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Editor: Michael Romeril ● Assistant Editor: Derek Hall

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ENVIRONMENTAL NEWS

Tackling climate change: a transformation in energy use

As a contribution to global efforts to prevent climate change running out of control, the United Kingdom should plan for a reduction of 60 per cent over the next 50 years in the amounts of carbon dioxide it produces by burning fossil fuels. This is one of the key conclusions of a major report published in June by the Royal Commission on Environmental Pollution. The report, *Energy – the changing climate*, explores what that will mean for industry and ordinary households, and how government policies need to change.

The Chairman of the Royal Commission, Sir Tom Blundell, said: 'Recklessly causing large-scale disruptions to climate by burning fossil fuels will affect all countries. It is the poorest that would suffer most. We cannot expect other nations to do their part in countering this threat – least of all if they are much less wealthy – unless we demonstrate we are really serious about it.'

The UK has already played a leading role in international negotiations, and the Royal Commission thinks it can, and should, continue to do so. The amounts of carbon dioxide the UK emits are now significantly lower than in 1990, but much of the progress so far has been fortuitous. The Commission welcomes the government's goal of a 20 per cent reduction from the 1990 level by 2010 as a major step in the right direction. It recommends that this should become a firm target, but expresses doubts whether the measures at present proposed will achieve it. The UK lags far behind many other European countries in developing the renewable energy technologies that will become much more important in future, and in the very inefficient ways heat is supplied to homes.

The primary purpose of the report is to look much further ahead than the UK's draft Climate Change Programme. The Commission highlights the difficulties there will be in maintaining a 20 per cent reduction beyond 2010, let alone making much larger reductions. It emphasises the need to start now on making reduction of carbon dioxide emissions a key factor in the planning and design of power stations and buildings of all types, many of which will still be in use in 2050. Ways have to be found of achieving sustainable solutions within liberalised energy markets, in which the emphasis has so far been on minimising price per unit in order to maximise sales of energy.

At the moment, use of energy, predominantly in the form of oil, gas or coal, is continuing to increase, both worldwide and in the UK. The Royal Commission has investigated

- the scope over the next 50 years for replacing fossil fuels by expanding the UK's use of renewable energy sources, such as wind power, solar energy and energy crops. Their use will have to expand to well beyond the 10 per cent of electricity generation which the government has suggested as a target for 2010;
- whether nuclear power could be part of the solution. Nuclear waste will first have to be dealt with to the satisfaction of the scientific community

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and the general public. People are unlikely to accept new nuclear power stations unless they are part of a strategy that also delivers radical improvements in energy efficiency and an equal opportunity for deploying renewable energy sources that can compete in terms of costs and reduced environmental impacts;

- the potential for reducing the large losses within the energy system, especially the large amounts of heat wasted at power stations;
- the potential for industry, households and motorists to make much more efficient use of energy;
- the possibility that some of the carbon dioxide produced when fossil fuels are burnt could be recovered and piped safely away into geological formations under the seabed.

To show the scale of the changes required to achieve a 60 per cent reduction in UK carbon dioxide emissions, the Royal Commission describes four scenarios for 2050 representing various combinations of these approaches. It emphasises that these scenarios are illustrative. But all of them involve a reversal of the previous trend of growing energy use, and in three of them the total amount of energy used would have to be much less than today.

Some of the scenarios might involve significant changes in lifestyles. All involve constructing many new energy installations, with resulting impacts on the environment. The challenge climate change poses for the world is so fundamental, however, that a complete transformation in the UK's use of energy will be an essential part of an effective global response.

The Royal Commission's report makes 87 recommendations. Many of them are addressed to the devolved administrations in Scotland, Wales and Northern Ireland as well as to the government at Westminster. Among the 19 key recommendations are

- a long-term programme to cut considerably the energy used in buildings of all types;
- creation of a Sustainable Energy Agency to boost energy efficiency in all sectors and link that to the rapid development of renewable energy sources;
- a tax on fuels that give rise to carbon dioxide emissions (preferably Europe-wide), replacing the government's planned energy tax on industry and business;
- using the resulting revenue to reduce fuel poverty, as well as boost new and more sustainable technologies;
- a fundamental review of the financing, management and regulation of electricity networks (like the national grid), in order to encourage renewable energy sources and combined heat and power plants, serving whole neighbourhoods or even individual houses;
- quadrupling government support for energy-related research and development to bring it in line with the present EU average. Government expenditure on R&D fell by more than 80 per cent between 1987 and 1998, and private sector spending appears to have fallen too.

Sir Tom Blundell said: 'Energy policies must command public assent and be compatible with an improving quality of life. If UK industry is to remain competitive, it has to shape up to the very different world that lies ahead. We also have to overcome the particular UK problem that, because of inadequate insulation, several million people cannot afford to keep their homes comfortably warm in winter.'

He added: 'The problems are complex and there are no easy answers. We hope the analysis and recommendations in our report will begin the wide debate that will be essential if the UK and the whole world community are to rise successfully to the radical challenge that climate change is now posing.'

The Royal Commission on Environmental Pollution is an independent body which publishes in-depth reports on what it identifies as the crucial environmental issues facing the UK and the world.

The Commission's reports are presented to Parliament. *Energy – the changing climate* is its 22nd report, and is the outcome of a major study, announced in August 1997, which reviewed energy prospects for the 21st century and their environmental implications. It focuses on the need to reduce considerably over the next 50 years the UK's emissions of carbon dioxide from burning fossil fuels, as part of global efforts to prevent climate change running out of control.

Energy – the changing climate is available from the Stationery Office (Cm 4749, price £27.00), or the full text of the report can be downloaded free of charge from the Commission's web site. Because the Commission believes the issues raised are of concern to everybody, it has produced a free summary of the report, and is sending this to every secondary school, public library, university and college in the United Kingdom. This summary is also available on the Commission's web site. Up to ten copies of the printed version can be obtained without charge from Rosemary Ferguson:
Tel: 020 7273 6637,
Fax: 020 7273 6640,
e-mail: *rosemary.ferguson@rcep.org.uk*

Commenting on the Royal Commission report, Environment Minister, Michael Meacher, said: 'The RCEP is right to highlight how enormous the challenge of climate change really is. We must rise to this, but cannot do so alone. The targets agreed at Kyoto are an essential first step and show that the international community is taking the problem seriously. And we have shown that the UK is prepared to go even further, through our domestic goal of cutting emissions by 20 per cent by 2010.

'But in the longer term, the RCEP report highlights the need for making even deeper cuts in emissions, and some of the challenges this presents, particularly for energy policy. Our draft Climate Change Programme, published in March, aims to put us on the right path to this lower carbon future.

'At present we are assessing some 275 detailed responses to the draft programme, and will publish our final programme in the autumn.

'We welcome the RCEP's contribution to the discussion on climate change and its valuable focus on the long term. None of us can afford to underestimate the challenge that lies ahead.'

At Kyoto in December 1997 developed countries agreed to reduce emissions of a basket of greenhouse gases to 5.2 per cent below 1990 levels over the period 2008-12. The six gases covered by this legally binding target are carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride.

■ *Copies of the draft UK climate change programme and a free-standing summary are available from DETR Free Literature, PO Box No 236, Wetherby S3 7NB; Tel: 0870 1226 236, Fax: 0870 1226 237. They are also available on the DETR web site.*

Business and government working together to combat climate change

A new report published by the Advisory Committee on Business and the Environment details how the Government and business could work together more effectively to combat climate change.

Assessment of joint implementation and clean development mechanism: potential opportunities for UK business outlines how UK business could benefit from projects to reduce greenhouse gas emissions in other countries.

The ACBE report makes several recommendations to Government on its preferred format for the two project-based Kyoto mechanisms, Joint Implementation (JI) and the Clean Development Mechanism (CDM), and how to promote business involvement.

One of the key recommendations is that Government sets up a 'Kyoto Mechanisms Office' to advise on business opportunities from JI and CDM.

In response, Government has today relaunched its 'virtual office' web site to advise business on the Kyoto mechanisms and has appointed an Export Promoter for Energy and Environment.

The web site gives advice and support on how to develop emission-reducing projects overseas, identifies what business can gain from these projects, answers frequently asked questions, outlines the state of play with international negotiations, and asks for input to Government thinking on the Kyoto mechanisms.

The Government has asked ACBE to provide guidance on options for a real, staffed advisory office for the Kyoto mechanisms.

The Advisory Committee on Business and the Environment (ACBE) provides for dialogue between Government and business on environmental issues and aims to help mobilise the business community in demonstrating good environmental practice and management. Members are business leaders from a wide range of sectors.

ACBE's report and further information about ACBE's work can be found on the internet on ACBE's new webpage: *http://www.environment.detr.gov.uk/acbe/index.htm*

Copies are available by quoting product code 00EP0264 from: DETR Free Literature, PO Box 236, Wetherby, West Yorkshire LS23 7NB; Tel: 0870 1226236; Fax: 0870 1226237.

Inventory of greenhouse gases in N.W.

North West England has become the first English region to release an inventory of greenhouse gas emissions, widely regarded as the cause of rising global temperatures. The inventory is part of a major new push to improve the region's response to climate change.

The inventory, prepared by Manchester Metropolitan University's Atmospheric Research and Information Centre and UMIST is being published by the Northwest Climate Group, a partnership of Northwest NGOs, businesses and government bodies.

The inventory shows that Cheshire citizens are releasing 10 per cent more carbon dioxide per head than others in the region while the less wealthy in Merseyside are responsible for 8 per cent fewer emissions. An average North-Westerner is responsible for 12.7 tonnes of CO_2-equivalent greenhouse gases each year, equal to the amount emitted by driving from Lands End to John O'Groats and back 30 times.

Carbon dioxide is revealed by the inventory as the most important of the six greenhouse gases studied, contributing 70 per cent of the region's global warming. With a total of 61.1 million tonnes of CO_2 released each year, the inventory points out that the North West produces around one kilogramme of CO_2 for every £1 of its economic activity (GDP).

To put the greenhouse gas emissions into context, the inventory's authors point out that just to absorb the CO_2 emissions, four million hectares of poplar plantations would be required – three times the land area of the entire region. Even if the whole of Cumbria was covered in poplars it would still only absorb 12 per cent of the region's emissions.

Industry, the domestic sector and transport are the three largest contributors to global warming in the North West, responsible for 37 per cent, 18 per cent and 18 per cent of emissions respectively. But as the inventory points out, a major industrial innovation in Cheshire is set to slash industry's (and the region's) greenhouse gas emissions dramatically.

ICI Runcorn which produces the successors to the ozone-depleting CFCs also produces HCFCs. One by-product of this latter product is a powerful greenhouse gas, each tonne of which has the global warming potential of 11,700 tonnes of CO_2. A new incinerator due to be commissioned at the Runcorn plant will reduce these emissions by a massive 90 per cent. Due to the potency of HFCs, this new incinerator will reduce the North West's total greenhouse gas emissions by 15.5 per cent – more than the target agreed by the UK government at Kyoto.

Following the installation of the ICI incinerator, the domestic sector, industry and transport are revealed as being equally culpable, with 23 per cent, 24 per cent and 22 per cent of greenhouse gas emissions respectively.

Sustainability Northwest, which co-ordinates the Northwest Climate Group, spelled out the significance of the Northwest Greenhouse Gas Inventory:

'Climate change is already set to have a huge impact on our region. Sea levels will rise, as will our temperatures, it will get stormier, windier and wetter during winter,' commented Steve Connor, the Communications Director. 'These are the impacts which we have already set in train through the release of greenhouse gases. What this inventory will help us to do is to slash our future contributions to global warming. To deliver a safe and more stable climate to our children we need to make some radical reductions in our emissions of these gases – this inventory will help us target our actions and get to grips with the greenhouse effect.'

Sustainability Northwest was established in 1995 and is Europe's first cross-sectoral partnership working for sustainable regional development. It conducts programmes and activities on organisational social and environmental responsibility, long range thinking, regional strategy and climate change.

The waste mountain – waste of money, waste of space

Tough statutory targets for recycling; developing new markets for recycled waste; turning public sector purchasing green; giving more producers responsibility for recycling of used products; and enlisting householders in the drive to recycle and compost more waste are all key to tackling our growing waste mountain, Environment Minister Michael Meacher said when he published the Waste Strategy for England and Wales.

He announced that more re-use and recycling schemes will be eligible for support from proceeds of the landfill tax credit scheme.

Key measures in the waste strategy include:

- new plans to require Government departments to buy recycled products, starting with paper;
- statutory local authority recycling targets and action plans;
- more use of the landfill tax credit scheme to deliver an increase in recycling, particularly of household waste;
- the new Waste and Resources Action Programme dedicated to developing new markets for recycled waste;
- tradable permits limiting the amount of waste local authorities can send to landfill sites;
- extending producers' responsibility to recover their product, for example newspapers, and junk mail; and
- continuing to raise public awareness, working with the National Waste Awareness Initiative.

Under the Waste Strategy, local authorities will recycle 17 per cent of their waste by 2003, almost double the current amount, and by 2015 at least 33 per cent – around four times today's rates. The targets will be reviewed and made even tougher if technology improves.

Without determined action from everyone, Michael Meacher said, councils could be handling a massive 50 million tonnes of household waste a year by 2020. Acting now to cut waste would avoid the need for hundreds of extra new waste facilities in the coming decades.

And we are simply throwing money away. Even at today's recycling rates, recycling aluminium cans, for example, saves £21 million a year, producing 95 per cent less greenhouse gas emissions than using raw aluminium.

'Waste is a growing problem which is costing us all dear. Much of our waste can be reused or recycled – meeting this challenge will help deliver a better quality of life for future generations. The Waste Strategy shows how we can achieve our prime objectives of cutting waste and making the most use of the waste we do create. It will not only help save money and space, it will help our fight against climate change – recycling saves energy and cuts down on the amount of methane emitted from landfills.

'The strategy will help develop markets for recycled materials, a crucial element of the drive to increase recycling. Where local people agree that waste-to-energy incinerators are appropriate, these will be designed not to compete with recycling schemes. And public procurement will help increase demand for recycled goods, raising awareness of the high quality of recycled alternatives and providing secure markets for those wishing to invest in reprocessing and manufacturing recycled products.'

The UK is committed to cutting landfill of biodegradable waste by around two-thirds by 2020. At current rates of growth, this would mean having to divert 33 million tonnes a year to other waste management methods, including increasing the use of waste to energy incinerators. The waste strategy sets out the changes needed to deliver more sustainable development.

Combined recycling and composting targets set for England and Wales are:

- to recycle or compost at least 25 per cent of household waste by 2005;
- to recycle or compost at least 30 per cent of household waste by 2010;
- to recycle or compost at least 33 per cent of household waste by 2015.

Fuller details of targets are set out in the strategy document.

The Waste Strategy 2000 is available from the Stationery Office, Cm 4693-1&2: Part 1 ISBN 0-10-146932-2 price £10.00, Part 2 ISBN 0-10-146933-0 price £20.00.

A new recycling web site has been created with reduction and recyling advice, including interactive games and ideas. The useitagain web site is at *http://www.useitagain.org.uk*

The revised UK Management Plan for Export and Imports for Waste is also published for consultation and is available from Department of the Environment, Transport and the Regions, PO Box 236, Wetherby, West Yorkshire LS23 7NB; Tel: 0870 1226 236; Fax: 0870 1226 237. Please quote 00EP0034.

Restoration of Kugurlui polder sets example for Ukraine

Paul Goriup

In a path-breaking initiative for Ukraine, and indeed the whole Lower Danube Region, the WWF Project Office in Odessa is coordinating an ambitious plan to restore wetland habitats in the 1200 hectare Kugurlui polder. WWF Office Director, Natasha Goriup, says, 'This project exactly demonstrates the benefits of the Partners for Wetlands approach that we are taking. By involving local authorities, land users and owners, private enterprise, as well as the scientific and management expertise of Ukrainian and international specialists funded by the European Union Tacis Programme, we have been able to design a plan that integrates wetland restoration for biodiversity with benefits for local people through sustainable development.'

The area occupied by the polder, located between Kartal and Kugurlui lakes and the main channel of the Danube river in Reni Raion, was once part of the extensive natural floodplains inundated by seasonal flooding of the Danube. In order to increase the local area of arable land, dikes isolating the polder from natural flooding were built in 1957 and irrigation channels, fed from the Danube by a pumping station, were constructed in the early 1980s.

For a time, agricultural production on the polder was highly successful owing to state subsidies for chemical inputs, fuel, seeds and the electricity required to pump water for both drainage (in winter/spring) and irrigation (summer). However, political change and economic crisis since the early 1990s has led to the collapse of these subsidies and irrigation of the polder stopped in 1994 (although drainage was carried on to some extent until 1999). Productivity decreased accordingly and the area under cultivation fell to around 250 ha in 1997 (less than 20 per cent of the total polder area).

A vegetation survey conducted in summer 1999 showed that a substantial part of the polder has already reverted to semi-natural vegetation. The survey also indicated a high likelihood for the restoration of near-natural meadow and marsh communities given the right management regime.

The aim of the restoration plan is to convert the polder into a seasonally flooded wetland with high biodiversity values and potential for development of sustainable agriculture (cattle and horse grazing, some organic cultivation), regenerating native woodlands for fuelwood, and tourism (boating, horse riding, walking, and fishing).

According to Oleg Dyakov, head of the WWF Wetland Management Team, the project will set a unique example because the management regime will be 'active' rather than the 'passive' forms of restoration (for example, simply making holes in the dikes) undertaken elsewhere in the Danube Delta. 'To maximise the chances of reaching the restoration objectives,' says Ivan Kichuk of Odessa Water Management Department, 'and to minimise costs, as well as to protect human settlements from any restoration-related flooding, it was decided that the polder dikes should be retained, with hydrotechnical works being used instead to mimic and control a seasonal flooding regime. This means that a carefully designed schedule of opening and closing sluices will be required on a continuing basis.'

Six different options for hydrotechnical works were devised and evaluated under the supervision of Yuri Sokolov, a professor at the Odessa Hydrometeorological Institute. The works for the preferred option have been designed by the Odessa Water Engineering Institute and should be in place by the end of July this year.

The future management of the polder is now being worked out in detail, with the active involvement of the Ministry of Ecology and Natural Resources and the Wetland Management Unit of the Azov-Black Sea Ornithological Centre. Valery Nebrat, Head of the Odessa Department for Environmental Protection, says, 'Not only is the project important for biodiversity enhancement, but by taking account of economic returns, it will have a viable and sustainable future.'

In this regard, the participation of a British ethical investment company, Fieldfare International Ecological Development plc, is particularly important. Fieldfare will bring much-needed capital and know-how for establishing the local businesses that can benefit from using the polder's natural resources in future. Already, the company has prepared strategic plans for investments in organic agriculture, reed harvesting, sport fishing and ecotourism. 'Turning these plans into real enterprises will be a great challenge,' explains Charles Rowney, a Director of Fieldfare, 'but we are confident that the positive attitude of the local partners will provide a good climate for generating ecologically sustainable business in and around Kugurlui polder.'

The restoration of Kugurlui polder will not only be of importance in itself. Sergei Matveyev of the Central Board for National Nature Parks points out: 'This initiative will go a long way to fulfilling the regional responsibilities of Ukraine within the Lower Danube Euroregion area, and also its international commitments under the Ramsar Convention on Wetlands of International Importance, and the recent Lower Danube Green Corridor Agreement signed by Ukraine, Romania, Moldova and Bulgaria. It is intended as a precedent and model for similar activities elsewhere.'

GM field trials and the democratic process

Dr Sue Mayer, GeneWatch UK

The field trials with genetically modified (GM) crops have formed a focus for direct action protest over the introduction and use of GM crops and foods in the UK. Are the destructions of the crops the actions of irresponsible groups or individuals with an anti-scientific agenda based on fundamental opposition to the transfer of genes between species? Or do they reflect a failure in the democratic processes which have sanctioned the trials? GeneWatch UK does not engage in direct action; we undertake policy research from the perspective of environmental protection, animal welfare and the public interest. This research has demonstrated that it is the serious shortcomings in the democratic process which have led to direct actions.

The first plants were successfully genetically modified in 1984 and the first field trials took place in Europe in 1985. Even at that very early stage in the development of the science, the biotechnology industry, having recognised a commercial opportunity, was at the forefront in undertaking the majority of the trials. Since those early days, the private sector has continued to dominate the trajectory of the technology. In parallel, there has been consolidation in the sector with agrochemical companies acquiring seed companies and small agricultural genetics companies. As a result we now have five large corporations undertaking 80 per cent of crop genetic modification globally.

The policy in Europe, which took shape in the late 1980s, was to encourage the development of the biotechnology industry while putting in place regulations (such as the Deliberate Release Directive) intended to prevent the potential harm that had been foreseen by scientists. Therefore, underlying policy in Europe and the UK has been a taken-for-granted assumption that GM crops are a positive development for agriculture and that future competitiveness depended upon their use.

However, research on public attitudes to the use of genetic modification in agriculture has, since the early 1990s, shown it to be very sceptical. Inevitably, given scientific concerns about environmental and human safety, people have been worried about the risks, particularly as they could be irreversible and only evident in the long term. In whose interests such risks were to be taken is a question that has clearly influenced attitudes to different applications of the technology for some considerable time. When assessing the technology, people have long been sceptical that it was going to be used in the public interest. Ethical concerns have centred on whether genes should be transferred between species and whether the trajectory of the technology could be controlled once the genie was out of the bottle.

From these general feelings about the dangers of genetic modification, its control and application, there has been one very clear policy message that, at the very least, there should be labelling to enable people to have choice about whether to eat GM foods or not. However, the wishes of citizens were ignored, fracturing trust – possibly irretrievably – on this subject. Labelling is restricted to measurable differences in altered DNA or protein leaving most derivatives of GM foods unlabelled. Because soya is now found in around 60 per cent of all processed foods in some guise, when GM soya was first imported mixed with non-GM soya in 1996 and choice was effectively wiped out, people reacted with anger. Action ranging from phoning companies' care lines to boycotting products led to most major food retailers acting where the Government did not and removing GM derivatives from their own brands during 1999.

As people learnt more about GM crops in the middle to late 1990s, they also realised that they were being tested in their local environment. There was no consultation about such experimentation, information being restricted to an advert in a local paper with no

requirement for public opinion to be taken into account. When concerns were raised about the trials and safety testing they covered a whole spectrum of issues, ranging from cross-pollination and gene flow, the paucity of ecological testing, the absence of any legal liability for harm and the socio-economic impacts on farming, including the interests of organic and non-GM farmers. However, the regulations covering environmental safety restricted themselves, until very recently, with only the immediate impacts of the GM crop and whether it would become invasive of natural habitats and whether there were related wild plants with which it could cross-pollinate. Furthermore, the yardstick of harm is derived from a comparison with conventional agricultural methods. If the GM crop is considered no more harmful than a crop grown with conventional agriculture, it is considered safe. At a time of increasing recognition of the harmful effects of conventional farming on our landscape, this has not been a reassuring approach.

Issues such as liability for harm and the wider consequences for agriculture of using GM crops were deflected by civil servants and Ministers alike as not being within their remit or that of a particular set of regulations. 'Safety' according to the Government was a completely different thing than 'safety' according to the wider public. As a result, frustration grew that the institutions responsible for safety could not be trusted to act in the public interest. The public's experiences with BSE seemed to be replayed in the GM foods arena. Sacking Dr Pusztai over the GM potato research reinforced the feeling that there was something to hide and that the Government could not be trusted to take matters seriously. The US was also known to be putting pressure on Europe to speed up its GM crop approvals and the public felt bullied.

Unfortunately, letting people know what was going on, involving them in the debate and taking their views into account has never been the approach to GM crops in the UK. The establishment has always felt it has known best about GM crops and has belittled public concerns as being based on ignorance. In the face of such intransigence, the actions of groups and individuals to draw attention to the GM crops issue through direct actions on trial sites is hardly surprising.

Whilst it is doubtful that we will ever have a society where the actions of citizens are not needed to highlight wrongs, how we try to avoid failures in democratic processes over the introduction of new technologies is an important question. To do this I believe we have to develop a new approach to risk evaluation. This should have three key elements:

- the basis of the risk assessment should be arrived at through a process of debate involving all those parties who may be affected by the outcome;
- a comparative risk evaluation should take place which compares different options (the risks and benefits of growing a crop under different agricultural systems, for example) rather than looking for a single proscriptive answer 'safe' or 'dangerous';
- a broader base of knowledge should be used in the assessment than the current approach of scientific 'experts' by including, for example, practitioners such as farmers with practical experience of an issue.

There may be an inclination to dismiss more inclusive approaches to technological risk evaluation as being too time consuming and neither rigorous nor transparent. However, not only are a range of techniques used successfully in other countries but the present approach of trying to enforce a technocratic solution has singularly failed. The real question is whether our institutions will show themselves to be flexible enough to respond to the new democratic challenges of the 21st century.

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Greens alone do not make for a healthy and balanced diet

Marcus T. Armes

On May 13 1998 I had just finished researching the work of the Great Yarmouth Recommissioning Partnership (GYRP) for an adjournment debate to be delivered by Great Yarmouth's MP, Tony Wright, when I noticed a front page story in one of the nation's broadsheets. The story, which appeared in several newspapers that day, was based on an assertion by Greenpeace that the government was planning to allow the disposal of offshore platforms at sea. As with so many stories, the piece was high on journalistic spin and supposition but very short on hard evidence.

That evening Tony was to explain to Parliament how in his constituency a group of offshore companies had teamed up with environmental scientists from the University of East Anglia, local government and the Port Authority to pioneer an innovative project. The project, which offers environmental and commercial advantages by refitting and reusing offshore platforms rather than scrapping them, is a process known as recommissioning. Naively I sent out a press release about the debate, hoping that the imaginative appliance of innovation in the offshore sector might appeal to a quality press, which had considered offshore platforms to be front page material only hours earlier. Unsurprisingly, the press proved to be far more interested in disseminating the conjecture and supposition of an environmental pressure group

than reporting a technical debate on innovative environmental solutions. There is little doubt that many MPs and their researchers have experienced similar frustration.

Clearly we are not living in a country which encourages its politicians to indulge in serious debate on scientific and environmental issues. However, as Sir Ian Lloyd said in an editorial in *Science in Parliament:* 'Parliament is a critical component of the "public". Therefore it is crucial for the good of the scientific community and the environment that parliamentarians continue to promote pragmatic and intelligent solutions to the great environmental challenges of our era. Failure to do so will almost certainly result in another Brent Spar, where a badly conceived plan by an ill-prepared oil industry enabled Greenpeace to dictate a course of action even many in the green movement have subsequently admitted to be disastrous. The genetically modified food "debate" has all the ingredients of another embarrassing fiasco, as food industry spin comes into contact with green hysteria, leaving an impotent scientific community high and dry and the public anxious and confused.'

Furthermore, the scientific establishment is not well equipped to lead the debate, as most scientists, environmentalists and technologists are not trained to handle the media, making the dissemination of complex concepts and methodologies to a public that is not encouraged to be scientifically literate an onerous task. Members do not help by cherry picking bits of research data, without proper reference to the context of the material, usually to accommodate a particular political prejudice. Moreover, some members appear to have adopted the current vogue that it is "cool" to not understand science, by demonstrating a perverse pride in their failure to comprehend scientific concepts. It was very apparent during my time at Westminster that members were keen to demand clarification and explanation on virtually every issue except science, where often statements went unchallenged because it was assumed that members with letters after their names knew what they were talking about. There is no excuse for this approach, as MPs have at their disposal a wealth of talented scientists based in the Commons Library and at the Parliamentary Office of Science and Technology. It is hardly surprising that many scientists and technologists are concerned that the type of well meaning but ill-informed nostrums, which led to the Brent Spar fiasco, could be allowed to fill a possible intellectual vacuum at Westminster.

Unfortunately the culture in Britain, which is mirrored in the House, makes it politically suicidal for government to challenge decisions which environmental pressure groups consider sacrosanct. Despite the scare stories I referred to at the beginning of this article, last year the Government signed up to an international agreement which broadly outlaws the disposal of offshore platforms at sea. But was the decision, agreed at the OSPAR meeting in Portugal in the spring of 1998, genuinely the best environmental solution? Does it really make sense to transport hundreds of vast steel and concrete structures many miles at great expense, to be disposed of in landfill sites on our already overburdened island?

Many oceanographers, marine biologists and ecologists have challenged the logic behind the blanket removal to land of offshore platforms (decommissioning). Indeed, some environmental campaigners, such as Dr David Bellamy, in advancing a well-argued case for the use of certain structures as reefs designed to encourage marine life to flourish, have added their voices in support. There are numerous imaginative initiatives for the constructive reuse of offshore platforms that deserve serious consideration and which could provide effective environmental options to conventional decommissioning. Not only would these initiatives offer better environmental solutions, but they would also free up resources for more productive research and development into sustainable energy production, with a view to the long-term energy needs of developed and developing countries. With the estimated cost of the process of decommissioning platforms in the North East Atlantic and the North Sea put at around $10-12 billion, there is significant reward to be gained by defraying even a small proportion of the cost of disposal.

Happily for the pioneering GYRP, recommissioning does not fall foul of any international protocol, and recommissioning enjoys the support of government, industry and many environmental activists. With a fair wind, recommissioning should prove to be a valuable stepping stone on the energy industry's journey toward the full development of renewable and sustainable energy production. Surely that is an outcome all sides of the House and the environment debate can unite on. With the oil and gas industry indicating that they are prepared to use the funds salted away for decommissioning for a super-green fund, we could move towards the coveted goal of sustainable energy production more quickly by adopting an imaginative and flexible approach to the disposal and reuse of offshore platforms. But is the government prepared to risk the wrath of the greens, the media and an ever opportunist opposition to challenge the wisdom of the OSPAR decision?

Without doubt pressure groups will continue to play a useful part in highlighting environmental and scientific issues. However, MPs would be well advised to look for a balanced diet of information, as swallowing greens whole can lead to severe indigestion.

■ *Marcus Armes spent 16 months between November 1997 and March 1999 at Westminster as Parliamentary Researcher to Tony Wright MP. He is currently Outreach Project Development Officer at the Jackson Environment Institute in the School of Environmental Sciences at the University of East Anglia.*

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Launch of Science Council

Professional scientists in all disciplines received a welcome boost to their status in June with the formation of the Science Council at a reception addressed by the Science Minister, Lord Sainsbury, at the Royal Society in London.

The Science Council has been formed by leading professional institutes and societies representing over 100,000 scientists. It is hoped that, eventually, most scientific societies and professional bodies will join the Council, broadening further the range of expertise available. The Science Council replaces the Council of Science and Technology Institutes (CSTI). The new organisation will bring together the activities of its member organisations in areas where a collective response is desirable to provide a strong voice for British science.

Speaking at the launch, the Science Minister, Lord Sainsbury, said: 'I warmly welcome the formation of the Science Council. It will enable professional scientists to speak with one voice, and as such it will have a vital role to play, not only in explaining science, but also in understanding and responding to society's concerns about its use. Research indicates that the British public are basically pro-science, but the need to engage with public concerns grows ever more important.'

The Council is developing a chartered status for scientists, the CSci qualification. Dr Jack Gow, Executive Secretary, explained that the qualification would ensure a common standard of professionalism across scientific disciplines. In addition it would give professional status and recognition to those scientists working in interdisciplinary areas and who did not see themselves as belonging to one scientific discipline.

The broad base of the new Council's member organisations will give it a powerful voice with which to address the concerns of the United Kingdom's scientists, Sir Gareth Roberts, the first President of the Science Council, said.

'Both in the development of public policy for science and in the current debate on science and society, the new Council will provide a single focus for the country's professional scientists.'

The Council operates through a Board, a Secretariat, various working Groups and Advisory Committees. Currently, the Council represents about 100,000 individual scientists and technologists through its member organisations.

The Council aims to bring together the activities of its member organisations in areas where a collective response is desirable – the major areas being:

- advice of public policy issues which affect science and scientists, including responding to Government consultations;
- collaboration on activities relating to the teaching of science in schools and FE colleges;
- involvement of the professional scientific institutions in 'Science and society' issues, including working with the 'new COPUS';
- environmental issues where the combined expertise of member organisations is needed;
- advice on matters relating to scientists in health care;
- the development of a new CSci (Chartered Scientist) for professional scientists.

Current membership of the Science Council is:

Institute of Biology
The Royal Society of Chemistry
Association of Clinical Biochemists
Institute of Food Science and Technology
Geological Society
Institute of Physics
Institution of Environmental Sciences
The Association of Clinical Microbiologists
Institute of Mathematics and its Applications
Chartered Institution of Water and Environmental Management
Institute of Professional Soil Scientists.

Plans published for further major cuts in radioactive discharges

Plans for further major cuts in radioactive discharges over the next 20 years, to meet our Sintra commitments, have been published by Michael Meacher, the Environment Minister.

The United Kingdom's draft strategy is the first to be published, following a commitment in 1998 by member countries of the Oslo and Paris Commissions to cut discharges of radioactive substances. The OSPAR commitment aims to ensure that by 2020 radioactive discharges add virtually nothing to historic concentrations of radioactivity in the marine environment.

The strategy will also mean that, by 2020, no member of the general public will be exposed to a dose of more than 0.02 millisieverts a year, as a result of authorised radioactive discharges. The internationally agreed dose limit for members of the general public is 1 millisievert. Radioactive discharges currently account for less than 0.1 per cent of the radiation dose received by an average member of the public in the UK, most of which comes from natural and medical sources.

The draft strategy looks at discharges in six key sectors. Within these sectors, some cuts will come from decommissioning facilities, others will result from introducing new abatement technology or from tighter regulation of existing discharges. Proposed cuts are as follows:

- **Uranium enrichment and fuel production:** by 2020, liquid discharges are expected to be cut by over 99 per cent, to less than 1 terabecquerel (TBq) a year for beta-emitting nuclides and less than 0.01 TBq a year for alpha-emitting nuclides, largely due to the cessation of Magnox fuel production;
- **Nuclear energy production:** by 2020, on the assumptions used in the strategy for power station closure dates, total beta-gamma discharges* are likely to be cut by around 60 per cent, to less than 2 TBq a year;
- **Reprocessing:** by 2020, total

alpha/beta liquid discharges* are expected to be cut by more than 70 per cent, to less than 30 TBq a year, mainly as a result of ending the reprocessing of Magnox fuel;

- **Research:** by 2020, total beta/gamma discharges* should be cut by about 72 per cent to 1 TBq a year; total alpha discharges are expected to be cut to 0.01 TBq a year, as decommissioning programmes are completed;
- **Defence:** Liquid discharges from weapons production should be cut to zero by 2010. A strategy for achieving further reductions in discharges from the Naval Nuclear Propulsion Programme is also being developed and overall targets for the defence sector will be included in the final version of the strategy;
- **Other sources:** other minor sources of radioactive discharges are diverse; although no discharge profile or target is set for this sector, they will continue to be tightly controlled and cut wherever practicable.

The Government is also committed to cutting discharges of technetium-99 from Sellafield below 10TBq a year and has instructed the Environment Agency to review these discharges on a fast track basis.

BNFL has already announced the closure programme for the remaining Magnox power stations. This should allow Magnox reprocessing to cease by around 2012, well before 2020. Discharges from the other UK reprocessing plant, THORP, are much less than those from Magnox reprocessing and will be able to continue without jeopardising UK's ability to meet its OSPAR commitments.

Michael Meacher commented: 'The Government is determined to continue the downward pressure on radioactive discharges. This draft strategy marks a further significant step towards meeting our OSPAR commitment. We owe it to future generations to get this right.'

The draft strategy is being published for consultation and comments are invited by September 22. After taking account of the comments received, the Government intends to publish a final version of the strategy towards the end of the year. It will be available shortly on the Department's web site at *http://www.environment.detr.gov.uk/ras/index.htm*

Everyone is exposed to ionising radiation, most of which is of natural origin. Natural background sources of radiation include cosmic rays from outer space, gamma radiation from the rocks and soils of the earth's crust, and radionuclides (e.g. potassium-40) in foods. The background radiation doses which people receive depend on where they live, their habits and their diet. Some 85 per cent of the average amount of radiation to which the UK population is exposed each year occurs naturally. A further 14 per cent comes from medical exposure and most of the remaining 1 per cent is from fallout, occupational and miscellaneous exposure.

For the population as a whole, discharges from nuclear installations contribute less than 0.1 per cent to the annual average dose of 2.6 millisieverts (mSv). Some members of the public close to nuclear installations may receive higher doses, through ingestion and external exposure. The highest estimated dose to a small 'critical group' of members of the public in the UK is around 0.20 mSv a year, as a result of current and historic discharges from Sellafield.

At a meeting in Sintra in Portugal in July 1998, Ministers from each of the member countries of the OSPAR Commission (the purpose of which is to protect the marine environment of the north-east Atlantic) agreed a strategy for reducing radioactive discharges over the period to 2020.

The Government has committed itself to reducing radioactive discharges in order to meet this target. The UK is the first country to publish its own strategy, showing how it will meet the requirements of the OSPAR strategy.

An official-level meeting of OSPAR was held in Copenhagen in June. Radioactive substances were among the subjects for discussion at the meeting. Ireland and Denmark put forward draft decisions for discussion at the meeting calling for an end to the reprocessing of spent nuclear fuel.

The Government will shortly publish draft guidance documents that it proposes to issue to the environment agencies on the setting of radioactive discharge authorisations. That document will ensure that, in taking decisions on individual applications under the Radioactive Substances Act 1993 to discharge radioactive substances, the environment agencies will have regard to the discharges strategy and to the requirement to reduce discharges in the period to 2020.

Ionising radiation (usually referred to simply as 'radiation') is produced by the disintegration of atoms of radioactive isotopes of elements, or radionuclides. The activity of a given amount of a radionuclide is expressed by the rate at which these disintegrations occur, measured in becquerels (Bq). One becquerel equals one atomic disintegration every second. Radioactivity in liquid or airborne discharges is expressed in terms of becquerels. Measurements of radioactivity in air, water, sediment and biological media are expressed in becquerels per cubic metre (Bq/m3), per litre (Bq/l), per kilogram (Bq/kg) etc, as appropriate. These are known as activity concentrations. Units of gigabecquerels, GBq (one thousand million becquerels) and terabecquerels, TBq (one million million becquerels) usually apply to discharges from the nuclear industry.

Radiation consists of various types of particles or rays, all of which have the potential to damage living cells or to alter their DNA. Humans may be exposed to radiation by a number of different routes or pathways, such as ingestion, inhalation and external radiation. To estimate radiation dose, assumptions must first be made about habits, diet, etc, of the group of people in question. The amount of radiation absorbed by the body, taking account of the kind of radiation involved and the varying sensitivity of body tissues and organs to radiation, is the effective dose (measured in sieverts). When the term 'dose' is used in this document, it refers to effective dose. The international dose limit for members of the public, as a result of artificial sources of radiation, is 1 millisievert, 1mSv (one thousandth of a sievert).

* Estimated discharge reduction figures are based on the major radionuclides specified in discharge authorisations, with the exception of tritium (a radioactive form of hydrogen). Tritium occurs naturally as a small proportion of the hydrogen in water. Nuclear operations measurably enhance the amounts of tritium present, although they remain small (about 3.5 parts per hundred million for a typical nuclear power station). Because tritium emits relatively low energy radiation, its radiological significance is usually low. Nevertheless, it is proposed that tritium should fall within the scope of the UK strategy and that efforts should be made to minimise its release to the environment where possible.

Study of environmental planning

The following is the text of a response by the Institution to the Royal Commission on Environmental Pollution

The effects of the pursuit of sustainable development have generally been favourable, partly in focusing attention on important issues and partly in stimulating action to combat excesses or bad practice in the planning process. However, it is important to distinguish between 'sustainable development' and 'sustainability'.

The latter requires a view in a wider context which includes the questioning of development *per se* rather than the mitigation of the effects of development (as an acceptable pre-requisite). There thus needs to be some shift in the policy approach to environmental planning (at all levels) and there are signs that this process is commencing.

There *are* environmental imperatives, some of global importance, such as climate change, others of more national significance such as waste disposal, agricultural and forestry policy relating to landscape and amenity and protection of natural habitats. All environmental planning should be related to these key issues the overall policies for which must be decided (and, where desirable, regulated) at national governmental level. Global issues will be further influenced by international debate and agreement, and trans-national issues (e.g. fishing) by trans-national negotiation.

The present systems for regulatory control in environmental matters probably provide the right balance. Controls in the key areas of water, soil and air quality are largely EU driven and extensive. They are supplemented on a regular basis and include measures for integrated pollution control. It is unlikely that any more extensive or onerous control system could be effectively implemented.

Protection of landscape and amenity (which must also include species protection) is more difficult to legislate for. Opinions on key issues vary (e.g. the debate on GM crops and organic farming) and may well result in quite significant changes in policy from time to time. This requires a more flexible control system. Present arrangements for area designations are probably best for localised amenity protection though the system probably needs to be applied more dynamically. Farming (and forestry, with other related land use classifications) require nationally agreed policies dynamically applied through regional and local rural development policies.

Current land use planning does still embody a presumption in favour of development and is also constrained by the limitations of geographical boundaries. The increasing emphasis on privately funded development in most sectors – housing, health, commerce, leisure – have largely moved planning regimes to a 'monitor and manage' role of direction rather than initiation. Unfortunately the resulting predominance of profit related development is not conducive to sustainability objectives! We have thus created clear conflicts of interest, resolution of which poses a considerable problem. Far more prescriptive requirements on private development are needed based on carefully thought through environmental policies at local level.

The mismatch between administrative areas and environmental processes hinders effective and comprehensive planning. This is not a new problem but has existed in the planning system for decades. Early attempts by Government to resolve this problem saw the establishment of Regional Planning bodies and more recently a new pattern of Regional Committees has been set up.

The DETR and Environment Agency, who between them are responsible for the practical initiation and implementation of most environmental planning initiatives across the country as a whole, both have regional structures and developed regional contacts. A well organised and layered planning system, probably orchestrated by the DETR and establishing close communication between successive layers, should overcome the problem. Continuity of approach from national through regional, county and district levels down to local parish level is essential.

More importance should be given to practical and detailed input from local bodies at parish level where these relate to localised issues. Too frequently decisions are made at district council level which ignore local representation or feeling or which fail to take account of local knowledge.

Just as the planning control regime should be structured in layers or tiers, so the environmental planning and plans should be constructed in the same way. National policies are required for such issues as transport, energy, water supply, agriculture, pollution control, waste disposal, etc. These can then be interpreted on a regional basis (to reflect differences between requirements or characteristics in different parts of the country). Local decisions can then be made on the basis of better policy guidance and in the wider context as appropriate.

More use should be made in the planning system of environmental appraisals, both for ecological and amenity impact and for economic and sociological effect (i.e. sustainability). Development planning generally, both at county and district level, is still lacking in real environmental content.

Sustainability issues are now becoming of paramount importance and should be central to *all* development planning processes. All relevant forms of assessment methodology should be used including environmental sustainability, capital, footprint, space and health impact. Two significant areas commonly overlooked are the economic and sociological effects of development, most appraisals concentrating on the physical effects. New approaches are needed in both areas as a part of cost benefit analysis techniques.

One drawback in the implementation of these approaches is a lack of information on the impacts of past development schemes – performance analysis is rarely carried out as a routine exercise and research projects after the event are expensive and time consuming. Examples of good practice are similarly lacking. The knowledge base on environmental and sustainability issues is very limited, including that of the very large number of professionals and practitioners involved in both the planning and development processes. The deficiency has been recognised and efforts are being made to expand the training provisions for practitioners but the learning curve has a considerable time span. Feedback of performance data can only be achieved by a significant investment in research both of observed outcomes or of on-going situations. Few observable mechanisms exist for this at present.

A further drawback in the development of skills relates to the present situation in the job market. The rapid expansion in higher education courses in environmental subjects has failed to produce a corresponding provision of trained and experienced practitioners due to a much lower level of demand for their services. A very significant proportion of graduates from environmental courses fail to obtain employment and a career in the environmental field. This is a sad waste of resources and a hindrance to well implemented environmental programmes. A significant increase in investment in environmental consultancy, research and specialist training would go some way to redressing this deficiency.

Environmental Education

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.
■ Fax: 0191 515 2741.
■ E-mail: derek.blair@sunderland.ac.uk

Sustainable development and the professions

Introduction

All over the world professionals and practitioners in a wide variety of public and private sector roles have begun to explore the opportunities and challenges of sustainable development. However, exploration is not action. Meaningful change has not yet begun. For all of the debate about 'the next industrial revolution', by and large we keep making, selling, using and disposing of the same products.

In the UK a number of professional bodies have begun to recognise that sustainable development is a key issue to their members. Some, like the Engineering Council, are actively revising and updating their Code of Professional Practice and setting up working groups to discuss topics such as ethics, values and the sustainability agenda. This is good news, because most of the professional institutions (and educational institutions) have, until recently, demonstrated considerable indifference to this issue.[1]

The Government's sustainable development education panel[2] has also set out a number of strategic goals for the professions. It recommends that by 2010 all professional bodies and industry lead bodies should have sustainable development criteria included within their course accreditation requirements.

The key driver for much of this change is the significant shift in policy in the UK and elsewhere, from a focus on the environment to the wider context of sustainable development. This shift began in earnest in 1992, following the Earth Summit – when we heard more and more about the two apparently interchangeable ideas of sustainability and sustainable development. Both terms have acquired almost instantaneous status as desirable and essential, but few really understand what they mean in practice. This should not really surprise us because for nearly 30 years academia, policy makers and civil society have wrestled with the nature of sustainability and its implications for the economy and society. A useful summary of the issue is provided by Atkinson (1998).[3]

Sustainability is an ideal end-state. Like democracy, it is a lofty goal whose perfect realization eludes us. For this reason, there will always be competing definitions of sustainability. We know the definitions will always include the well-being of people, nature, our econo-

my, and our social institutions, working together effectively over the long term. But as the process of attempting to achieve sustainability will continually reveal new challenges and questions – pushing back the horizons, as it were – a definitive definition is impossible. Any indicator framework, therefore, needs to be flexible and adaptable to those changing definitions. It needs to grow as our understanding grows, while continuing to serve its purpose as a simplifier and guide to complexity. It needs to maintain a trail of continuity from year to year and decade to decade. Most important, it needs to speak to people in ways understandable both to the rational mind and the intuition.

It follows that sustainability is the capacity for continuance into the long-term future, whereas sustainable development is the process of moving towards this ideal end state.

Professional practice for sustainable development

Professional institutions constitute a range of individuals whose beliefs and values towards sustainable development are mainly derived from their long education, training and experience in their basic discipline. These are reinforced through their professional networks. If there is to be a common approach for sustainable practice amongst professionals, then the framework and training for this needs to come through their professional bodies. The Professional Practice for Sustainable Development Initiative, sometimes referred to as PP4SD, arose out of this kind of thinking. Working with 14 professional institutions[4], the project aims to help members improve their capacity to plan and carry out their professional duties in ways that support their achievement of sustainable development.

The project started in March 1999 and its specific objectives are:

- to engage the participating professions in a learning process to develop a common curriculum framework for sustainable development;
- to develop, test and publish training materials derived from the framework appropriate to the needs of the professional institutions.

The PP4SD framework

One of the first tasks of the project was to generate a framework for sustainability, to enable all of the participating institutions to 'apply' a shared mental model, when thinking about sustainability. The framework also sets out the limits (or boundaries) of sustainability and is based on high level principles which:

- cover the whole area of sustainability;
- are essential but not prescriptive;
- are applicable over different scales and ranges of activity.

The framework has been derived from a number of key sources, including the Rio Declaration, World Business Council on Sustainable Development, DETR, The Natural Step, the International Institute for Sustainable Development, the World Commission on Environment and Development, Forum for the Future and Natural Capitalism.

In a sustainable society:

1. Any materials mined from the earth should not exceed the environment's capacity to disperse, absorb, recycle or otherwise neutralise their harmful effects to humans and the environment;
2. Synthetic substances in their manufacture and use should not exceed the environment's capacity to disperse, absorb, recycle or otherwise neutralise their harmful effects to humans or the environment;
3. The biological diversity and productivity of ecosystems should not be endangered;
4. A healthy economy should be maintained, which accurately represents the value of natural, human, social and manufactured capital;
5. Individual human skills, knowledge and health should be developed and deployed to optimum effect;
6. Social progress and justice should recognise the needs of everyone;
7. There must be equity for future generations;
8. Structures and institutions should promote stewardship of natural resources and the development of people.

The framework can be used flexibly to identify and map the range and depth of information to be included in training materials for sustainable developments. It also highlights the dilemma of sustainability, because it illustrates the issues of developing an acceptable quality of life using materials and energy for a growing population, whilst seeking to decrease society's harmful physical impact on nature. The framework is set in a future perspective and therefore offers a useful tool to help describe the gap between today's activities and the future requirements of a sustainable society.

Next Steps

As far as possible, any approach to sustainable development needs to encourage professionals to internalise the general principles set out in the PP4SD framework and to work out for themselves the implications or applications, as they relate directly to their professional activities. During the next phase of the project, we will be developing a generic course on sustainable development, based on systems thinking, as well as supporting the development of courses for specific professions. We will communicate progress in future issues of this journal.

Professor Stephen Martin[5] FIEnvSci
School of Environmental Sciences
and Land Management
University College of Worcester

1. *Environmental Responsibility – an agenda for further and higher education*, HMSO. 1993; *Environmental Responsibility – a review of the 1993 Toyne Report*, HMSO, 1996
2. *Sustainable Development Education Panel – First Annual Report 1998.* DETR, 1999.
3. Atkinson, A. (1998). *The compass of sustainability: framework for a comprehensive information system.* Version 1.
4. The professional institutions involved in this phase of the project are: Building Services and Research Information Association, Chartered Institution of Building Services Engineers, Chartered Institution of Water and Environmental Management, Chartered Institute of Purchasing and Supply, Institute of Energy, Institute of Waste Management Institute of Chemical Engineering, Institute of Civil Engineers, Institution of Environmental Sciences, Institute of Mechanical Engineering, Royal Institute of British Architecture, Royal Institute of Chartered Surveyors, Royal Society of Chemistry, Royal Town Planning Institute.
5. Stephen Martin is a member of the PP4SD project management group, but writes in an independent capacity. The management group, comprises representatives for The Institution of Environmental Sciences, the Council for Environmental Education, WWF-UK, Environmental Agency and the Natural Step.

Forthcoming events

4-8 September
Monitoring for Nature Conservation
Plas Tan y Bwlch, Snowdonia National Park Environmental Studies Centre, Wales
A short course to further the knowledge and skills necessary for the effective monitoring of sites of nature conservation interest.
£220-440
Details:Dewi Jones, Plas Tan y Bwlch, Maentwrog, Blaenau Ffestiniog, Gwynedd, LL41 3YU
Tel: 01766 590324; E-mail: plastanybwlch@compuserve.com

14-15 September
Sharing the Experience: Sustainable Tourism & Development In National Parks and Protected Areas in Europe
Plas Tan y Bwlch, Snowdonia National Park Environmental Studies Centre, Wales. Conference. £120
Details:Dewi Jones, Plas Tan y Bwlch, Maentwrog, Blaenau Ffestiniog, Gwynedd, LL41 3YU
01766 590324; E-mail: plastanybwlch@compuserve.com

25-26 September
Incineration of Municipal Waste with Energy Recovery
University of Leeds Short Course
Details: Alison Whiteley, School of Process, Environmental & Materials Engineering, University of Leeds, Leeds, LS2 9JT
0113 223 2494
e-mail: cpd.speme@leeds.ac.uk

25-28 September
Local Action for Biodiversity Conservation
Plas Tan Y Bwlch, Snowdonia National Park Environmental Studies Centre, Wales
Short Course. £191
Details: Dewi Jones, Plas Tan y Bwlch, Maentwrog, Blaenau Ffestiniog, Gwynedd, LL41 3YU
01766 590324; E-mail: plastanybwlch@compuserve.com

25-28 September
Environmental Protection 2000
NSCA Annual Conference, Scarborough
£280 members, £360 non-members
Conference includes sections on air quality, industry and environment & local environmental issues.
Details: Aldoni Siwicki, NSCA,44 Grand Parade, Brighton, BN2 2QA.
01273 878744
e-mail: asiwicki@nsca.org.uk

28-30 September
International Waste Management Conference
Trier, Germany. Will examine new methods in waste management
Details: VKS – ACR
Saarbruken/Germany
Fax +681 9 71 30 109
E-mail: e.bluemling@zke-sb.de

3-5 October
The Science of Air Quality Monitoring
CRE, Stoke Orchard, Cheltenham
Short course providing an understanding of the methods of air quality monitoring, together with practical demonstrations £675
Details: Katherine Briggs, CRE Group Ltd, Stoke Orchard, Cheltenham, Glos
01242 673361
E-mail: enquiry@cregroup.co.uk

5 October
Innovative and Sustainable Environmental Solutions
Fifth Annual Conference of Greenpeace.
The London Marriott Hotel
Bookings: Tel: 020 7970 4770

5 October
Joint CIWEM & ICE Conference
Water Environment 2000 Flood Warning & Mangament
One Great George St. Conference Centre, London
Details: Erica Hammond, Terence Dalton Ltd
01787 248097

10-12 October and 14-16 November
Gaseous and Particulate Emissions
Monitoring Course
CRE, Stoke Orchard, Cheltenham
3 day courses examining theoretical and practical aspects of atmospheric emission monitoring. £675
Details: Katherine Briggs, CRE Group Ltd, Stoke Orchard, Cheltenham, Glos
01242 673361
E-mail: enquiry@cregroup.co.uk

16-18 October
IEP 2000
Issues In Global Change, Lisbon, Portugal
International conference focussing on global change and its effects on natural resources
Details: Gill Heaton, 01865 373625,
E-mail: gill.heaton@virgin.net

19-23 March 2001
The Third International Conference on Urban Air Quality
The Poseidon Hotel,Loutraki, Greece
First announcement and call for papers
Details: Jasmina Bolfek-Radovani.
Conferences Dept, Institute of Physics, 76 Portland Place, London W1N 3DH
Web site:
http://www.iop.org/IOP/Confs/UAQ

Bat Surveys for Consultants
The Bat Conservation Trust's course on Bats and Bat Survey work aims to introduce environmental consultants to the range of skills and expertise needed to conduct a bat survey. Topics will include:

- identifying habitats and features of the landscape used by bats
- seasonal changes in bats' requirements
- identifying the presence of bats and particularly at their roost sites
- bats and the law
- licensing procedures for bat work, for roost visiting and exclusions
- mitigation measures
- when and where to go for advice.

Venue: Epping Forest Field Studies Council Centre
Dates: Thursday 28th. September (9.00 a.m. to 10.00 p.m.) and Friday 29th. September 2000 (9.00 a.m. to 5.00 p.m.) Cost: £120.00 per person (£10.00 discount for BCT members)
Further information and a booking form are available from The Bat Conservation Trust, 15 Cloisters House, 8 Battersea Park Road, London, SW8 4BG
Phone: 020 7627 2629; Fax: 020 7627 2628; E-mail: acummins@bats.org.uk

The Hon. Secretary's news desk...

Key sustainability items

This year has seen considerable activity on both the political and journalistic front in key areas affecting sustainability. Leaders are climate change (and related air pollution issues), waste management and the GM and organic food issues. We feel it is important that we should be involved in these key issues and we are concentrating on giving as wide a coverage to factual reporting and informed comment as possible. Our news items and feature articles have been, and will continue, to cover all of these.

Government response

The recent spate of governmental consultations on environmental and planning matters would seem to have abated, partly no doubt due to a concentration on the publication of a significant volume of major documents.

There has however, been consultation by the Royal Commission for Environmental Pollution who, following their extensive study of energy, have engaged in a wide-ranging consideration of the environmental planning process. The Institution response to this consultation is printed elsewhere in this issue of the Journal.

Rolex Awards for Enterprise

The next Rolex Awards will be granted in 2002 and application forms will be available from September of this year. These awards have been supporting projects by individuals who demonstrate an exceptional spirit of enterprise in the fields of cultural heritage, technology and innovation, exploration and discovery and science and medicine.

For details, contact Alison Cort or Rebecca Gudgeon on: Tel: 020 7878 3000; E-mail: alison.cort@mslpr.co.uk

We have advertised the awards before but have not heard of any member applying. If you do apply, please let me know.

RAF

New members

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

Mr R. C. Cornell	Environment Protection Officer, Environment Agency
Mr D. P. Walker	Principal Consultant, WSP Environmental
Miss C. H. Y. Wong	Environmental Consultant, Ove Arup & Partners Ltd, Hong Kong

Diary dates 2000

11th September	GP Committee	13.00
1st November	Education Committee	10.30
	Council	13.30
	Burntwood Lecture	18.30

Occasional papers available now from IES

Waste management

- From waste to woods – planting trees on landfill
- From waste to woods: trees on landfill and their place in landscape
- 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

- The tourism challenge
- The tourism debate and environmental scientists
- Enjoying environmental science as a career
- 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 3,000 words should be submitted to the Editor, *Environmental Scientist,* PO Box 16, Bourne, PE10 9FB, three weeks prior to publication in the last week of January, March, May, July, September and November.

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

Advertising

Advertisements should be submitted to reach the Institution by the 7th of the month of publication.
Rates: £50 (half page); £25 (quarter page); £12.50 (eighth page). Full page adverts at £100 can only be accepted under special circumstances, subject to space being available.

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