediate need to comply with the EU limit values. The new objective is therefore seen as a staging post and not a final outcome. Work is in hand to consider further the health effects of particles, the costs and benefits of reducing particles and the effects of recent policy developments on particle levels with a view to considering a new objective for particles towards the end of the year.
8. Benzene and 1,3-butadiene are genotoxic carcinogen for which no absolutely safe level can be defined. Carbon monoxide reduces the capacity of the blood to carry oxygen and deliver it to the tissues and can block important biochemical reactions in cells. High levels of lead can result in toxic biochemical effects in humans, but the possible effect on brain development of children is the greatest cause for concern. Nitrogen dioxide is thought to have both acute and chronic effects on airways and lung function, particularly in people with asthma. Exposure to ozone may cause irritation to the eyes and nose and very high levels can cause damage to the airway lining. Particulate air pollution episodes are responsible for causing excess deaths among those with pre-existing lung and heart disease. Sulphur dioxide affects the lining of the nose, throat and airway of the lung, in particular among those who suffer from asthma and chronic lung disease.
9. *The air quality strategy for England, Scotland, Wales and Northern Ireland – working together for clean air* is published by The Stationery Office, as Cm 4548, SE2000/3 and NIA 7, priced £20.00. A free summary leaflet is available from the DETR, Free Literature, PO Box 236, Wetherby LS23 7NB.

Minister unveils 'High Risk Areas' plan to protect Britain's coastline

The first stage in a new initiative to protect Britain's coastline has been announced by Minister for Transport Lord Macdonald.

The Minister unveiled a consultative process which could lead to the setting up of Marine Environmental High Risk Areas (MEHRAs) to help protect sensitive marine and coastal environments at particular risk from pollution from shipping. In particular, the establishment of such areas could:

- provide guidance to mariners;
- inform maritime operational decisions; and
- inform future Government policy in this area.

The establishment of MEHRAs is one of 103 recommendations contained in the report of Lord Donaldson's Inquiry, *Safer Ships, Cleaner Seas.* Lord Donaldson proposed that the Government should establish a small number of areas covering no more than 10 per cent of the UK coastline. These would be 'comparatively limited areas of high sensitivity which are also at risk from shipping'.

Lord Macdonald said the Government had been working for some time to develop an objective methodology for the identification of MEHRAs. 'This has been difficult given the diverse range of environmental sensitivities involved and the need to develop reasonable, robust, defensible criteria,' he said. 'The DETR engaged consultants Safetec UK Ltd to prepare a methodology and selection criteria for the identification of areas which could be potential MEHRAs. We have now published the consultants' report and we are inviting interested parties for their views on whether the consultants' proposals are a reasonable and sensible basis for further work.

'We are also involving relevant members of the Department's Marine Pollution Advisory Group in consideration of the consultants' report. This is an open process. At this initial stage, it is important that we get the methodology right – the Government is not yet committed to any particular approach, or to the selection of specific sites as MEHRAs.'

The Minister added: 'We will then consider the comments received and prepare a consultation document setting out the Government's proposed criteria for the identification of MEHRAs. This will include proposals on how and where MEHRAs might be established and how best to publicise them to mariners.

'Following the second stage of the consultation exercise, I would hope that we can agree to the establishment of MEHRAs as quickly as possible, along with suitable arrangements to monitor the effectiveness of the policy.'

Notes

1. Lord Donaldson's Inquiry *Safer Ships, Cleaner Seas* was set up in the aftermath of the Braer oil pollution incident. Its remit was to advise on whether any further measures were necessary to protect the UK coastline from pollution from merchant shipping. The Donaldson Report was published on April 8, 1994 and contained 103 recommendations. The bulk of the recommendations have been implemented. The recommendation on MEHRAs has not yet been implemented due to its complexity.
2. Much, if not all, of the UK coastline can be regarded as environmentally sensitive in one way or another. Government policy is to seek to protect the whole UK coastline from any adverse impacts from shipping. The intention is that the introduction of MEHRAs should complement, rather than change, that approach.

Government response to House of Lords report on radioactive waste

Widespread consultation on the best way to manage radioactive waste will start early this year, Environment Minister Michael Meacher has announced.

As the latest forecasts for storage of waste were published, the Minister also announced plans for consultation with British nuclear industry on likely future uses for the UK plutonium stockpile, and whether the plutonium they own should be classified as a waste.

Responding to a House of Lord Select Committee report, Mr Meacher emphasised that the Government's paramount concern was protecting the safety of both current and future generations. He also stressed the Government's commitment to a fully comprehensive policy for managing long-lived radioactive waste. This policy must be developed in the most transparent and open-minded way, to ensure maximum possible public acceptance, before final conclusions are reached on whether to continue storage above ground or to move to storage deep underground.

Publication of the Government's response was the first stage of this process. The next stage, publication of a detailed and wide-ranging consultation paper discussing the processes involved in implementing the various management options for radioactive waste, will follow early in the year.

Full details of the Government's response are set out below in a Parliamentary Answer to Douglas Alexander, MP for Paisley South.

1. In March 1997, the then Secretary of State for the Environment dismissed the appeal by UK Nirex Ltd against the refusal of planning permission by Cumbria County Council to construct a Rock Characterisation Facility (RCF) at Sellafield. The purpose of the RCF was to investigate the site for its suitability as a deep waste repository for intermediate level waste.
2. As a result of the dismissal of the Nirex appeal, a Sub-Committee of the House of Lords Select Committee on Science and Technology was formed to conduct an enquiry into the management of nuclear waste. Part of the Committee's remit was to consider future options for the long-term disposal of intermediate level waste.
3. The Select Committee reported on March 24, 1999. Its main recommendation was that the Government should seek to build public consensus before attempting to implement its chosen policy. It also recommended that the Government should adopt a phased approach to deep disposal as the preferred management option for all radioactive waste, including surplus plutonium and military wastes. It concluded that surplus plutonium should be declared a waste.
4. The Government's response makes it clear that it wishes to take into account the Committee's views and undertake public consultation before announcing how it wishes to proceed. It therefore concentrates on offering initial reactions to the Committee's recommendations.
5. The Government proposes to publish a detailed and wide ranging consultation paper early in 2000, which will discuss the processes which would be involved in the implementation of the various management options for radioactive waste.
6. The latest United Kingdom Radioactive Waste Inventory reports a 17 per cent decrease in the forecast of total conditioned high level waste, and a 26 per cent decrease in the forecast for intermediate level waste.
7. The DETR has also published a report by consultants QuantiSci setting out a research and development strategy for disposing of certain radioactive materials. The High Level Waste and Spent-Fuel Disposal Research Strategy project has identified the scale and nature of the research and development of work that would be required, if deep geological disposal of high-level waste and spent fuel was to be pursued. The project findings are available in a Technical Summary Report and a series of 15 detailed reports (available at www.quantisci.co.uk/xxx). The recommendations from today's consultants' report will be covered in the proposed discussion paper. The Government's response to the report will be considered in the light of responses to the discussion paper.
8. A report on the UK's intentions for implementing the OSPAR strategy with regard to radioactive substances has been sent to the OSPAR secretariat. OSPAR members are committed to reduce radioactive discharges by 2020 to levels where the additional concentrations in the marine environment above historic levels resulting from such discharges are close to zero. The UK is developing a national strategy for reducing radioactive discharges. This will set the framework through which the UK will deliver its contribution to the required reduction in environmental levels of radioactive substances in the OSPAR maritime environment area. Development of the UK strategy will be a transparent process and the document will be published in its final form in the second half of 2000.

Text of parliamentary question and answer

Mr Douglas Alexander (Paisley South):

To ask the Secretary of State for the Environment, Transport and the Regions, when he expects to publish:

a) the Government's response to the Report of the House of Lords Select Committee on Science and Technology on The Management of Nuclear Waste (HI, Paper 41) published on March 24;
b) High Level Waste and Spent Fuel Disposal Research Strategy project;
c) 1998 UK Radioactive Waste Inventory; and
d) report on the UK's intentions for implementing the OSPAR strategy with regard to radioactive substances?

Michael Meacher:

I have today written to Lord Tombs, Chairman of the Committee, enclosing the Government response to the Select

Article	Author	Volume	No
Recycling Municipal Waste	Jeff Cooper	1	1
Environmental Ethics	John Stoker, Giles Wyburd	1	1
Studies of the Water Balance in Central Spain	Dr Howard R. Oliver FIEnvSc	1	1
Registration of Waste Carriers	Frank Green BSc AMIEnvSc	1	1
Some Safety Guidelines During the Course of Fieldwork in Environmental Sciences	Dr F. Brian Pyatt FIEnvSc	1	1
Environmental Auditing – The BSI Standard on Environmental Management	Mike Gilbert	1	2
Groundwater Contamination	Professor Glynn Jones	1	2
Coal Use Residues: Waste Disposal or By-Product Utilisation?	Dr Lee B. Clarke MIEnvSc, MIMM	1	2
Corporate Environmental Management Attitudes	Ruth Hillary	1	2
The Changing Attitudes Toward Landfill in the UK	F. R. Lowe MIEnvSc	1	2
Environmental Noise and Planning	Colin English, Chris Hill	1	3
Practical Approaches To Resolving Environmental Disputes	Professor Larry Susskind	1	3
Environmental Education Across The Future And Higher Education Sectors	Dr S. Ali Khan	1	3
The State of Environmental Education In Further And Higher Education Institutions	Dr Stephen Martin	1	3
Earth Summit At Rio	Compiled by Dr Julian E.Salt MIEnvSc	1	4
New Country Estates On Surplus Agricultural Land	Michael Lee-Wright MIEnvSc	1	4
Business And The Environment: The Ecological Perspective	C. J. Betts, C. M. Eddleston, S. A. Simmons	1	4
The Status of IPC – The Lessons Learned	Dr David Slater	1	5
Sub OEL Concentrations of Airborne Irritants: Do We Need New Standards for Building Occupancy?	Paul Crossland MIEnvSc	1	5
Developing A Public Environmental Information Service in Ireland	David J. Horner MIEnvSc	1	5
Ecological Living In Sweden	Compiled by Richard Dix	1	5
Environmental Education Across the H.E.Curriculum: National Seminar Series	Shirley Ali-Khan	2	1
Environmental Education in 20 Polytechnics & Colleges	Extract from HMI Report 172/92/N5 1992	2	1
The Consensus-Based Approach to Solving Environmental Problems	Steve Robinson, Pippa Hyam	2	1
Widening of New Motorways	Chris Blanford, Mervyn Raisbeck & Paul Tomlinson	2	1
Maastricht – Treaty of European Union Title XV1 – Environment		2	1
Methane Gas: Friend or Foe	Steve Forster, Hugh Moss	2	2
Market Surveys for Educational Courses in the Environmental Area	Brian Knights MIEnvSc	2	2
Practical Steps for Reducing VOC Emissions	Derek Lohmann MIEnvSc	2	2
Developing a Green Agenda in Higher Education	Samantha Woods MIEnvSc	2	2
Environmental Applications of Risk Assessment	Dr Paul Pritchard	2	2
Environmental Education in Further Education	Extract from HMI Report (308/92/NS) 1992	2	2
The CBI Environmental Business Forum	Andrew Blaza	2	3
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Committee report on *The Management of Nuclear Waste.* Copies have been placed in the Library of the House.

The Government's paramount concern is to protect the safety of both current and future generations. The Government agrees with the Select Committee that widespread public consultation must come before a final decision is reached on the most appropriate option for managing radioactive waste. The Government notes the Select Committee's conclusion that deep disposal is the only solution which is ultimately sustainable. We shall, however, want to study very carefully the results of the consensus building process, initiated by the consultation which we intend to launch early next year, before coming to a final view. There are, in any case, questions to consider about when any underground repository might be needed and the period over which it should be possible to monitor and retrieve wastes placed in it. There is no need for an immediate decision at this stage.

The Government response is the first stage of the process to identify, develop and implement the best possible management option for radioactive wastes – one which commands widespread public support. It sets out the Government's commitment to a comprehensive policy for long-lived radioactive wastes, developed in an open and transparent way on the basis of widespread consultation to ensure the maximum possible public acceptance. The next stage will be full consultation on the management options for radioactive waste. Subsequent steps will need to be considered in the light of the results from this consultation. There is no question at this stage of looking at the potential suitability of any particular sites. This would only be necessary if, in the light of consultation, underground disposal were the chosen option. In any case, this would be some years away.

The Government has also accepted that it is possible that at least some plutonium may be declared a waste in the future. The response therefore also sets out our intention to consult with BNFL, British Energy and UKAEA on the likely future uses for the UK plutonium stockpile.

I have today published a report which my Department commissioned from consultants Quantisci setting out a research and development strategy for disposing of certain radioactive materials. Copies of the report have been placed in the Library of the House.

The High Level Waste and Spent Fuel Disposal Research Strategy project has identified the scale and nature of the research and development that would be required, if deep geological disposal of high-level waste and spent fuel were to be pursued. The report will inform the forthcoming consultation paper on radioactive waste management.

I have also today published the 1998 UK Radioactive Waste Inventory. Copies of the summary report have been placed in the Library of the House.

The Inventory was jointly commissioned by Nirex and my Department. It describes all stocks of waste held in the UK at April 1, 1998, together with predictions of wastes arising into the future. There has been an increase of around 12 per cent in the total volume of wastes in stock since the last inventory in 1994 due to the continued accumulation of intermediate and high level wastes in the absence of disposal facilities. However, the predictions of future arisings have been revised downwards since the last report (17 per cent for high level waste; 26 per cent for intermediate and 2 per cent for low level waste) due to developments in waste conditioning, better estimates of volume and some changes in the scale and nature of future operations.

The UK is one of the few countries where such information is made publicly available. Organisations involved with the nuclear industry, and relevant non-governmental organisations, will receive a free copy on compact disk. The summary report will also be available on the internet at www.nirex.co.uk

A report on the UK's intentions for implementing the OSPAR strategy with regard to radioactive substances has been sent to the OSPAR secretariat today. Copies have been placed in the Library of the House. Copies have also been sent to nuclear operators and relevant non-governmental organisations.

Meacher seeks views on common land in England and Wales

Farmers, landowners, walkers, conservationists and 'commoners' are being invited to have their say on proposals for improving the protection and management of common land.

Speaking at an NFU conference in Cumbria, Environment Minister Michael Meacher highlighted the importance of common land as grazing land, and outlined the Government's commitment to England and Wales's 500,000 hectares of common land and the people who depend on it.

Commons provided vital grazing land for livestock, Mr Meacher said. They represented a time-capsule of past agricultural activity; they were of great ecological value with 33 per cent of common land designated as Sites of Special Scientific Interest; they were also a valued recreational resource in National Parks and other areas.

The Government wanted to ensure that:

- common land was protected and preserved for the benefit of future generations;
- the traditional farming methods which have maintained its unique character and features should continue and be sustainable;
- subject to management needs, commons should be open for everyone to enjoy;
- the registration system for common land is fair and effective;
- effective land management systems should be introduced to meet the different needs of common land users and protect the environment.

People's views were being invited on key common land issues:

- the need for registration of commons, town and village greens to be clarified and updated to ensure that commons were correctly registered;
- the need to improve protection for unclaimed commons and commons

which were no longer subject to rights of common;
- whether authorisation to carry out work on commons which may prevent access should apply to all registered commons, rather than just those subject to rights of common in 1926;
- whether local authorities, rather than the Secretary of State or the National Assembly for Wales, should make decisions on allowing work to be carried out on commons; and
- how to solve problems arising from inappropriate agricultural management – in particular overgrazing.

Mr Meacher said: 'Common land is special because it is largely untouched. It provides a vital resource in maintaining the viability of upland farms. Much of its open character and special biodiversity survives because it has been used in a traditional way.

'This consultation paper is a clear indication of the Government's commitment to our common land heritage. We need to focus on what is necessary to safeguard our common land so it can continue to support the people that depend on it and be enjoyed by those who value it.'

Notes

1. There are some 550,000 hectares of common land in England and Wales (there are no commons in Scotland or Northern Ireland). Commons for the most part comprise land that escaped inclosure in the 18th and 19th centuries. They range from the large hill commons of Wales and the north and south west of England, to the smaller commons of south east England. Many are subject to rights of common, such as the right to graze stock, to fish and to collect firewood. These rights are not enjoyed by the public at large but by designated commoners, usually by virtue of the rights being attached to the property they occupy, often adjoining a common.
2. Although most commons are privately owned and many are used for agriculture, they are also important for their landscape, wildlife and archaeological interest, and for public enjoyment of unspoilt areas of the countryside. Only 20 per cent of common land currently has a statutory right of public access to take air and exercise but many owners allow a wide range of informal recreational activities. The Government's proposed statutory right of access to open countryside will include registered common land.
3. The Commons Registration Act 1965 was introduced to establish definitive registers of common land in England and Wales and to record details of rights of common. In practice the Act proved to have deficiencies. For example, some land was mistakenly registered while some was forgotten and, in some instances, grazing rights were over-quantified in the registers. The scope for correcting errors is limited thereby providing no redress for these occurrences.
4. The DETR published a *Good Practice Guide on Managing the Use of Common Land* in June 1998 and this consultation paper represents follow up work. It has four chapters that look at issues concerning registration of commons, registration of town and village greens, controlling fencing and works on commons and agricultural use and management.
5. The consultation document, *Greater Protection and Better Management of Common Land in England and Wales* sets out detailed proposals. Copies of the consultation paper can be obtained from The Commons Consultation Team, Common Land Branch, Countryside Division, Department of the Environment, Transport and the Regions, Room 818 Tollgate House, Houlton Street, Bristol BS2 9DJ. Tel: 0117 987 8547. Fax: 0117 987 8969.
6. Responses should be sent to the above address or by e-mail to: commons_villagegreens@detr.gov.uk by April 10.

Energy intensive sectors of industry agree efficiency targets

The ten main energy intensive sectors of industry have agreed with the Government challenging energy efficiency targets for the coming decade. The targets are indicative at this stage and will be confirmed when full climate change levy agreements are concluded in 2000.

Agreement to these indicative targets represents a major step towards full agreements between the Government and the sectors, in return for which sites within each sector will be able to benefit from an 80 per cent discount in the rate of climate change levy. Achievement of these targets will form an essential contribution to the total saving of 4 million tonnes of carbon by 2010 which the Government expects to result from the climate change levy package plus the agreements by energy intensive sectors. The agreements will have two-yearly points at which progress will be measured against milestone targets. Provided sectors meet their milestone targets, they will continue to be eligible for the discount in the rate of levy. Work is still continuing to develop the details of the full agreements.

Sectors will be able to achieve their targets by improving energy efficiency. They will also be able to engage in emissions trading to reach their targets. Companies within the agreements will be able to trade with each other and links will also be made to wider emissions trading schemes, subject to the approval of the Secretary of State.

Environment Minister Michael Meacher said: 'This will be an important contribution to the UK's climate change programme. I am grateful to all the sectors concerned for the hard work that they have put in to reach this stage. They have demonstrated a real commitment to improve their energy efficiency and to reduce carbon emissions.'

David Rea, Secretary General of the UK Steel Association, said the steel industry had successfully worked on its energy efficiency for many years because energy accounted for a large proportion of its production costs. 'The memorandum of understanding which we have signed is the next step in helping government meet its targets under Kyoto. We applaud the flexibility government has shown so far and look forward to finalising the agreement's terms and conditions and other technical details.'

Dr Elliot Finer, Director General of the Chemical Industries Association,

said the UK chemical industry had a long-standing commitment to energy efficiency as demonstrated by its existing voluntary agreement with the Government, which had already resulted in significant reductions in energy usage.

'The industry now looks forward to concluding a more challenging agreement with Government and making its contribution in addressing the issue of climate change.'

Notes

1. Initial proposals for the climate change levy were announced by the Chancellor in the March 1999 Budget. The Chancellor announced further details in the Pre-Budget Report on November 9 following an extensive consultation exercise. The design of the levy closely follows the recommendations made by Lord Marshall in his report, *Economic Instruments and the Business Use of Energy,* in November 1998.
2. It is proposed that energy intensive sectors of industry which will be covered by the Integrated Pollution Prevention and Control (IPPC) regime will be eligible an 80 per cent discount in the rate of levy if they agree to energy or emissions targets which meet the Government's criteria. Targets will require sectors to implement all cost-effective energy efficiency measures and the level of stringency of each sector's target is therefore broadly comparable. These agreements will be entered into by the Secretary of State for the Environment, Transport and the Regions.
3. The largest ten energy-using sectors were asked to reach Heads of Agreement with the Government by December 20, 1999. Other eligible sectors have been asked to reach this stage by the end of February 2000.
4. Some of the emissions savings which will be achieved by the energy intensive sectors entering into agreements will be facilitated by other components of the climate change levy package.
5. The climate change levy package as a whole will form a major part of the Government's programme to achieve reductions in greenhouse gases from the business sector. The Government expects to publish its draft climate change programme, which will cover all sectors, early in 2000.
6. In the Pre-Budget Report, the Government said that the levy package – including additional support for energy saving measures and environmental exemptions for the 'new' renewables and 'good quality' CHP – was projected to save the equivalent of at least 2 million tonnes of carbon a year by 2010. The levy's negotiated agreements with energy intensive sectors of industry were anticipated to deliver as much again.

Research into gulf war syndrome

Nine years after the Gulf War, the press has been revealing the findings of research, not yet published, on 'Gulf War syndrome' – the health consequences of the environmental effects of materials used during the conflict.

Research by Mike and Bharti Mackness at Manchester Royal Infirmary into organophosphate damage, currently subject to peer review for publication in the *Lancet,* is based on the blood samples of 500 Gulf War veterans which were tested for levels of paraoxonase.

This enzyme protects against aetheroselerotic plaques which cause thickening of the artery walls and raise blood pressure, resulting in damage to the cardio-vascular system. The researchers have found that at least 80 per cent of the veterans tested had very low levels of paraoxonase and suspect that this was caused by organophosphate pesticides used in the Gulf War. If true, this clearly has implications for anyone exposed to these types of pesticides, from farmers to gardeners.

In Canada, research by Dr Hari Sharman on the likely increase in cancers among servicemen suggests that between 3 and 21 per cent increases in cancer deaths have been found, in the case of Gulf War veterans at least. This is likely to be the result of exposure to dust from depleted uranium shells.

Extrapolated, this suggests a possible increase in deaths of between 1,500 and 11,000. Dr Malcolm Hooper, Emeritus professor at Sunderland University, and a scientific advisor to the Gulf War veterans, argues that the increase in cancers can be expected to start about ten years after exposure. The war ended nine years ago and thus we could now be on the verge of witnessing the increase.

Green belts threatened

While concern is expressed at the large number of homes required to meet demand in the south-east of England, and the pressures this will place on existing open countryside, similar pressures are also being felt in other parts of the country.

The Association for the Protection of Rural Scotland, for example, argues that official government forecasts suggest the need for a further 150,000 homes over the next decade to satisfy demand. Based on calculations of 8-10 new homes per hectare, this land demand equates to around 4,500 new sports stadia. Despite government efforts to promote development on brownfield sites, the potentially high costs of clearing such possibly polluted land, even before development can begin, encourages housing developers to press for the release of more greenfield sites,

David Gill, managing director of Cala Homes, for example, declared in the Scottish Planner that: 'There are endless sites in the green belt around our towns and cities which are not environmental joys lifting the hearts of oppressed urban residents, but which would better suit family housing…'

The political pressures are often hard to resist when, on the one hand, developers are offering local authorities inducements to release such land and, on the other hand, voters are demanding more homes which are both affordable and, despite the IT revolution, physically accessible to employment opportunities.

This section of the Journal is in response to the growth of news, information and activities which underpin the Education Committee of the IES.

Special prominence is given to student activities and projects, national and international initiatives, campus developments and research in order to capture the diversity, wealth and vitality of modern environmental education.

Readers are invited to send articles and letters to:
■ Derek Blair, School of the Environment, University of Sunderland. Benedict Building, Sunderland SR2 7BW.
■ Tel: 0191 515 2737.
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The Natural Step, systems approaches and higher education

A workshop to explore different perspectives on education for sustainability was held at the Open University's Centre for Complexity and Change on Wednesday 15th September 1999. It was hosted jointly by The Natural Step and the OU's Systems Discipline. Participants were from the growing number of higher educational institutions expressing interest in The Natural Step. All were involved in education for sustainability in their own organisations.

Both The Natural Step and the Open University use 'systems approaches' in focusing on learning for sustainability and the workshop came about because of this shared interest. (Open University students have been learning how to use systems approaches for over 25 years). Systems approaches use systems theory in practice, in particular the concept of a 'system' with a boundary and an environment. In general terms, using a systems approach means using systems thinking – considering an entity or situation within the context of a larger whole – to inform action.

Stephen Martin introduced the day with some background from his perspective as Director of Learning with The Natural Step with prior experience of environmental and sustainable development education. He commented on the apparent mismatch between the environmental and development agenda and provision in higher education curricula. There is a substantial decline in recruitment to specialist environmental courses, with students from environmental and physical sciences experiencing difficulty in obtaining employment. There is growing evidence that sustainable development is believed to be an important focus of learning by those who have engaged with the issues, particularly from within the corporate sector. Stephen mentioned The Natural Step and its many links with companies and suggested it may be a useful mechanism to help regenerate HE curricula.

The Natural Step

The Natural Step uses a combination of system theory, scientific principles and organisational learning. It is a framework based on four system conditions:

System condition 1	**Substances extracted from the Earth's crust must not systematically increase in nature.**
System condition 2	**Substances produced by society must not systematically increase in nature.**
System condition 3	**The physical basis for the productivity and the diversity of nature must not be systematically diminished.**
System condition 4	**We must be fair and efficient in meeting basic human needs.**

The workshop, facilitated by Chris Blackmore from the OU Systems Discipline, did attempt to 'walk its talk' – starting off systematically by exploring the context of education for Sustainability and Higher Education before identifying participants' issues and systems of interest. Education for Sustainability can mean many different things to different people so it was felt important not to assume that all participants were interested in the same issues.

There was also an assumption that the group would identify a shared agenda and wish to continue their work together after the day's workshop. It was acknowledged that many different organisations, networks and projects already focus on Education for Sustainability and there was no wish to reinvent the wheel. Hence the stage of taking stock of past and current initiatives in which participants were involved was an important part of the day.

Activities that participants thought relevant, both as problems and opportunities, were very diverse. They included

companies' attitudes to environmental and sustainable development issues and training needed, the environmental job market, the influence of the media, increasing globalisation, information technology, disciplinary boundaries, research and funding agenda in BE, falling numbers on environmental courses, confusion over terms and titles, the need to balance theory and practice in curricula, the need to integrate rather than separate sustainability in HE curricula, and the need for HE to be more in touch with the needs of society.

All participants were then invited to draw representations of where they saw themselves within the situation the group had collectively described and to explain to the group their own perspectives on the situation. Representations ranged from personal journeys within specific organisations and disciplines to input/output diagrams with transformation specified, to integration of local and global concerns, sustainable development dinosaurs and models of levels of understanding and values. Both optimism and pessimism seemed to surface as people described what they made of past and current events and shared their hopes and fears for the future.

The workshop moved on to focus on actions to be taken by individuals and groups. No one clear agenda emerged from the day but there were several clear areas of interest. These included (i) links between HE and business and industry (ii) the use of systems ideas and frameworks to help focus HE curricula on addressing issues of sustainable development and (iii) leadership skills. At the time the most important functions of the workshop seemed to be the space to reflect with others on education for sustainability within HE and the opportunity for networking. Since the workshop several participants have been moving ahead with a range of activities where shared interests were identified.

People from nine institutions, besides The Natural Step and the Open University, took part in this workshop and/or the discussions preceding it. They came from University College Worcester, from Middlesex, Sunderland, Lincolnshire and Humberside, West of England, Sussex and Central Lancashire Universities and from Pershore and Hindlip College and the Forum for the Future. Another workshop is planned in spring 2000 for those interested in The Natural Step and the use of systems tools and methods in approaching the challenges of education for sustainable development for HE.

If you would like to hear more about either workshop contact either Christine Blackmore at the Open University e-mail c.p.blackmore@open.ac.uk or Stephen Martin at The Natural Step UK e- mail steve. martin@tnsuk. demon. co.uk or telephone 01242 262744.

IES INFORMATION

Obituary: John Connell FIEnvSc

John Connell, a stalwart member of the IES since its foundation and its Hon. Treasurer from 1976 until 1996, died in September at the age of 88. John had made a vital contribution to the Institution for more than 28 years.

After some business activity before World War II, John joined the navy and served in various capacities for six years. After the war, he established a thriving public relations business in London. But his life was not bounded by a single interest: he later became a Fellow of the Institute of Directors, a member of the Royal Society of Health, and other bodies.

One of John's greatest achievements was the founding of the Noise Abatement Society which pioneered campaigning in this important environmental field. By successfully persuading authorities to introduce noise abatement measures it contributed greatly to the spread of awareness of the health issues involved. He was still serving as the society's chairman at the time of his death.

John Connell had joined the IES on its foundation and soon becme a member of Council. As Hon. Treasurer, his financial acumen and business sense proved to be crucial to the Institution. He also made an outstanding contribution in promoting activities such as publicity and relations with other bodies.

His devotion to public duties and concern for the welfare of his fellow human beings were exemplary. John was awarded the OBE in recognition of his services to charity.

His death is a loss to us all. I have lost a good and loyal friend; the IES has lost a pillar of its existence.

J. Rose FIEnvSc
Vice-President

Review: The expert witness in court

The Expert Witness in Court: A Practical Guide (second edition); by Catherine Bond, Mark Solon and Penny Harper; published by Shaw and Sons Ltd; ISBN 0 7219 1141 1; £25.00 (paperback)

The use of expert witnesses in court cases is growing and this is particularly true of cases involving environmental issues. The growing volume of EU and Government legislation must inevitably be reflected in the courts.

Past experience has shown that many expert witnesses have little or no experience of court procedure and suffer thereby. This is likely to be true of experts in the environmental field as this type of litigation or prosecution is of fairly recent vintage.

This book is a straightforward guide on how the legal system works and the expert's part within it. It is quite basic in approach but covers the whole range of experience of law and the process of giving evidence. Since cases can be won or lost on the strength and validity of expert evidence, it is important that professional witnesses understand the context in which they operate.

The text underlines the fact that the expert witness has a role to communicate the knowledge gained in the professional specialist field in a legal setting. This is in addition to the ability to demonstrate adequate qualification and expertise and to present properly developed technical information. The book is valuable reading for any expert professional who is likely to become involved as a witness.

Dr R. A. Fuller

The Hon. Secretary's news desk…

Daily Telegraph/BASF Awards

Students and younger members may be interested in the recently announced Daily Telegraph and BASF 'Young Science Writer Awards 2000' – an opportunity for young scientists to publish an article in the Daily Telegraph, visit the USA and win cash prizes.

Entry is open to aspiring science writers between the ages of 16 and 28 and the requirement is for a short article of approximately 700 words (any over 800 words will be disqualified) that presents any exciting scientific discovery or topic of research in a vivid and readable style. Closing date for entries is 10th March, 2000 so your time is limited!

For further details and instructions on how to enter phone The Daily Telegraph BASF Young Science Writer hotline on 020 7704 5314.

Government responses

A number of responses to consultation papers were made during the autumn of last year, mostly concerned with planning issues and rights of access to the countryside. One response to the RCEP on environmental planning was published in the December Journal.

More recent responses have dealt with limiting landfill, onshore oil, gas and coalbed methane extraction and sustainable water resources. A response on improving enforcement appeal procedures is in preparation.

The editor of Environmental Scientist can now be contacted by e-mail at:

richard@rdix.freeserve.co.uk

WWF Appeal

A new campaign has just been launched by WWF to boost their efforts worldwide for the preservation of endangered species. As they comment 'celebrations have been taking place… to herald the dawning of a new age… The world is rejoicing but as it does so the remorseless destruction of the very planet we live on continues…'

Dramatic statements, but the statistics make grim reading. The South China tiger, the Siberian tiger, the Indo-Chinese tiger and the Bengal tiger are disappearing fast and very few are left in the wild. The rhino, mountain gorilla and orang utan are vanishing apace. Habitats continue to be burned, polluted and destroyed.

What WWF is seeking to do deserves all our support both moral but especially financial. I commend their appeal to all our members.

Environment Industry Yearbook

The millennium edition of Environment Industry Yearbook 2000 is now available to IES members at the discounted price of £80 (£5 discount). A leaflet giving details of this publication is included with your copy of the Journal.

Are you doing your bit?

In May 1999 the DETR launched its above captioned campaign. This is a major appeal to the public at large to take part in concerted action for environmental conservation.

The Campaign has two basic aims. The first is to raise awareness of some of the environmental problems which exist today. The second is to encourage individuals, groups and organisations to initiate activity, which will contribute to an easing or amelioration of these problems. Whilst many of these actions may seem quite minor or inconsequential in themselves the hope is that if enough people join in then the cumulative effect can be quite substantial.

The DETR has produced four single page (A4 printed both sides) fact sheets providing information on:

- Transport
- Energy
- Water
- Waste.

It has also produced a small booklet entitled 'Every little bit helps' offering useful advice on what everyone can contribute:

- at home
- when travelling
- while shopping
- at work.

There is also a special website at www.doingyourbit.org.uk where these can be viewed. Printed copies can be obtained from:

'Are you doing your bit'
Merit House
Timothy's Bridge Road
Stratford upon Avon
Warwickshire CV37 9HY

The Institution is supporting the campaign and members are encouraged to also 'do their bit'.

Obituary

It is with sadness that we record the recent death of **Mrs R. H. Marsden**, an Associate Member of the Institution. We extend our sympathy to her family.

RAF

New members

The IES is pleased to welcome the following to membership of the Institution:

Mr N. J. Gatley	Recent Graduate University of Glamorgan
Mr J. F. B. Wilson	Environmentalist, BASEC
Mr M. S. Hj. Radzuan	Engineer Government of Brunei
Mr R. C. L. MacDonald	Technical Officer, Stockport MBC
Mr D. J. Higgins	Environmental Technician, REC Ltd.
Mr C. J. Crompton	Environmental Scientist, REC Ltd
Mr W. C. Chow	Environmental Scientist City University of Hong Kong
Mr R. S. Tremellen-Frost	Environmental Consultant
Mr F. M. Pedju	Recent Graduate Manchester Metropolitan University

Forthcoming events

2 March 2000
Developing Effective Integrated Transport Policies and Programmes

Royal Overseas League, London, £269
A one day seminar discussing practical approaches to achieving effective integrated transport.
Details: Louise Rushworth, QMW Public Policy Seminars. Burlees House, Hangingroyd Lane, Hebden Bridge. West Yorks, HX7 7DD, 01422 845584 e-mail seminars@qmwpps.demon.co.uk

22-24 March 2000
Working with your stakeholders, resolving conflict and building consensus on environmental issues

Wast Hills House, Birmingham, £445-845
Three-day management development course in process design and facilitation skills.
Details: Matthew Stubbings. The Environment Council, 212 High Holborn, London, WC1V 7VW 0171632 0103 e-mail matthews@envcouncil.org.uk

10 -14 April 2000
Management and ecology of lake and reservoir fisheries

University of Hull, Hull
Four-day symposium and workshop.
Details: Dr lan Cowx, Management and Ecology of Lake and Reservoir Fisheries, University of Hull, International Fisheries Institute, Hull HU6 7RX, e-mail i.g.cowx@biosci. hull. ac. uk

5-9 June 2000
Healthy environments – the local challenge

Oslo, Norway
Call for papers.
Conference covers local communities involvement in developing healthy environments.
Details:
PLUS Convention Norway A/S, P.O. Box 1646 Vika, N-O 119 Oslo 47 67 56 90 12,
e-mail chaskim@onlinc.no

21-22 June 2000
Surface transport 2000

TRL, Crowthorne, Berkshire.
Exhibition, demonstrations and conference with seminars on environmental issues, recycling, pavement management, electronic fee collection, road design and safety.
Details:
Patricia Pascoe,
Transport Research Laboratory.
Old Wokingham Road, Crowthorne, Berks, RG45 6AU
01344 770166
e-mail ppascoe@trl.co.uk

Diary dates 2000

8th March	Education Committee	10.30
	AGM & Council	13.30
27th March	GP Committee	13.00
5th July	Education Committee	10.30
	Council	13.30
11th September	GP Committee	13.00
1st November	Education Committee	10.30
	Council	13.30
	Burntwood Lecture	18.30

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- Enhanced landfill strategy
- Waste minimisation: the long term benefits
- European study on EISs of installations for the treatment and disposal of toxic and dangerous waste
- Mercury fall-out from crematoria

Education and training

- Environmental courses undergo a quality assessment
- Student environmental declaration
- On-line information systems in environmental sciences courses
- Global environmental charter and network for students

Business and industry

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- The Brent Spar and the best practical environmental option

National and local government

- Transport policy, environmental pressures and the new UK government
- Local Agenda 21 – making it work

Price: £5 per paper including p&p
(£3 per paper for members)

Contributors

The *Environmental Scientist* aims to provide a forum for members' contributions, views, interests, activities and news, as well as topical feature articles. Articles up to 3000 words should be submitted to the Editor three weeks prior to publication in the last week of January, March, May, July, September and November. Editor's address: 25 Kennedy Avenue, Huddersfield, West Yorkshire, HD2 2HH; telephone 01484 426796, fax 01484 546640, e-mail richard@rdix.freeserve.co.uk

Views expressed in the journal are those of the authors and do not necessarily reflect IES views or policy.

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