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FEATURE ARTICLES

The Fifth Burntwood Memorial Lecture, given at the Scientific Societies Lecture Theatre, London, on 8th March 1999 by The Rt Hon John Gummer MP

How just is the demand for sustainability?

I find it difficult to discuss any environmental issue without putting it to some extent in its historic context. Because, perhaps the most interesting history is the history of how we have come to terms with the ever increasing speed and extent of knowledge. Sometimes when people talk in an easy way, they say how hard it is to keep up with the changes. That is a political problem as well as a scientific problem or a problem of daily life. But it is also a fundamental philosophic problem and not one we address often enough. If you look back into mediaeval history, people had a very simple view about change. It was a bad thing. Basically, you proved things by whether you could find sufficient authority for it. If, after the twelfth century Renaissance, you could discover something that Aristotle had said, something that Plato was alleged to have said, or something that Sophocles might have said and applied it to some present day issue, then you had made your case. That was how knowledge was passed on. It had been and was now merely reinforced.

It was the great Bishop Grosseteste of Lincoln who remarkably took one of Aristotle's pro-

nouncements and checked it and that was itself heresy. Aristotle had said that badgers had two legs on one side shorter than two legs on the other side because it enabled them to climb more easily up hills. Bishop Grosseteste was a country boy from the village of Stradbroke in Suffolk, and he knew a thing or two about climbing hills even in Suffolk and recognised that it was unlikely to be helpful to have two legs shorter than the other two. So he caught a badger and measured them and showed that Aristotle was wrong.

This sent a tremor throughout the establishment. This was to say that one of those who were right was in fact on this occasion absolutely wrong. It was from such early beginnings, through the work of people like William of Ockham and on to the Enlightenment, that human beings began to revel in proving the past wrong and discovering things for themselves. We know how difficult a whole history that was and if we don't know it Galileo certainly did. He found it very hard to prove something which was the opposite of that which everybody took for granted. It is only in comparatively modern times that our appetite, our insatiable

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appetite, for knowledge, for new things, for discovery has begun to remind us all too forcibly that it runs ahead of wisdom.

Knowledge always runs ahead of wisdom. Yet, if I begin where Sara Parkin left off (in the last memorial lecture), if we are not to be the first species to monitor its own total extinction, we have to find a way in which wisdom and knowledge get rather closer together. We are not going to do that by stopping knowledge. That is the first point I want to make.

6 Knowledge always runs ahead of wisdom. Yet... if we are not to be the first species to monitor its own total extinction, we have to find a way in which wisdom and knowledge get rather closer together 9

There has been a lot in the newspapers recently about genetically modified organisms. Now, you can share all the environmental concerns about their introduction, without then continuing to take the view that somehow or other you can stop it. There is a good reason, therefore, for not using the word moratorium, which is used by two different sets of people with exactly opposite meanings. When Greenpeace use the word 'moratorium', they mean stopping now in order never to start again. When English Nature uses the word, it means stopping now in order to be able to start again safely. That is a very different approach. So I prefer the word 'breathing space'.

I start from the assumption which is deep in any historian's understanding that there is no recorded example of us being able both to learn something and then to unlearn it, certainly not purposely. There are certain kinds of ceramics that the Romans made which we cannot. There is certainly the blue in mediaeval windows that we cannot now copy. That great statue of a lion which stands on the corner of Westminster Bridge, removed there from a more prosaic position outside Waterloo Station, is made in Gode stone, an artificial stone we cannot make today. The Gode brothers died with that secret. It is by accident, therefore, that we have lost the knowledge, not purposely.

Thus, I proceed from the not unreasonable but possibly mediaeval view that history is not going to turn around now, and that what has always been a matter of fact, is not suddenly going to reverse. So we are not going to be able to unlearn that which we have learnt. It is deep in the Genesis myth and every year I live the more I believe, that eating the fruit of the tree means that forever we cannot go back. The second thing I want to say is that we do not want to go back.

We should not be too unhappy about the loss of innocence. I am very keen on children not losing their innocence too early, but I would hate for children to be brought up as Peter Pan. I don't want young people to live forever in innocence. For if they are to be

human beings they must grow, and change, and alter. They need to have that excitement of discovery. So it is not just that we cannot un-know what we know; it is also that we don't want to. But we do want all the time to know without consequences. It is the other lesson of Genesis. That we long for a paradise in which learning, discovering, creating doesn't have a downside and instinctively that is what we want. We want development to be intrinsically sustainable. We long for a world in which you can grow and change and discover without any problems at all. That, of course, is the problem of every young man and every young woman too. How nice it would be, that the growing up process, particularly that of a most intimate kind, could be achieved with no regrets, but also with a good deal of experiment. The fact is we long for the kind of paradise where we are not innocent, but we do know that we don't un-know; that it has no untoward and unexpected consequences. When we look at sustainable development, it is with a feeling that somehow it ought not to be like this. It would, it should, it must somehow or other be possible to develop without stint, without concern and still not find ourselves faced with what might be the monitoring of our own total extinction. It is the growing realisation that sustainability and development are both necessary that has made such a difference to our way of looking at the world. Indeed, you could not expect to develop safely unless you faced the fact that all development had a real and tangible and maybe disastrous effect upon the environment.

Now into this world, at the point of the Millennium, has come a new factor. It is this factor which I particularly want to look at because I believe it to be underestimated by environmentalists and the growth merchants alike. That is the reality of globalisation. The truth is that the speed with which knowledge has grown and the fast increase in our ability to learn, retain, and to have access to that knowledge, has meant that the world is an increasingly small place. The last time we had a global society was when Latin was the language of the educated and when the doctrines of the Church were the basis of all knowledge. That was a kind of global society because those who saw themselves within it did not have a worldview

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that reached beyond it. Now we have a really global society and we reach beyond the narrow confines of nation to the world not of choice but of necessity. I want to make that point clearly. It isn't because people chose a global society; they have it. They have it because they could have no other. If you look back

into the centuries before, of course, it was possible for a whole culture to cut itself off from the rest of the world. Imperial Japan did for 200 years, but when the American Admiral came on his historic mission, it was not just because he was invited; it was because Japan discovered it could do no other. It was by then impossible to cut oneself off to return to a Golden Age as it was seen. The world was too much with us. It could not be excluded. And so we have on top of this desire for knowledge, the inability to forget what we have learnt, and a global society whether we like it or not.

If you ask what it was that brought down the Berlin Wall, the conventional argument is that the strength of NATO finally convinced the Russians that they would never win their future by war. And of course, there is a truth there. There is no doubt that NATO is an important part in the proximate reasons for the fall of the Wall; no doubt that the growth of the European Union to provide a real and visible alternative to a way in which the Communist system operated was also important. But the fundamental reason for the fall of the Wall was because it was no longer possible to isolate huge areas of the world from what was going on elsewhere. The television, the radio, the news was too intrusive, too constantly present for people any longer to believe the myths upon which that society had to live if it were to continue. And so, it was the globalisation of information, particularly its visualisa-

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tion that changed the world. Again, not because those who were changed necessarily wanted it but simply because they could not avoid it.

That's true too when one looks at the Internet. I listen to people with a certain amount of jaundice when I hear them say how we should ban this and censor that. I know perfectly well that any person who has access to a computer and a connection to the Internet can, with not much difficulty, discover precisely what they want to from all over the world and it is not within our competence to change that one iota. Before we bemoan this situation let us realise what it means; it means that others outside the power of a nation or state, indeed outside the power of anyone, can place into the immediate presence of people all over the world what once could be excluded with ease. Why was it that South Africa spent so long without television? It was because they knew that once the majority of the population could see how the rest of the world worked, it was no longer possible to work it different-

ly there. No wonder it was very often the business community that saw change first. If you look at those who are members of the Progressive Party you see that very clearly. It was because they knew too that if business was to develop then the democracy of business had to be given reign because markets constantly have to grow. The limitation of market is not something that a businessman in the end can maintain. So we live in a world in which there are imperatives over which we have no control. We may wish to regain some of those controls but we won't do that until we recognise just how strong that imperative is. And it is here that globalisation really begins to affect the questions of sustainable development and raise with us this fundamental and central issue of justice.

Let us take the question of the globalisation of trade. The one international organisation that works effectively is the World Trade Organisation. Despite what the American government is now saying, it makes decisions with reasonable speed and its dictates are accepted, albeit, its remit is incredibly narrow. It is there to safeguard free trade and it is a global necessity for we know that development depends upon the sort of effect which growing freedom of trade can ensure. But none of us has accepted free trade in our nations on so narrow a basis. We have free trade, have had for generations in Britain. One of the reasons why we defeated the French was because we had no internal restrictions. We could move goods from one country to another without internal tariffs or taxes. We had free trade, but we very soon learned that if you are to have free trade then you must have protection of the weak. You must have a system whereby you begin to insist that what people claim for their products is in fact true. Weights and measures regulated locally but based upon central control was a very early part of making free trade possible. Indeed, it is arguable that it goes back to Rome and that if you look at many great Roman sites the one bit of trade that remains is the place where you measured whether your bushel was a bushel or not; whether your size was what you claimed it to be.

We do not accept free trade today without safeguards for the environment. We demand that there should be a protection of endangered species. We expect that the vulnerable should also receive protection. But when it comes to the international stage, we have invented a form of free trade into which we will allow no alternative argument. Now if I may be outrageous but I think true, just imagine if there had been a world trade organisation when William Wilberforce was alive. The argument against slavery and slave trade would have been very hard to put for it would have been said this is to impose upon the world a moral value which some do not hold. Freedom of trade demands that we have no such restrictions. Now no one today, I am sure, would suggest that that is an acceptable comment and yet, when it came to the point at which we were going to stop trading with Mayan Nah, the country which most of us still remember as Burma, we wanted to do so because of the slave labour which is widespread in that country

and supported by its government. It was only because Mayan Nah was not a member of the World Trade Organisation that we were able to take that moral stance.

Let us say that the European Union decided that it did not want to have genetically modified goods unless they were properly labelled and then not for a period while we had our breathing space. Under the World Trade Organisation rules we could not make that decision even if we felt it to be necessary for our future. Look at the facts of our present position on hormone riddled beef. We have decided that, for ourselves and therefore for others, we do not wish to have beef that has been promoted in this way. We have taken the remit for perfectly good scientific reasons, albeit, they are challenged by the United States. Under the rules of the World Trade Organisation we have a difficulty in maintaining that position, even though we shall try.

One of the things that the extension of our knowledge and our understanding has done for us is to teach us that we cannot continue unless we find a way of dealing with global environmental challenges on a global basis. There are many of them but I will deal only with two.

The first is to some extent a success story. We have managed on a global basis to face up to the effects of CFCs and other ozone depleting substances and do something about it. We have done it relatively painlessly but over a long period of time and things have had to get worse before they got better. There are still many slips between cup and lip and I am not myself quite as overwhelmingly optimistic as some, but the likelihood is that we will be able to give the ozone layer time to fill in its hole through restraint in using these products. Of course, we were fortunate because the overwhelming weight of these products was found in the rich world and we were able to make the change before poorer countries had begun to demand those goods and services that use the CFCs. We had by then an alternative technology. It is a technology that has some difficult problems with global warming but it is an alternative technology. Therefore, we have been able to deal with the problem because the global answer was overwhelmingly in the hands of the rich nation.

Success when it comes to climate change is wholly different, because there we need the positive involvement of the whole world if we are to have a solution that protects the whole world. As the years go by, the emissions which we produce will be passed, first in volume and then gradually, perhaps by per head of the population, by developing nations. Already it is true that by the year 2005, China will be emitting more than the United States of America. But still of the two, the USA will be emitting far more per head of the population; it has 25 per cent of the emissions and only 4 per cent of the world's population. We in the rich countries have to put our own house in order before we can realistically expect the poorer countries to take any part in this necessary global action. They will not do it unless they feel we have

met the first requirement of justice. We caused the problem; we must take the first steps to solve it.

Justice becomes a necessary part of the whole global concern for sustainable development. I take it one stage further. What is just if there is a restriction on the amount of pollution that the planet can actually accept? What is just about 4 per cent of the population producing 25 per cent of the emissions and therefore reserving to itself a far from fair amount of that particular weight? What is just about that? Justice is at the heart of solving the real problems that lie behind this concept of sustainable development. We do live in a world where globalisation is a fact and it is a fact whether we like it or not. Because we live in a global society we have to recognise that the problems of a global society are only going to be solved when they are big enough to demand from us a response which cannot exclude justice.

We could have had economic growth without social concern until we recognised that there were limits to that growth; limits that could not be overcome until there was a workforce prepared to work, not through threats and violence, but because they were part of a system which gave them security and a reasonable

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return for their labour. We managed until we realised that there could not be the rate of growth that we wanted, the kind of development that these new stakeholders demanded, unless it was sustainable. The effect upon our environment of the raw materials which we demanded and the way in which we used them, would be unacceptable to the people, and to the planet itself. That is the realisation of sustainable development.

What is happening in China today? China vehemently refuses to accept that we need a global solution to what is a global problem. They demand that the rich nations pay the price and get themselves in order but they give no hostages at all that it will follow suit. They are still interested in pollution because it is already at the stage at which the public is beginning to protest. They have asked for an international advisory group to help them in dealing with the problems of energy. They open two new fossil fuel generating stations every week. It is not surprising that many parts of China are now absolutely impossible to live in because of the pollution. Nor is it surprising that even in that regimented society the public is complaining. And so, they have to face the problem in the same way we did in the nineteenth century and the first half of

the twentieth on a local basis. We cleaned up our air in London because people would not put up with the smog any more. We cleaned up the water in the Thames because the smell was too great for Members of Parliament. And the truth is, you do begin doing these things because of the local impact. But the learning curve for the Chinese is going to have to be very fast if the rest of us are not going to be faced with disaster. They will have to move through the first two stages of economic development, into one in which sustainable development takes its proper part because otherwise the world cannot continue. If they are to do that they will ask of the world a measure of justice. When we talk about sustainable development, we are immediately demanding justice if we are going to demand success. But of course justice is not just one-

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sided. It would not be just to this generation (of the rich) to demand that they pay the full cost of the riches of the previous generations at a speed which they could not bear. That would not be just either for them or for the world as a whole. The devastating costs to the world trade and economy would be felt in the poorest countries as well. Justice says that one generation must not bear all the sins of its fathers. Chesterton says that the problem of democracy is that you ask the views of those who are here now. You never ask the views of those who were here, nor the views of those who will be here. It is therefore a fundamentally flawed system. I believe that to be true. One of the things that we have to learn is a way of counting the votes of those who come after us and not laying on the shoulders of those who are here today everything which has been passed on by past generations. What has happened of course, is that the riches which the Victorians created were in part paid for by the pollution which we have to clear up; the profits were earned then; the payment happens now. And we in our generation are not only paying for them but we are also paying the proper cost increasingly for our own riches because we have decided that sustainable development demands that we do not pass on to the next generation the costs while we take the profits.

So we are the ones who have in a sense drawn the short straw. We are paying for the past and we are not prepared to allow the future to pay for us. Of course, we are right not to do that because that is to reverse the natural order of things. Our children borrow from us. We do not borrow from them. Indeed, when children borrow from us, they use the word borrow in a specifically different way from that which we use our-

selves. My bank manager thinks that borrowing means paying back. I know that my children don't expect me to expect to be paid back. And yet, for generations we have done precisely the opposite. We have borrowed from the children and we have never intended to pay them back. Therefore sustainable development does demand of us a moral concept about the future and it must be expected that we will demand at least time to pay. That is only just and fair.

Justice as an element in sustainable development is inescapable not only because those with whom we have to solve this global problem will demand it, but also because we need it if we are to justify the time it will take to put our house in order. So justice is at the heart of sustainable development and perhaps I can suggest what that means. It means that we have to take a view of global issues. This is extremely uncomfortable because it is qualitative and not quantitative. Just think of the attitude to fairness, which is exemplified by the Iranian government or the Saudi-Arabian government when approaching issues of religious tolerance or the relationships between men and women. Think of the attitude of fairness that was exemplified by the government of South Africa and is still exemplified by the government of Mauritania. Apply that too to the way in which Christians are treated in Nazareth; apply it to the regimes of most – and I mean most – countries of the world.

Look at how developing nations think of fairness when you talk about the protection of exotic and endangered species. The poorest nations are those for whom many of these species are one of their few ways of earning foreign currency. It is unfair they say, for the rich nations to insist that a rare kind of butterfly should be protected for future generations. Who cares they say. We have got to look after our children today, feed them now, they won't be here for that butterfly who enlivens their lives in 20 years time; they may not be here in 20 hours time unless we are prepared to use

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what resources we have got. It isn't fair: 'justice' in discussing these issues is at the heart of coming to a conclusion that is effective. I want to emphasise that it isn't just a moral issue. It is an issue of effectiveness. I believe for religious and philosophic reasons that this is one world. You have to be just because if you are not, you will in fact be destroyed. This is one world because it is one world and not just because you believe it ought to be one world. We now live in a globe where if we are to survive then we have to survive together and that, of course, does devastating

damage to our normal international stance. In the post-Imperial world, we have rung a double standard. We have pretended that everybody is equal, that everybody has equal weight, that everybody has an equal right to most of the things we think important, but we have in fact run the world on the basis that we decide. That is how the post-Imperial world has operated. Those who made the market ran the market and if you wanted to be in the market, you accepted the rules that they laid down. That is what the World Trade Organisation really means and we are beginning to understand that we live in a world in which that is no longer enough. We have to win the support and the active participation of people whom for centuries we have told what to do. Governments used to acting as if what mattered was their nation first, their grouping second, their kind of person third, are going to have to learn that those distinctions are no longer important when it comes to solving the issues upon which we stand or fall.

So I end where I began and where Sara Parkin ended. If we are not to be the first creatures ever to

monitor consciously our own eradication, we have to be the first creatures ever to understand in its fullness those words of John Donne ‘that no man is an island’. We are no longer able to think of Britain on its own. We at least know that it has to be part of the European Continent and the Union in the decisions it makes. We cannot even clean up our own waters or our own air unless we do it together. The world has got to learn that the wind bloweth where it whistles. And it is not a question of being able to find the fish swimming in the water with a flag on their fins. We have to accept that they are a common property and we have to work together to solve the environmental problems which we cause. We are going to have to learn to live with those who seem to us so different, who look different, and who speak differently, whose history is different, whose religion is different, and whose attitudes are utterly different. We have to learn to live with them in order to solve the problems we have in common and the key to that is justice. There can be no sustainable development without justice and if that is not ‘just’ then this will not be. 

Local air quality management – a breath of fresh air?

A brief overview of the LAQM requirements

Robert Cowell MEnvSc

Local Air Quality Management (adopted as part of the UK National Air Quality Strategy in fulfilment of the Environment Act, 1995) – obliges the local authorities of England and Wales to undertake certain tasks regarding air quality within their boundaries. Primarily, they must review and assess air quality in order to identify areas where by the end of year 2005, this air quality is unlikely to meet objectives for specific pollutants prescribed within the 1997 Air Quality Regulations. (Amendment to the objectives has been proposed via the January 1999 Strategy Review).

A phased approach is the mechanism adopted to this end, with each of the seven targeted air-borne pollutants viewed as separate entities. The pollutants of concern (which have been chosen due to established links with ill-health) are:

- sulphur dioxide (SO₂)
- nitrogen dioxide (NO₂)
- particulate matter of nominal size 10µm or less (PM₁₀)
- carbon monoxide (CO)
- lead
- benzene
- 1, 3-butadiene

and each of these is considered initially within a Stage I Review and Assessment.

Objectives to be reached are set for each pollutant based upon long or short term exposure risks. For example, benzene is considered in terms of annual

average levels, and carbon monoxide as eight-hour means.

To some degree, Stage 1 is to be viewed as a ‘screening exercise’ in which existing data should be used in a desk top exercise to determine the potential presence of these pollutants within the authority boundaries. Any relatively busy or congested road – either within the boundaries or close to them such that air pollution *may* potentially drift in – would dictate that traffic related pollutants may be significant and therefore need to be considered further. Thus, Stage II – a more detailed study requiring the use of simple monitoring and possibly modelling techniques – would be required. Following this review, it may well be established that although the pollutant(s) are having an impact upon local air quality, there is little chance that the objectives set will be exceeded, and therefore Stage III is not required.

It is certain that some pollutants will be taken further than others by individual authorities through this phased approach due to localised impact of local sources of particular pollutants. Should Stage III Review and Assessment be necessary for any of the specified pollutants, this will necessitate a detailed assessment using sophisticated measurement and modelling techniques in tandem with documented information sources such as traffic flows – both present and projected – and industrial emissions detailed in Part ‘A’ and ‘B’ Authorisation Public Registers.

This onerous process is essential before a final decision can be made as to whether or not the objectives will be met for pollutants included within Stage III. If, after undertaking this course it is decided that objectives will not be met by the end of the year 2005, an Air Quality Management Area must be declared. Following this, action plans will be constructed to attempt to reduce pollutant levels in line with the objectives. This bland statement could have severe consequences. For example, if CO levels are excessive in a town centre, traffic management initiatives may need to be introduced – pedestrianisation/one-way routes/access to multiple occupancy vehicles only as possibilities to be considered.

If a point source is identified – for example lead emissions from a local smelting operation considered to be contributing significantly to the failure to meet the lead objective – measures will be enforced to control those emissions adequately. The question must be asked, however, by what practical mechanism, and at what cost to individual parties? And what of conflict between compliance with authorisation conditions yet simultaneous contribution to levels within an Air Quality Management Area?

It is apparent that the review and assessment process is not a trivial one; a great deal of work will be necessary in researching available information and additionally in monitoring and modelling new data. The deadline for completion of the whole process is the end of the year 1999 which causes two distinct problems. Firstly, the deadline is rapidly approaching. Although the local authorities have been aware of the Local Air Quality Management concept since the Environment Act, 1995, was drafted, formal guidance,

objectives and relevant training seminars (via the Department of Environment Transport and the Regions [DETR]) have only been readily available for a much shorter time. Indeed, the real, substantive work on this potentially major statutory requirement has probably only been underway since late 1997-78 for the majority of local authorities. Secondly, although the work must be completed by the end of the year 1999, the conclusions drawn must relate to air quality at the end of the year 2005. This means that *predictions* must be made, taking into account what is likely to occur between these dates. Consideration must be made for planned traffic schemes, industrial growth, EU Directives on fuel composition, exhaust emission controls and so on and their impact upon future air quality. Some degree of modelling will often be necessary, which is a science in its own right, not to mention the resource implications to increasingly pressured local authorities.

The End of 1998 represented a realistic deadline for submission of Stage I Reviews. Approaching the End of Quarter 1 of 1999, local authorities should be deeply involved with Stage II work (as appropriate) and hopefully becoming able to gauge how much additional work may be involved within the scope of Stage III Assessment. For some authorities this will undoubtedly be significant, not only in the initial task of completing the work in the thorough and accurate manner it warrants, but more ominously in attempting to tackle the very real practical problems that declaration of an Air Quality Management Area will undoubtedly cause.

■ *Robert Cowell is an Environmental Protection Officer with Redcar and Cleveland Borough Council.*

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Speakers:

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Who should attend:

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New 'eye in the sky' for climate change

A new £18m satellite instrument, to detect and measure climate change was delivered to DETR by the contractor Matro Marconi Space UK Ltd in February 1999.

The state-of-the-art instrument, known as the Advanced Along-Track Scanning Radiometer (AATSR) is due to be launched by the European Space Agency (ESA) next year as part of the ENVISAT satellite.

The AATSR is designed to measure sea surface temperatures because they are inherently less variable than land temperatures. AATSR builds on the heritage of

the similar instruments ATSR-1 and ATSR-2, the latter still operating routinely on ESA's ERS-2 satellite, which are principally funded by the research councils.

AATSR is able to make extremely accurate temperature measurements as it compares its observations to precisely measured on-board calibration targets. It also looks at the earth from two different angles which helps it to correct for atmospheric effects.

The AATSR has been largely designed and built in the UK, but it has also involved significant collaboration with Australia (£5m for components);

UK NERC (£2m); and DETR (£11m). The Hadley Centre for Climate Prediction and Research in the Met Office will interpret the data received. NERC will carry out global climate monitoring, measurement of land surface temperatures and vegetation measurements.

The delivery of AATSR shows the seriousness of the government's intention to bring the best available science to bear on the problem.

1998 was again the warmest on record.

Richard Dix

From workhorse to thoroughbred: a better role for bus travel

Published on 29 March, this 'daughter' paper to last year's transport white papers (*A new deal for transport – better for everyone*, DETR Cm 3950, *Travel choices for Scotland*, Scottish Office Cm 4010, *Transporting Wales into the future*, Welsh Office transport policy statement, and *A transport statement*, Department of the Environment for Northern Ireland), embodies in its title the aspirations (fantasies?) of the Labour government's policy ideals.

In the document's foreword, John Prescott, Deputy Prime Minister and responsible for environmental and transport issues, argues that the bus has an unrealised potential which, to be realised, requires a number of changes. Greater accountability to the travelling public is required, and elected local authorities should be given powers and resources to promote higher quality bus services.

These should be brought about by a combination of new, comfortable, more accessible vehicles, more bus lanes and traffic management measures to help the bus combat congestion caused by the motor car, simple and flexible ticketing systems, and clear and reliable timetable information. This means giving top priority to buses in meeting transport needs in 'our communities'.

The document therefore claims to be about how the government intends to

strengthen the *quality partnership* approach, and explains how local authorities will be encouraged to take an overall view of their local transport priorities through the new system of local transport plans (and in Scotland, where the Scottish Executive will assume responsibility for bus policy later this year, and local transport strategies), in which the government wishes to see large part being played by measures to assist the bus.

The ideal of this bus is therefore seen as an almost universal form of public transport: flexible, adaptable, straightforward: able to meet a wide range of transport needs. It can offer choice, both as an alternative to the car, and as an opportunity for those who do not have a car. It can help tackle the problems of congestion in towns and lack of access in the countryside. An impressive and commendable wish list indeed.

In setting out the government's policy plans for the bus, this document invites comment and debate on a number of issues. It is seen as a challenge to local authorities, the bus industry and all transport users to respond positively in order to produce a thriving public transport system, improve a wide range of environmental conditions and enhance life-styles.

A number of policy changes are thus highlighted in the *thoroughbred* paper.

- (a) a new framework for local authority influence over buses, by taking a more strategic view about public transport through *local transport plans and strategies*;
- (b) Statutory backing for *quality partnerships* – to strengthen voluntary partnerships between local authorities and bus operators;
- (c) to modify deregulation in order to bring stability to such dynamic and uncertain elements as timetabling, including the strengthening of Traffic Commissioners' powers to act against operators who fail to provide services as advertised;
- (d) improved bus information, including providing local authorities with statutory powers to ensure the availability and quality of passenger information;
- (e) more joint ticketing, with the provision of default powers to enforce more flexible ticketing if bus operators fail to develop local agreements voluntarily;
- (f) minimum standards for concessionary fares: a guaranteed concession for all pensioners of at least half-fare on local buses in England and Wales (only?) on payment of annual fee (maximum £5);
- (g) service frequency enhancements: clarifying the legal position so that the local authorities can buy in addi-

tional frequency on commercial services, for example to stimulate modal change along commuter corridors;

- (h) option of bus *quality contracts* for area-wide networks: enabling local authorities to plan and control bus services in a fully integrated manner, emphasising multi-mode interchange where appropriate, and awarding exclusive rights to operators who offer best value.

These aims therefore set out to modify (ameliorate?) rather than overturn the principles of bus deregulation which

were introduced in 1986. They carry with them significant potential environmental benefits, the logic of which few would disagree with.

However, reaction to last year's white papers revealed, and successive surveys of car users have confirmed, one obvious truth. The altruistic notion of improved public transport to reduce traffic congestion, pollution and inequalities in accessibility, which has universal support, tends to be confounded by the paradoxical realism of (the inexorable increase in numbers of) car users' inability to

give up their personalised lumps of metal.

The land use implications which follow from this conundrum require policy approaches which embrace aspects of planning and development extending far beyond particular aspects of transport quality. The government has a very difficult, but very important task on its hands. John Prescott's personal association with championing public transport, despite the sideswipes at his Jaguar-owning tendencies, should repay close attention.

Derek Hall

DETR reports progress in greening its operations

Much progress has been made in 'greening' the operations of the Department but more still needs to be done, said Glenda Jackson, the DETR's Green Minister, when publishing the Department's first Greening Operations Report.

The DETR's report covers activities in 1997-98 and reports on the Department's commitment to 'greening' operations as an important contribution to sustainable development. As well as showing progress, the report is realistic and identifies gaps in current knowledge or processes which need addressing.

The report includes coverage of:

Energy:

A target of a 20 per cent reduction in consumption over 1990-91 levels by March 2000 has been set for all Government departments. Provisional figures for 1997-98 shows that DETR's current reduction is around 15 per cent. Work remains to be done to achieve the 20 per cent target and an energy strategy has been commissioned to consider further energy reduction opportunities. The Department is confident it will meet this objective.

Transport:

Each of DETR's property centres is working to produce Green Transport Plans (GTPs). A target has been set that all HQ buildings and main buildings occupied by Executive Agencies and Government Offices for the Regions should have green transport plans by March 1999 and all other key buildings

by March 2000 with the aim of reducing the environmental impact of the journey to work and travel in the course of work. The report also includes information on business travel, number of vehicles, vehicle usage, parking provision, facilities for cyclists, and video conferencing facilities.

Waste:

Recycling schemes exist across DETR for a wide range of materials and both former departments established and achieved targets for reducing the amount of waste disposed of to landfill from its headquarters buildings. Potential for improvement in reducing the volume of waste and increasing recycling has been identified at a number of locations, however, and work to establish a DETR baseline and consequent corporate and local targets is a priority.

Water:

Consumption of water at the 14 properties where the Department has sole occupancy (housing about 60 per cent of DETR staff) is better than the suggested standard in the Department's guide to conserving water, with some properties using considerably less than the level suggested. However, water consumption at some properties exceed the guide and these will be subject to review during 1998-99. The guide to conserving water, produced jointly by the DETR and the Environment Agency, has been issued to all property centres and the report highlights examples of water saving initiatives which have been undertaken locally.

Commenting on the new report, Glenda Jackson said: 'Environmental reporting brings a number of benefits. It provides an opportunity to establish and publish benchmarks and targets and to review progress towards their achievement. It also meets legitimate expectations for information about the policies and practices being pursued. Importantly, it also shows where performance information is available and where it is not.

'Producing this report is a major step forward for DETR. Not only does it represent the department practising what it preaches, it moves toward a more comprehensive assessment of our environmental performance in a wider range of our activities than have ever been reported upon before. For the first time we have brought together information from each of our 26 property centres about their actions and achievements to help us understand and explain the true DETR position.

'In some key areas we can now start to set improvement targets using our model programme. We will also develop our reporting style so that our reports improve further to reflect current best practice.'

Copies of the report are available from Working Environment Division, 2/33 Great Minster House, 76 Marsham Street, London SW1P 4DR.

Telephone enquiries: 0171 890 3000

Internet address for DETR press notices: www.coi.gov.uk/coi/depts/GTE/GTE.html

Dolphins and the marine environment

In a paper for the Royal Society, researchers at Aberdeen and St. Andrews (NERC Sea Mammals Research Unit) universities highlight a significant level of sickness and deformity amongst the 130-strong dolphin colony in the Scottish Moray Firth. As a major tourist attraction and symbol of environmental awareness, the dolphins have become an important element of north-east Scotland's land (marine?) scape and of the local economy.

It has now been found that 95 per cent more of the dolphins have skin lesions, usually grey, blue-grey or black, most of which cover two-thirds of the back of the dorsal fin. Significantly more females and young calves are affected by the skin disorder than adult

males. All dolphins suffering deformities, most commonly a humped back, appear to be female.

Of nine colonies around the world studied by the researchers, the Moray Firth dolphins appear to be the most sick. This may be due to stress, pollution, water temperature and salinity – The Scottish colony lives in colder and less salty water than any other group, and the mammals appear to be surviving on the very edge of their natural range.

If the dolphins are stressed, their immune systems could be lowered, leaving them more vulnerable to attack by the natural pathogens and pollutants found in the Moray Firth. Dolphins are a good indicator species for the state of

the marine environment, and their apparent state of health suggest that there is no room for complacency in attitudes to Firth's condition.

The Dolphin Space Project, a group of bodies associated with the Firth which includes the Scottish Office, Scottish Natural Heritage, local authorities and the harbour authority, are concerned about the delicate relationship between the marine environment, the dolphins' well being and their significance for the local tourist economy. A code of conduct for the dozen local boats taking tourists into the Firth has been established, and the symbiotic relationships human, animal and environmental – will continue to be closely monitored.

Combating air pollution in city centres

Scientists from the Air Quality Management Resource Centre at the University of the West of England in Bristol have linked with the company, Transport & Travel Research Ltd., in a project designed to improve air quality in cities.

The 'Low Emission Zone' (LEZ) project is being funded by the National Society for Clean Air and Environmental Protection. Concentrating specifically on traffic emissions, it will examine how such Low Emission Zones could be designated, and will then identify moves that could be made to improve their air quality. This might involve restricting access to vehicles in certain areas, either completely, or at times when air quality is poor. Other alternatives might include allowing access only to those vehicles with design characteristics that reduce the pollution they create. As a further element, the project will examine the practicalities of creating Low Emission Zones, as well as the social, economic and environmental impact these could have on surrounding areas.

The project aims to formulate a 'tool kit' for local authorities that want to adopt the LEZ concept, and complements current, stringent, legislation designed to improve air quality. It will be completed by the end of 1999.

The Bristol UWE research team is being led by Dr Alison Simmons, who said: 'As part of their legal obligations, local authorities are already required to identify areas where air quality is a particular problem – these are called air quality management areas. There are clearly similarities between these and the Low Emission Zone concept. We envisage, therefore, that the findings of the LEZ project will provide useful theoretical and practical guidance to local authorities in meeting legal requirements specifically in areas where air quality is particularly poor.'

The Environment Act, 1995, the Air Quality Regulations, 1997, the National Air Quality Strategy and Government guidance notes and technical guidance provide the framework in which local authorities review and assess local air quality.

The Air Quality Regulations, 1997, specify the pollutant concentrations to be achieved by 2005.

■ For further information contact:

Jane Kelly or Mary Price, Press Officers, Bristol UWE;

Tel: 0117 976 2558, Fax: 0117 976 912;

Email: jane.kelly@uwe.ac.uk or mary.price@uwe.ac.uk

Environmental Technician

WS Atkins in the North West is based in a regionally central location in Warrington and is a centre of excellence for environmental consultancy services. The Environment and Geotechnics department is currently 30 strong and expanding to meet client demand, in line with our strategy to maintain and develop the full range of specialist expertise in the diverse environmental field, within our operations in the North West.

We are currently seeking an Environmental Technician to join the department, to work particularly on contaminated land, waste management and environmental monitoring projects. You are expected to be familiar with the basic techniques and concepts of environmental sampling and monitoring and must be familiar with the use of computers and their applications.

This role would suit a person recently qualified to HND/HNC level and seeking to commence a career within a busy environmental consultancy. We may also have opportunities for more experienced environmental technicians and such candidates are also invited to express interest.

Please apply in writing, enclosing full CV, to:
Mr Andrew Sallis, WS Atkins – North West,
WS Atkins House, Birchwood Boulevard,
Birchwood, Warrington WA3 7WA.
Tel: (01925) 828927.

Closing date: 28th May 1999.

Committed to equal opportunities

WS/Atkins

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**

The path from career guidance to career education

From September 1998 careers education has had a statutory place in the school curriculum and there is pressure to ensure that it is a central feature of the millennium curriculum now that a major review of the National Curriculum has begun.

In universities and colleges, Career Advice remains a vital service for staff and students as the skill of managing one's own career in a changing and competitive world of learning and work will be a key one in the 21st century, but delivery on the ground is very variable. This applies to all areas and is certainly true for the environmental field. Traditionally, FHE has tended to focus more on career guidance than career education. With modest resourcing, FHE has had to respond to the demands of a growing and increasingly diverse student population as well as changing ideas in career contexts.

According to Janet Donoghue, an educational consultant writing in the 1998-99 *Careers Education and Guidance Handbook*, career education is a learning activity and demands planned curriculum provision. Many FHE institutions offer this in their delivery systems but its precise content and emphasis varies. Components include self assessment, skills development, careers information, career choices, decisions and making applications. Delivery mechanisms include action planning, recording achievement systems, work experience, accredited career education modules and vocational elements in mainstream curriculum.

Within HE career education is likely to be increased by the Dearing Higher Education review especially through the processes of reflection, review and plan-

ning. Students with experience of recording their achievements and career progression have been entering HE in increasing numbers. Lifelong learning partnerships require more and more students to have the knowledge and skills to remain employable in rapidly changing circumstances.

Career education in the environmental sector is still in its infancy and most university environmental programmes offer no systematic formal guidance to their students: only *ad hoc* and informal, often individualised, advice. One reason and difficulty is the breadth and range of opportunities for those interested in an environmental career. The IES estimates that more than 100,000 persons in the UK and more than 1.5 million persons in the EU are directly employed in the environmental sector. However, environmental professionals can find themselves using computer skills one day, writing reports another and undertaking a field survey the next. Environmentally trained students may also be employed by organisations with vastly differing cultures, including government, big and small business, and NGOs. Some knowledge and skills required are transferable but others are more specific to particular environmental fields and sectors.

Career education for environmental students needs developing urgently if the FHE sector is to respond to the changing culture and ideas already in place in other educational sectors. The IES Journal would be interested in publishing innovative projects in FHE which build upon the principles and practices of high quality career education and guidance. Such material would complement the successful IES

Environmental Careers Handbook published in 1995.

More on sustainable universities...

The International Institute for Industrial Environmental Economics at Lund University, Sweden is organising a short conference between 30 May and 1 June 1999 to gather expertise and experience in the application of environmental management to universities. For the organisers the term environmental management includes the core areas of the university community: research and teaching as well as physical infrastructure.

...and on sustainable development

People and Planet, the organisation that has strong support in the students (formerly Third World First) and claims a presence in 70 per cent of UK universities and colleges, is calling for their support of the international Jubilee 2000 Campaign for the cancellation of unpayable debt for the world's most impoverished countries. With the help of Oxfam and Christian Aid, People and Planet is highlighting Britain's role within the debt crisis.

People and Planet's change of name seeks to reflect better the breadth of issues that are the concerns of its student membership, including social, ethical and political issues. They claim students in over 160 colleges and universities are now actively involved in this campaign with a recent petition and awareness raising campaign on the campuses. The recent refugee crisis in Kosovo may divert the public's attention from the chronic problem of debt and poverty in the short term. And students' seasonal

pressure at Easter with exams means that People and Planet's expectations on student actions on this issue at this moment may have to be revised.

Sources

People and Planet, 4a East Avenue,
Oxford OX4 1XW;
Tel 01865 245678;
E-mail twf@gn.apc.org/home

The Handbook of Careers Education and Guidance 1998-99, published in association with the National Association of Careers and Guidance Teachers (NACGT) by Westlake Publishing Ltd, 17 Sturton Street, Cambridge CB1 2SN;
Tel: 01223 566944
E-mail: info@datalake.com
International Institute for Industrial

Environmental Economics at Lund University: Conference on Environmental Management for Sustainable Universities (EMSU 99) Lund, Sweden May 30-1 June 1999, Box 196, 221 00 Lund, Sweden
Fax: +46 46 222020
E-mail: eva.kirseborn@iiiee.lu.se
<http://www.lu.se/green-campus/emsu/application.html>

Improving the coupling of UK universities' research excellence to UK-based manufacturing industry

Sir Derek Roberts CBE FRS FEng
Provost, University College, London

The twin outputs of universities are people and knowledge/understanding. There is intense synergy between these two outputs which are invaluable in wealth creation, health-care, physical environmental/ quality of life improvement, policy-making and cultural environment

People

The basic solution to every problem is to have the best possible people solving it. Nowadays more companies are managed by people with a good educational background who understand the technology which they are exploiting. More bright young scientists and engineers are being encouraged to move through R & D into other important company activities.

There is growing industrial recognition of the importance of training and retraining. There is greater awareness of world markets. Hiring a bright young graduate is a decision which ought to be taken as seriously as a decision to purchase a piece of capital equipment.

Specification: What are the characteristics of the 'best' person for the job?

Procurement: Vendor rating: are there particular university departments which are known to provide appropriate educational background and motivation – and which are successful in recruiting good students?

Evaluation: Are the available opportunities for undergraduate sponsorship (including the very important aspects of industrial placement during vacation) being fully exploited?

Installation: Much of UK industry expects universities to deliver raw graduates who are already trained. This fails to recognise that universities exist to

educate; it is for industry to ensure that appropriate training is provided. It is for the universities and schools to ensure that graduates possess the key skills on which to build.

Planned maintenance: It is essential that people should be encouraged to take every opportunity for technical updating and conversion, and that industry and universities collaborate to provide these opportunities.

It is for industry to recognise the need for these steps and to enter into strategic partnerships with a modest number of good universities in order to meet those needs.

Knowledge/understanding/ ideas – and their transfer

The objective is to explore ways in which expertise, technology and intellectual property flow more effectively from academe into industry in order to help create new or improved products, processes and management methods.

Existing relationships can be represented as being in one of three categories. Those which are already effective, e.g. pharmaceutical and electronics industries; those which are mutually aware, but with no effective coupling; and finally those which are mutually-unaware/disinterested.

The relationship is a function of awareness, attitudes, empathy and

mutual respect, not of physical separation. It should be recognised that there are three distinct elements in knowledge transfer: transmission, propagation and reception.

Successful knowledge transfer – or communication – is dependent on the performance and coherence of all three elements.

Universities – the 'Transmitters'

With almost two decades of financial cuts on the science budget the university sector has been focusing most of its attention on 'the transmitter' – and how best to retain/recover/expand excellence. This need continues and must be an essential element of any improved national policy on knowledge transfer. Otherwise we will simply be trying to couple the industrial sector into mediocrity or encouraging companies to move their technology base out of the UK. Either choice is surely unacceptable.

However, it is now timely for academe – and industry – to stand back and develop strategies to improve both industry's capability to receive, and the propagation process across the gap.

Industry – the 'Receiver'

It is obviously foolish to discuss 'industry' as though it were homogeneous in its capability – and need – to benefit

from improved access to university-based research. It is equally foolish to talk about 'SMEs' in the same way. Many companies need no persuasion – they simply need to be presented with improved models for research interaction and collaboration. The focus should be on the middle relationship category, where there is awareness and need but no access.

There are important roles for government.

Propagation

There cannot be a single propagation process. This is because the universities offer several different forms of transmitted signal:

Publication of results is the most passive form and unlikely to involve the researcher in subsequent development unless combined with another method. This is not to say that publications are not important.

Licensing technology can be the most financially profitable way of exploiting a commercially viable invention or technique. Finding suitable licensees is very difficult and requires a great deal of leg work to find a company open to a particular new technology. In addition, there must be good patent, copyright or design right protection (which can't be obtained if the research has already been published), or the work should be so complex and involve so much expert know-how that it would take ages for others to copy

Consultancy is an excellent, economical way for a company to learn and become comfortable with new technologies. The consultant can also benefit greatly because the flow of information is never totally one way and, if the relationship is managed properly, research contracts can follow. However, it can be a very detached arrangement. After the consultant has walked away from the company the relationship ceases. It need not reveal what it has done with the advice received. Research contracts with industry are increasing in popularity because they fulfil the needs of both parties. The department receives money to carry out the research it likes doing anyway, and industry obtains access to new ideas and results that it can use for its own products. This is a highly respectable way of transferring technology. For the coupling to be most effective, the research should be collaborative, not just funded.

Autonomous ventures. Finally, there is the option of the university spin-off company. The key issues here are how best to provide access to seedcorn funds; business expertise and incubator environments. The new 'University Challenge Fund' is an excellent step in fulfilling the need for seedcorn cash.

Problems in academe

The best staff in research universities are already grossly overworked. Simply cajoling them to do more, and to go out and evangelise would be counter-productive.

Creating collaborative programmes inevitably goes through a phase of costing more, in terms of effort and cash, with no immediate benefit. Anybody who experienced the launch of major collaborative programmes such as ALVEY and ESPRIT will know this.

No universities have adequate critical research mass for one to be seen by a major industrial sector as an adequate sole strategic partner. Thus the universities need to acknowledge their limitations and pool resources to create that necessary critical mass.

Problems in industry

Again, creating collaboration is resource- and time-consuming, with the potential benefits coming later.

Some companies will, at least initially, have difficulty in swimming in the same 'critical mass academic research pool' as their perceived competitors.

Solutions: general

There is not, and cannot be, a single solution. Some potential contributions to 'the solution' will clearly be specific to particular industrial sectors. Some imagined solutions will be ineffective. Therefore we should proceed via a series of pilot projects from which experience can be gained, modified, and extended.

Specific proposals – mostly targeted at HMG

- Freeze the current RAE ratings for 10 years. This would reduce one of the burdens on staff time and release them to pursue actions with a longer time horizon than the next scheduled RAE.
- Provide additional funds for which the top 'N' research universities could bid to expand and improve their 'sales force' – this could be in

the form of industrial liaison staff, or funds to buy-out for a period the teaching time of these academic staff who would be the best salespersons.

- Fund the creation of a small number of fully serviced incubator centres located to serve the needs of more than one of the 'N' research universities where they commit to collaboration.
- Invite industry to contribute to a salary top-up fund for academics committed to these collaborative programmes.
- Encourage collaboration on the Alvey model by HMG funding 100 per cent of the academic element and 50 per cent of the industrial effort. Any new scheme must be simple and transparent and rapid in response – particularly if they are to involve SMEs.
- Provide funds for a national 'database of available academic expertise'. This should include a payment to those Departments that take the trouble to provide input and regular up-dates to that database (which could be operated under the aegis of the OST).

Conclusions

The most effective means of transferring new knowledge and new technology from the generator to the exploiter is through people. Thus every effort should be made to ensure that such barriers that remain to the successful establishment of industry/academic collaborations are removed. The smaller, and particularly the start-up, end of the industrial and business sectors need to be given every encouragement to develop partnerships with academia.

However of paramount importance is the re-creation of a university science base that is both well equipped and well funded to perform its role, by providing trained people and new knowledge, in helping industry with the business of creating wealth and improving quality of life by harnessing science and technology.

- Summary of an address to the Parliamentary and Scientific Committee as published in *Science in Parliament* Vol 56 No 1, Spring 1999. This article is reprinted with the kind permission of the publishers.

The Hon. Secretary's news desk...

Change of chairman

As noted in my last set of news items, 8th March saw the confirmation in office of our new Chairman of Council, Will Pope. His new responsibilities were exercised almost immediately as Will took the chair at our delayed Burntwood Memorial Lecture on the evening of that same day! Every Chairman of the Institution has brought their own individual influences and experience to bear upon the policies of the IES and I am sure that from Will we can expect a new impetus.

We have also elected a new vice-chairman, Professor James Longhurst from the University of the West of England. Jim is a Fellow of the Institution and an active member of our Education Committee. He has been a distinguished member of the IES for many years and was formerly at Manchester Metropolitan University, specialising in climate change research and air quality. We wish him a successful term in office.

Burntwood Memorial Lecture

A substantial gathering of members and

guests attended our fifth Burntwood Memorial Lecture on 8th March and enjoyed a most challenging and scholarly paper presented by the Rt Hon John Gummer. The text of the paper is printed in full in this edition so I can leave you to form your own impressions of this outstanding, and often profound, address.

The lecture was followed by an open reception, which also proved a most popular success, providing an opportunity for lively discussion and continuing debate. We hope that more of the members will be able to enjoy this event with us next year.

Responses to consultations

Responses to government consultation papers submitted so far this year are:

- *Environmental Assessment of Multi-Modal Transport Scheme* to the Transport Research Laboratory, prepared by Ian Smith.
- *Control of Outdoor Advertisements: Fly Posting* to the DETR, prepared by Jim Whelan.
- *Environmental Technology: Best Practice Programme* to the

DTI/DETR, prepared by Steve Birkinshaw.

- *Sustainability Counts* to the DETR, prepared by Robert Fuller.
- *Land Use Planning and Electromagnetic Fields (EMFs)* to the DETR, prepared by Ian Smith.
- *Aquatic Eutrophication in England and Wales: A Proposed Management Strategy* to the Environment Agency, prepared by Robert Fuller.

Environmental Action Fund Grant

At the time of going to press, we have just heard that our application to the DETR for an Environmental Action Fund Grant has been successful. The grant is for a research project, led by the Institution, and carried out in collaboration with Forum for the Future, the Council for Environmental Education (CEE) and the Environment Agency. The grant is for the first year of what is expected to be a two year project relating to the professional institutions and professional training for Sustainable Development.

BOOK REVIEW

Overview of rural transport issues

This book claims to be unique in addressing rural transport policy issues in a comprehensive and rigorous way, in contrast to the predominance of urban issues in much transport research and writing. It is predominantly based upon UK policy and practice experience.

This is a systematic text, written almost in the manner of a manual for practitioners, comprising 14 chapters, 75 tables and 24 figures. It is divided into two major themes. Chapter 1, the introduction, provides definitions of rural and an overview of recent rural transport issues, while chapters 2-7 address those rural transport issues.

In chapters 8-14 the authors go on to evaluate policies to deal with such issues. Within this second half, the penultimate chapter, 13, *A blueprint for*

RURAL TRANSPORT POLICY

by Sharon Cullinane
and Gordon Stokes

Publisher: Pergamon
Oxford

ISBN: 0 08 043070 8, 1998

337 pages, no price stated

rural transport policy, provides the reader with something of a wish list, and the final chapter, *Conclusions*, focuses on three elements: that rural transport issues need to be addressed within a wider context, the importance of accessibility and the key ingredient of inter-

modal thinking. Each chapter has end references, the most recent of which relate to spring 1998. There is a selected further reading section at the end of the book.

The book combines the authors' original research (although much of it has already been published elsewhere), and an overview of the literature. It considers rural transport policy from a number of perspectives, rural residents, urban dwellers, visitors, local authorities, pressure groups and national government. The issues addressed in chapters 2-7 cover rural travel patterns and behaviour, mobility and accessibility, traffic forecasts, transport and rural development, environmental issues and attitudes towards rural transport issues. Chapters 8-12 evaluate policy state-

ments on rural transport, the effects of national policies on rural areas, tools for rural transport, demand management and transport packages, and strategies of rural transport.

Environmental issues, although permeating the book, are explicitly addressed in chapter 6, which treats the reader to a resumé of the 1970s development of environmental awareness and European responses to it. A brief examination of 'the meaning of environmental' (pp. 124-5) is followed by a systematic evaluation of what are considered to be the environmental effects of transport – airborne pollution, noise, visual intrusion, vibration, congestion, land-use and accidents (a rather unfortunate last position in view of the enormous loss of life resulting from road accidents).

In such a discussion it is not always easy to determine explicitly rural effects nor to discern specifically rural data,

and this is reflected in the discussion. Inconsistencies are also highlighted in the problems of measuring environmental impacts. Potential policy approaches are evaluated – overall reduction in transport use, encouraging modal shift and improving technology to improve fuel efficiency and reduce emissions. But the arguments employed in this critique already appear a little dated as the national debate has gained momentum and moved on since the text was written. Most unfortunately, this book went to press before the publication of the UK transport white papers, and fails to address their likely implications,

The book's title is a little misleading, in that, true to the notion of not setting rural transport in isolation., several chapters appear to be general discussions about transport – indeed, sometimes even giving the impression of an urban emphasis with a rural dimension tacked on – rather than being led by

rural considerations and establishing an appropriate conceptual framework within which to examine them. Indeed, although systematic, the book does present a rather uneven treatment. However, the authors have done well in bringing together and making sense of a considerable literature, and their common sense and clear exposition of most of the major transport issues are to be applauded. But in their own terms of being 'unique in addressing rural transport policy issues in a comprehensive and rigorous way', the book is somewhat disappointing.

Nonetheless, as a hardback reference volume, for dipping into rather than reading from cover to cover, *Rural transport policy* will well serve many in the public and private sectors whose prime professional concerns are transport-related issues which embrace rural areas of the UK.

Derek Hall

New members

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

Mr T. Antoni	Recent Graduate University of the West of England	Mr D. C. Hewett	Recent graduate University of Wolverhampton
Mr D. L. Barrington	Recent Graduate University of Greenwich	Mr D. P. Holland	Environmental Consultant David Holland Associates
Miss D. Brownhill	Student, Swansea Institute of Higher Education	Mr M. R. Hughes	Researcher, Environmental Resources Management
Mr A. J. R. Burton	Senior Engineer Rail Link Engineering	Mr M. I. Kerwick	Postgraduate Student University of Surrey
Mr C. T. T. Chan	Senior Environmental Scientist Far East Landfill Technologies Ltd	Mr A. J. Lawrence	Student, Swansea Institute of Higher Education
Ms N. Chew	Postgraduate Student Brunel University	Mr P. A. Lawrie	Environmental Consultant Mitchell McFarlane & Partners
Mr S. T. Cole	Enforcement Officer Oldham Metropolitan Borough Council	Miss N. J. Maxwell	Recent graduate Heriot-Watt University
Miss C. J. Cooper	Student, Brighton University	Mr A. W. Morgan	Technical Officer Carmarthenshire County Council
Miss V. J. Cormie	Laboratory Technician University of Pennsylvania USA	Mr J. H. Morgan	Environmental Consultant
Mr M. C. Creary	Environmental Protection Officer Scottish Environment Protection Agency	Mr F. N. Quinn	Environmental Scientist Tobin Environmental Services Ltd.
Mr P. C. Crook	Associate Director Environmental Services Stats Ltd	Mr S. A. Reid	Legislative Assistant Kalon Decorative Products
Mr A. N. Dishington	Associate, WSP Environmental	Miss J. C. Ryce	Student, Scottish Agricultural College
Ms D. S. Evers-Norton	Environmental Scientist Ove Arup & Partners – Ireland	Miss J. R. Scarborough	Recycling Assistant Hart District Council
Mr C. J. Goodman	Environmental Advisor Adnams & Company PLC	Mr R. P. Schofield	Environmental Consultant Ashdown Environmental Ltd
Mrs L. Harkness	Student, University of Paisley	Mr M. Stooling	Olfactory Laboratory Co-ordinator Project Research
Mrs E. A. Harris	Postgraduate Student Cranfield University	Miss A. L. Wiseman	Env. Consultants Ltd Student, Swansea Institute of Higher Education

Diary dates 1999

16 June	Education Committee	10.30
16 June	Council	13.30
21 September	GP Committee	13.00
6 October	Education Committee	10.30
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