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Education for sustainability

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Sustainable Development is a rotten sound-bite. It has spawned getting on for 100 definitions, many self serving, almost none of them terribly clarifying.

In fact, the concept of sustainable development, which was first coined by the environment movement in the 1970s, but mainstreamed by the Brundtland Report published by the United Nations in 1987, is actually a bit like the Emperor's new set of clothes. No one dare say 'Excuse me, but I haven't the foggiest idea what it means' because they believe that everyone around them understands perfectly.

I don't think anyone understands what sustainable development means perfectly – after all we have never done it before – but, if the opinion polls are right, most people do know if only instinctively that caring for the environment is important, even though they may not connect that instinct to sustainable development. So, before we go much further, I'd like to get my working definitions of sustainable development off my chest, so to speak, so we can go forward with a shared perception of where I am coming from at least – even if not all of you agree with me.

My first definition is the one used by Forum For the Future:

Sustainable development is a process which enables all people to realise their potential and to improve their quality of life in ways which protect and enhance the Earth's life support systems.

The first point about this definition is that it is a process. Not a goal. As I said, we have never done this before. We know how to turn an agricultural society into an industrial one, but this is our first crack at turning an industrial one into a sustainable one. We have to learn as we go. Secondly it is about people. The environment knows all about sustainability. It has been doing it effectively for eons. Sustainability is all about us learning to go about our business in a way that matches rather

than undermines the Earth's capacity to support life. And it is about *all* people. Justice and equality are at the heart of sustainable development for moral reasons – but also for practical ones. There is no way, for example, that western Europe, currently grossly dependent on imports of energy and raw material for its own well-being, can achieve sustainability, while 50 per cent of North Africa's population is under 20 with dwindling hopes for survival, never mind opportunities to achieve even minimal aspirations for themselves or their quality of life beyond that.

This definition sets out the political challenge that sustainable development presents.

I would like to turn to my second definition, which is a more scientific one and is based on what became known in the 1970s as the Sustainability Formula. That was $I = P \times C \times T$. (I = impact; P = population; C = consumption per capita (GNP); T = technology or techniques used by that consumption process.) Some recent work to put figures into that equation was done by my colleague Paul Ekins and others, and this indicates that sustainable development will require us to reduce our impact on the environment by around 50 per cent. They have drawn on the work of the climate scientists, the Dutch government and others to arrive at that conclusion. As an example of the thinking that

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has gone into that figure, I like to quote work done in Stanford University and published in 1986. This estimated that the human economy consumed each year well over 40 per cent of the product of terrestrial photosynthesis. Our species, in other words, takes nearly half the biological product of the land for its own purposes. That may suggest a considerable room for manoeuvre, but we have to remember that first, it is the easiest to access 40-plus per cent that we take; that other species need a fair crack of the whip; and that each year an increasing proportion of what are ostensibly renewable resources are rendered non-renewable through over-exploitation or pollution. The cake is not only unfairly shared, it is shrinking.

Add into the equation the other calculations. Population in 2050 say, using the UN median projections and consumption per capita as measured by GNP (annual growth rates of 2-3 per cent are deemed to be essential for an economy deemed to be successful), it turns out that the final element – the T, the technologies and techniques whereby we consume the resources that fuel that growth – has to improve in efficiency by 90 per cent if that growth is to be possible in both North and South.

Even if we take these figures as an indication of magnitude, to be 80 or 90 per cent more efficient in our use of energy and raw materials seems a pretty tall order. But not so if you ask material and energy scientists. They don't quite say 'no problem', but pretty close to it. We are so grotesquely wasteful in the way we use all resources that there are no major technical or scientific reasons why we cannot achieve this sort of efficiency gain.

This particular definition of sustainable development sets out very clearly the practical challenge that is before us.

My final working definition of sustainable development is that it is about doing one hell of a lot more with one hell of a lot less, and doing it in a way that enhances, rather than diminishes our humanity.

This rather crudely emphasises the ethical and spiritual dimension of sustainable development, and it is no less important than the others for the brevity with which time obliges me treat it here. As *The Limits to Growth*, one of the books that influenced me, concluded:

the crux of the matter is not so much whether we survive or not but the quality of that survival.

For me, these three definitions actually say the same thing, but they say it differently. And they are more or less what I use when trying to communicate the challenge of sustainable development, not only as a sound-bite, but as a concept or a policy framework.

Now that that is out of the way, I would like to get back on the track of how we can meet this challenge with, of course, a special emphasis on the role of education.

At the first Earth Summit (which was held in Stockholm in 1972) the pile of evidence that human economic aspirations were on a collision course with the environment's power to support them is reputed to have measured over ten feet in height. Education and training were cited as key measures for implementing the agreed action plan.

Taking information inflation into account, 20 years later, the 1992 Earth Summit in Rio probably beat that 100-fold. Meanwhile the rate of environmental degradation has slowed not one bit. It has accelerated. The aggregate global picture is dismal.

So much so that in 1995 the Intergovernmental Panel on Climate Change felt able to state that 'the balance of evidence suggests that there is a discernible human influence on global climate.' This was a historic statement, supported by the majority of the world's climate scientists. The persistent recommendation from the IPCC has been for a 60 per cent reduction in CO₂ emissions to avoid the potentially catastrophic consequences of a warming atmosphere and sea.

Recently, there has been some comforting, if microscopic, evidence that the implications of not taking this recommendation seriously are getting through. For example, a speech this year by John Browne, CE of British Petroleum, recognised that the force of opinion around him obliges BP to embrace the precautionary principle.

BP has already built up a 10 per cent share in the world solar market, and by so doing has begun the process of repositioning itself as an energy supply company by diversifying its sources of raw materials.

Another indication that change is in the air is the evidence that the insurance and commodity markets are agreeing with the climate scientists. Insurance companies have experienced a growing number of claims for weather induced damage – currently topping around \$20 billion a year – and last year my own insurance company added 14 per cent to my household premium explicitly to cover what it called 'natural events', meaning flood damage or subsidence damage to property through drought. The industry fears what it has called 'capacity problems' – that is running out of sufficient reserves to meet escalating claims at both international and national level. (GP tracts)

And there is more to come. Well ahead of this year's promiscuous arrival of El Niño (the irregular upsurging of warm surface water in the Pacific) commodity futures markets began to anticipate potential disruptions of supplies of things like palm and fish oil, coffee and cocoa beans. The storms triggered by the 1982-83 El Niño, (you may recall their ferocity) caused an estimated \$13.6 billion of damage to crops and livelihoods, and an article in my newspaper only last week anticipated that the costs of this year's El Niño would be manifest in our high street prices over the next few years, just as they were in the mid-1980s.

But however hungrily one might latch onto signals that change is engaged or being engaged, is it happening quickly enough? The information we have collected suggests not. At Kyoto in December governments will not be discussing anything like a 60 per cent reduction in CO₂ emissions. The problem is that governments will only do what they think they can get away with. In Kyoto, will the European Union and the USA be negotiating to achieve an agreement, in the context of the advice from environmental scientists, or even in the context of doing right by countries like Bangladesh where millions of already desperately

poor people are threatened by rising sea levels, or the low lying states which will be wiped out altogether? Sadly no, they will be negotiating in the context of what their relevant marketplace and its current dominant actors, will tolerate.

Apart from the market, there is only one other driver that governments care about: voters – that is, you and me. This is why it is so important to equip citizens with the knowledge and understanding they need to drive the democratic process in a way that serves their best interest.

And this is why education was again cited as a key agent for change at the Rio Earth Summit. An entire chapter (Chapter 36) of Agenda 21, (a massive Action Programme for Change that was agreed along with the various conventions), was devoted to Education, Training and Public Awareness. Each of the 170-plus countries who signed up in Rio, also committed themselves to going back home, establishing a national strategy for implementing this action programme, and to reporting on progress on that strategy in 1997 – the so called Rio plus 5 meeting which took place in New York this June.

6 One cannot help feeling that we might end up as the only species to have minutely monitored its own extinction...9

Derek Osborn, who amongst many other things is currently Chair of the European Environment Agency, and of UNED-UK, summed up the outcome of Rio plus 5 with the acronym SLUDGE: Slightly Less Unsustainable Development Genuflecting to the Environment. The New York meeting rejected education for the status of Major Group in the UN process.

Another chapter of the famous Agenda 21 – Chapter 40 – states that people should have more information about the physical state of land, water, biodiversity, seas and upper and lower atmosphere and about population urbanisation, health, access to resources and so on – all the resource and development data it is said we must have to make easier the management of sustainable development at all levels. Yet as the Rio Summit and the New York follow-up meeting underlined, this statement is actually absolute codswallop. We have been stockpiling information about the degrading relationship between the human species and the environment for decades, yet nothing significant has actually changed. What has happened is that we apparently haven't learnt a thing.

One cannot help feeling that we might end up as the only species to have minutely monitored its own extinction. As we become the dinosaurs of the modern age, we may be fully informed about why the environment gave up on its relationship with us, but we

seem incapable of acting on that information in enough time to restore it to mutually beneficial good health. Burning fossil fuels that have taken millions of years to lay down in the space of a few hundred years, while simultaneously reducing the amount of forest cover and otherwise damaging the functionality of natural pollution handling systems like wetlands, is like standing in a shower with the tap full on while blocking the plughole with one's toe: eventually everything flows over with disastrous consequences.

We know we are doing it, but we seem incapable of stopping it. Why is this?

Three reasons.

- Firstly, information ain't education, as the last 25 years have, in my view, incontestably proved.
- Secondly, the economic and, by association, the political framework in which we have chosen to run our human species is currently heavily dependent on gross exploitation of environmental resources and services, in exactly the same way it used to (and in too many cases still does) depend on gross exploitation of human labour. Market economics works brilliantly for many things, but for a very long time all sorts of markets have had cheap or free access to increasingly scarce commodities such as fertile topsoil, trees and water, and to services such as the ultra-efficient pollution treatment services of our atmosphere, biota and oceans.
- Thirdly, as individuals preparing to participate as globally responsible citizens *how* we learn is currently as inappropriate to the task before us as *what* we learn.

I would like to deal with each of these, not in turn but in an interconnected way – because that is more realistically how life is, and in doing so tell you a bit about what the Forum is doing to try to influence change.

In the UK as elsewhere fashions in education come and go, not quite as fast as they do on the catwalk, but you know what I mean. Currently, the notion of Lifelong Learning is popular, and we of course eagerly await the Government's White Paper on this. One of Lifelong Learning's foremost champions, Sir Christopher Ball, liked to say that learning should be as important to us as individuals as was our personal hygiene. (He obviously didn't travel on the tube too much.)

The UK government is also promoting a Welfare to Work programme, through which they want to increase the skills and knowledge of long-term unemployed young people so as to improve their employability. The Department of Trade and Industry supports an Investors in People programme with similar objectives. The DTI, like some of the Regional Government Offices, want to improve skills all round – and in doing so improve the social cohesion that goes with higher employment rates – in order to attract inward investment. The US city of Pittsburg is often cited as an example of what a post-industrial city can do in this regard.

Liverpool John Moore's University has created a Chair in Citizenship, to raise the importance of civic responsibility – particularly amongst young people – a local initiative that chimes with the global objectives of the Council for Education in World Citizenship.

Unpack these initiatives, however, and it is difficult to find anything more than the vaguest of notions as to what knowledge and skills it is important to gain. Just what does a genuinely globally responsible citizen need to know and understand in order to be an asset to any strategy for achieving sustainability at any level – local or global, professional or personal, on or off campus?

In fairness, education for sustainability aficionados are beaver away, trying to come up with a core curriculum. In the UK we have an energetic Education for Sustainability Forum, the further education sector has published a suggested learning agenda, as have a small number of professional organisations, and the school curriculum has the environment as one of its cross-curricular themes. On a trip to the States this summer I came across a host of similar initiatives.

This is actually the trouble, though. There are quite a few initiatives, and they perhaps don't speak to each other quite as much as they might. At the invitation of the then government, in March this year, the Forum held an 'away day' for a broad range of people concerned in some way or another with environmental education. The objective was to develop a positive action plan to take forward the government's published but extremely anaemic strategy. One thing the participants were unanimous about was the need (and I quote from the recommendations here) for *'the development of specifications relating to responsible global citizenship (which include both core knowledge and core skills) at, and coherent across, all levels within the national qualification's framework, both pre and post sixteen.'*

You might also imagine that one of the most important common threads of any such learning agenda would be the primordial importance of understanding how the world works from a basic scientific perspective. Yet this is not the case, even in specialist courses. An EU Commission survey of the sector published this year revealed a widely different interpretation of what the environment was, never mind what should be taught about it! So what is happening in other disciplines? My point here is that a basic understanding of how the world works should perhaps not be the subject of a special course, or even a module – but stitched into the fabric of everyone's learning agenda.

I am not of course talking about science taught as I was taught it – utterly disconnected from real life processes. Let me give you an example of why that will not do. I work quite a bit with engineers, and in 1990 was invited to join a working group to prepare some Guidelines on the Environment for the profession. It was an engineer, Sadie Carnot, who in 1824 wrote a memoir concerning the efficiency of steam engines and so described thermodynamics – the principles governing energy change. This theory, that engineers now learn as part of their basic training, also explains how human economies take energy and raw materials and transform them into goods and services with the physically incontrovertible consequence of waste and pollution. I came to understand the connection through a paper entitled *The Thermodynamics of Environmental Pollution* written in 1971 by Robert

Muller of, amazingly, the NASA Space Centre. The basic ingredients of life don't disappear, they just change in form. A tree, once burnt, is ineffably changed – but the ingredients remain the same. It is just that instead of being locked up in a highly structured and extremely useful tree, they are dispersed in a totally unstructured way in the atmosphere, water and on the land.

Yet I had a struggle to get my engineers to include their historic contribution to understanding how the world works in the guidelines. They simply did not make the connection between engines and biological systems. This matters because one of the first practical responses of individuals and governments to the environmental crisis was to set up collection points to recycle things like paper and aluminum cans. Yet, if you use thermodynamics to help you work out the biological efficiency of doing this, the outcome is that it may not actually be as sensible to recycle tree products as it is for aluminum. The amount of energy you have to add to the equation to recycle paper products may well be, in the end, much more polluting than processing paper through a cascade of use – from a newspaper or book for example, then as packaging or insulation, then as animal bedding, before finally recuperating energy through composting or ultra-efficient burning. By contrast, re-using aluminum is less energy and resource intensive than mining and smelting bauxite.

6 How many dead bodies are needed before the globally agreed 'precautionary principle' is applied? 9

In my arguments I had one crucial ally, an engineer on the board of one of the UK's most energy-intensive companies. He nobly admitted that he had spent several million pounds putting clean-up technology on the pipes coming out of his factories, before he remembered his college lessons in thermodynamics which told him that, if he wanted to reduce the pollution coming out of his plant, the most efficient way – economically as well as biologically as it turned out – was to make reducing the amount of energy and raw materials coming in his starting point.

These insights are at last beginning to drive change in some of our more enlightened companies, but how much time and money is being wasted because so few of us know this most fundamental physical fact about how the world works?

What has been the response of public policy to this information? A definite growth in exhortations to minimise rather than recycle waste, certainly, and some enterprising tax reforms, including a Landfill Tax, an escalator tax on vehicle fuel, and a more controversial tax on domestic heating fuel. There has, however, also

been a growing understanding that reducing material consumption will have a huge impact on economies that are judged for their success on how much they can increase that consumption. The more you consume the better your economy is performing. Around 70 per cent of the GNP of the main industrial economies is largely calculated from precisely those activities which, directly or indirectly, do most damage to the environment.

It is a huge step – for economics and for politics – to shift from this sort of economic system. It means completely new ways of accounting (for all wealth-creating institutions, and for us as the end-of-pipe consumers in our national and local economies). Knowing that the environmental evidence indicates that getting out of this destructive circle is of vital importance is one thing. But amassing the political and personal impetus to do it seems to be quite another. Political leadership in this particular regard is desperately missing everywhere, with the current weakness of the US President particularly terrifying.

But as I have already indicated, maybe that is because our political leaders, their advisors (and in the case of Bill Clinton red-neck Congressmen), and the market analysts who have such powers to influence how investment funds are deployed – company directors, environmental education theorists, professional bodies, you and me – have not understood just how intimately our personal fate as individuals, and hopefully as cherished and loved members of families and communities, is dependent on the quality of our local and our global environment.

I gained this insight while spending one year in Ann Arbor, in 1981, where my husband spent a sabbatical year. With a small family, and already a rabid environmental activist, I decided to use exile from my home campaigning territory to deepen my knowledge of how the world worked. To my husband's astonishment, I didn't sign up for politics and economics, but for biochemistry. The course was designed for medical students and for them it was part of a tedious wodge of information about atoms, elements and molecules that they had to get under their belts before they were allowed to tinker with the fully assembled human body. The lectures were deeply dull.

But for me, while I may have forgotten the formulae, the year was an inspiring illumination of the intimacy of the relationship between our bodies and the environment. Amongst other things, I learnt that every five years or so, every single molecule in our bodies is completely replaced. So if, after six years of marriage, you were to turn to your spouse and say 'You are not the man I married' you would be absolutely correct! Biologically speaking we are literally what our environment makes us.

Concern is rising now, about the increase of childhood asthma, for example. About the effect of hormone replicating substances on the male reproductive system, and about what seems like an increase in the sort of diseases that prey on diminished human immune systems. Evidence of the direct causal links may be difficult to assemble, but how many dead bodies are need-

ed before the globally agreed 'precautionary principle' is applied – a principle that says scientific uncertainty shall not be used to postpone cost-effective measures to prevent environmental degradation.

In my view, it is the lack of capacity of decision-makers, opinion formers and ordinary citizens to interpret the information around them through even a modest filter of understanding about how the physical world works, that is preventing us from collaborating vigorously in altering the way our human world works, ethically, economically and politically.

Forum for the Future describes itself as a third generation environmental organisation. My two co-Directors, Jonathon Porritt, Paul Ekins and I have all been active environmental campaigners in the UK for more decades than we would care to admit. We were involved in the first generation – which I personally date from well before Christ (Plato was concerned with the consequences of deforestation) to the 1970s, when we had to scream and shout to get the issues into the public domain. Then, during the 1980s came a multitude of responses, feverish policy development, practical initiatives, and so on. This is the era that spawned the world's green political parties.

But from 1992 onwards the name of the game changed for all environmentalists. In essence, at the Earth Summit in Rio the majority of the world's governments agreed that we were right, and sustainable development became the overarching policy framework for addressing what was agreed to be a critical and urgent need to tackle the closely intertwined problems of environmental and human degradation. The challenge now was to come up with the solutions.

The Forum's mission is simple: to take a positive, solutions-oriented approach to sustainable development, to highlight best practice, and to work in partnership with others – in all sectors. As I said to start with, we've never done sustainable development before, so we have to work together – it's our last chance of succeeding, or at least avoiding the worst heffalump traps (like LA who introduced wheellie bins and nearly doubled the volume of household waste).

The Forum was launched in 1996 and works in a number of specific areas (business strategies and education, economic policy and so on), but I want to tell you about one in particular – our Scholarship Programme.

From the beginning, preparing tomorrow's leaders was a top priority for the Forum. Our programme selects 12 young graduates with a commitment to sustainable development. We offer them access to the very best tuition in sustainability – the science, the economics, the ethics and the social dimensions. The centre-piece of the programme is a series of six one-month placements that each scholar attends in six different sectors: green campaigning; local government; politics; business, law/regulation/finance; media. One scholar described it as a Grand Tour of British Society. The objective is to turn out cohorts of young people with leadership potential who have a deep understanding of sustainability, also of how society works – plus the contacts and experience (indeed

the political nous) to put together powerful partnerships for change – wherever they end up. It is extremely subversive, and we admit it.

The programme is also a highly structured model of experiential learning which we designed ourselves. Through a signed contract with the Forum, the scholars manage much of the programme themselves – including the extremely important sessions and written reports that are devoted to reflecting on the learning outcomes from their experience. The structure allows the scholar a lot of freedom to explore and negotiate learning experiences and to develop their skills, without losing the focus of the programme. We are delighted to be collaborating with Middlesex University's National Centre for Work-based Learning in order to accredit the Forum as an award giving body for their pioneering Masters and Doctorate work-based learning qualifications.

The point I seek to make here is that the Forum scholars are learning by doing, in a safe environment. We use our experience to decide the learning outcomes, and we facilitate the scholars' achievement of them, but they do the work. This is how learning used to take place before formal education took over – from our family and community within the safety of a framework of commonly agreed rules. Rules that, by and large, had been evolved out of generations of experience. The best civic leaders (like the heroes and heroines of many of our mythologies) were selected not because of the volume of information they might have amassed in college but because of their wisdom in applying their knowledge and experience to current situations.

It beats me, therefore, why our teachers today (and our politicians for that matter) come more or less straight from college. What can they impart but clinical information? What experience and wisdom can they pass on to us about how that information should most sensibly be used?

My engineering friend, for example, is now retired. The insights he brought to the Guidelines for Engineers are no longer available to the engineering profession. Meanwhile, in engineering schools all over the UK there is a crisis. High quality young people are not going into engineering because they see the courses offered as dull, perhaps rightly, but imagine them, completely wrongly, to be irrelevant to a life-affirming future.

What's more, in response to the high demand on our higher education sector from environmentally committed young people, college entrants can now choose from over 1,200 courses with the word ecology or environment in the title. Yet graduates of these courses now represent the highest percentage of post-graduate unemployment. We've tried environmental specialists, said one of our scholar placement hosts, a major employer in the UK, but they simply don't have the sort of knowledge that's of use to business. Charles Handy, my favourite management guru, in his latest best selling book *The Hungry Spirit* makes a similar point when he describes leaving university only to be told by his first employer that he may have a well-trained mind but it was empty of things of real

value to the company. He had been prepared to deal with closed questions at university, but real life, he found, was full of open-ended ones. (EMAS, ISO14000: successful implementation = capacity (skills, knowledge) of person doing it.) As companies trying to implement an environmental management system are discovering, these things are rather like a list of cake ingredients: if the person assembling them understands the principles of cake baking there is usually a good result. If they don't, a sad mess can result.

That is why the Forum scholarship programme makes a point of accessing not only experienced supervisors in the placement organisations, but also lecturers and seminar leaders who have a great deal of information at their fingertips, but always information that has been honed by experience. It is the accrued wisdom of that experience, applied to the information, that we seek to transmit to the scholars during the year.

This is, I think, the most important learning outcome of my life that I would like to leave with you.

The natural world renews itself messily, magnificently and mysteriously through recycling ancient ingredients, so it seems completely potty that our species lets the wisdom and experience of its older people rot uselessly in sunshine homes, rather than actively recycle it back through education systems to our youth. New generations should stand firmly on the shoulders of the last. Wheels may need to be reconceptualised, but surely they shouldn't need to be re-invented.

This is what Learning For Life should be about – learning from life – first from a deep understanding of the way the world works scientifically and how we ourselves are intimately connected with those processes, and also from our collective experience as a species as to how we might best fit our aspirations to a predominantly biological set of rules – in a way that is both mutually enriching and spiritually inspiring.

One of the outcomes of the Forum's away day on environmental education was support for an Expert Panel on Education for Sustainable Development. We are therefore extremely pleased that the proposals concerning this panel have survived the change of government. It will be chaired by Sir Geoffrey Holland, Vice-Chancellor of the University of Exeter, and report to the Deputy Prime Minister and the Secretary of State for Education and Employment.

Also, as well as a paper on lifelong learning, the government is on the brink of publishing a consultation paper on its overall position on sustainable development. The consultation will take its time, I am told, because they want, and I quote 'to get it right.' 'In time for the next general election' would perhaps be a legitimate construction to put on this remark.

Now, if I am right in assuming that the bulk of this audience is, as I am, committed to ensuring that education for sustainability is available for everyone, and that perhaps many of you are also committed to rethinking the mechanisms of education so that they more accurately reflect how we learn best, then this is perhaps a good moment for us to 'get it right enough' in order to influence both the panel and the government in time for the next election manifestos.

Lifelong learning and education for sustainability

Stephen Martin FIEnvSc

We are now experiencing what some commentators call the 'quiet revolution,' or 'the reluctant revolution' as well as 'the rolling revolution.' These are attempts to describe the current process of change in education and training, as they converge and merge into the richer concept Lifelong learning. In January 1998, the Government will also publish a much heralded White Paper on Lifelong Learning.

It is important to address the question – why is this revolution taking place? Change, and particularly the unpredictability of change, is central to the growth of interest in Lifelong Learning, but part of the answer to this question also lies in the answer to another question, namely – what is education for? A common response to this question has been 'to provide **skills** (defined in its broadest sense, as knowledge, understanding, experience and attitudes), **socialisation** and **sorting**.' The three Ss.

Skills seem obvious enough: the three Rs, competence in foreign language, computer literacy, NVQs, GNVQs, etc. But there is today an increasingly lively debate about key, basic and transferable skills, which indicates a lack of consensus about the purpose of education and training. The growing complexity of modern society means that at one and the same time the acquisition of appropriate skills becomes ever more important and their definitions more difficult.

There is an on-going debate about so-called key skills in post-16 education and training and transferable skills in Higher Education (key and transferable skills overlap, but are not identical in range). The five 'common' key skills are **communications, problem solving, personal skills, numeracy** and **information technology**; the 'fringe' key skills include modern languages, values, creativity, citizenship and the environment. There are a number of issues in this debate – one being the confusion of nomenclature – we need to distinguish between key skills (eg, communica-

tions) key skills content (eg, Biodiversity) and key domains of learning (the environment). Another, is how we promote the essential nature of environmental awareness and understanding. Nevertheless, these are healthy debates, in which the environment, citizenship and values, have a valid and acceptable place.

Socialisation means learning to operate as an effective member of a family, school, firm or society. This is often defined as citizenship – in recent years this concept has often been marginalised because of the greater emphasis on individualisation. The idea of socialisation presents a special challenge to environmental education for sustainability. One aspect of this, is the notion that 'we become responsible by taking responsibility'. We should not look to others to take the prime responsibility for education for sustainability – we *all* have a role and a responsibility. A recent MORI poll found that four 'captains of industry' in ten agree with the proposition that 'British companies do not pay enough attention to their treatment of the environment.' One reason that captains of industry may be paying more attention to matters of the environment is that they as individuals may carry green values that are deeper than their concerns about the profitability of their corporations. Many are also acutely conscious of a long term decline in public trust and confidence in business organisations, that represents a drain on the goodwill that all companies strive to conserve. Many are also conscious of balance sheets and bottom line!

Sorting refers to the process of sifting people by ability and attainment in order to ensure that they secure appropriate job or further learning opportunities. Perhaps because we have never been very good at sorting, this function of education and training tends to be over emphasised at the expense of skills and socialisation.

This type of analysis has served its purpose, but with the increasingly rapid

changes in employment patterns and the need to help people prepare for continued learning throughout life and work, it no longer provides a suitable analysis. The fundamental question is no longer 'what is education for?' but 'why learn?' Skills, socialisation and sorting implies that the task of education and training is to *do* things to people. Learning demands that people are helped to do things for themselves. These things include, besides work-related learning, both leisure-related and community-related learning. As has been suggested by Sir Christopher Ball, Director of Learning at the Royal Society of Arts, perhaps in a learning society the three Ss will be replaced by three Es: **enabling, empowering** and **equalising**. Learning enables people to live a full participative life. Learning empowers people to find a role and play their part in a democratic community and learning provides that best route towards equality of opportunity and helps people overcome deprivation, disadvantage and discrimination.

Perhaps the most important and arguably the most contentious question about the purpose of education and training is whether learning pays. Some see a tension between wealth creation (the economy) and personal fulfilment as the main differences between education and training, because there is now a prevailing view, supported by a growing body of empirical evidence, that good education and training (learning) is the foundation of economic prosperity. In the UK it has been estimated that there would be 1 million fewer unemployed if the levels achieved in education and training matched the best in OECD.

In Europe, it is widely acknowledged that the success or failure of cities to adapt to economic restructuring and greater economic integration within the European Union will depend in many ways upon the cities themselves and in particular upon visionary political leadership and sound management. Various commentators are beginning to describe the emergence of so-called 'entrepre-

neurial cities' characterised by strong civic leadership and by the establishment of effective local partnerships between public, private and voluntary sectors. It is my belief that entrepreneurial cities which are committed to the development of a lifelong learning culture (Learning Cities such as Liverpool or Milton Keynes) will in future come to be seen as attractive locations for investment as well as a pleasant environment to live and work.

This then provides a partial rationale for the current emphasis on lifelong learning, but why is this revolution important for environmental education for sustainability?

What we are beginning to observe in the UK is a process of national and regional capacity building for economic regeneration, through the development of learning societies/communities or cities or organisations. There is a growing commitment to expanding educational achievement and opportunity – by schools, businesses, universities, colleges, local authorities – whole communities. For many, learning is the means by which they may find a sense of personal worth by contributing within the community – as volunteers in conservation projects; in voluntary work with the elderly and children with special educational needs. For others, it is an opportunity to achieve their educational and employment goals. The characteristics of such a vision of a learning community were set out by Sir Christopher Ball in his 1992 paper entitled *The Learning Society*:

- provision of learning opportunities for all citizens;
- access to learning opportunities for all citizens;

- effective incentives to encourage everyone to continue to learn;
- incentives for organisations to become learning organisations;
- strong foundation learning;
- measurable evaluation of learning;
- establishment of a ladder of attainment;
- recognition of different methods of learning;
- recognition of different styles of learning;
- incentives to maximise the use of both public and private resources;
- simple and clear targets for participation and attainment of all individuals.

These characteristics link very effectively with the principles of Agenda 21. The vast majority of the action outlined in Agenda 21 is unlikely to be achieved without the commitment and co-operation of local government, involving partnerships with other sectors, such as education, businesses, voluntary groups and the community at large. As the UK's Sustainable Development Strategy (1994) puts it:

Sustainable development cannot be achieved simply or solely by governments – the decisions, choices and behaviour of individuals in their homes and working lives are perhaps the most significant of all.

Learning will lead to action – if people understand the reasons for sorting rubbish, changing buying habits or participating in local community action.

Learning will support policy – if people understand why change is necessary, for example in transport policy or energy use.

Learning empowers – if individuals understand how to use information

effectively, this will encourage and enable people to take part in the decision making process, offering them the tools (skills, values, knowledge) and confidence to be effective.

I believe that the development of learning societies, throughout the world, offers a powerful vehicle for furthering the objectives of education for sustainability. At a global conference on Lifelong Learning, held in Rome in 1995, the conclusions to the report state:

The main finding is clear enough. It is that our traditional and inherited systems of education and training have failed to create 'Learning Societies' in which everyone is motivated and enabled to practice lifelong learning. A world containing almost 900 million adult illiterates is not the 'Learning World' which is our vision. What we have created so far is not good enough. Existing systems of education and training tend to favour an elite of fast learners, to focus on teaching rather than learning and to over-emphasise initial education at the expense of lifelong learning. What is required is not more of the same. If we are to reach the unreached and include the excluded, more must mean different.

Learning for life on earth is not just about ability, it is not about additional resources; it is about motivation. When people take responsibility for their own learning and encourage one another, education for sustainability becomes a realistic vision!

*Stephen Martin
is Chief Executive/Chairman
of WWF Education Committee*

Forum for the Future scholarships 1998

The company of the future will need these scholars. Successful enterprises and agencies everywhere will need them. And we, the people, need them.

*– John Baker,
Chairman,
National Power plc*

Forum for the Future is starting its third recruitment drive to find 12 exceptional young graduates with leadership potential who can demonstrate a strong commitment to sustainable development. The scheme is designed to equip young people with the kind of knowledge and

range of skills that future leaders and decision makers will need. It aims to:

- build a core of young champions who are prepared to take leadership roles in building sustainable society;
- be recognised as the foremost programme for those aspiring to Green leadership in every sector;
- extend to others Forum for the Future's positive ethos and its commitment to best practice and innovative solutions.

The ten-month learning programme is based on the following principles:

- caring about and understanding sus-

tainable development;

- the importance of leadership;
- a focus on solutions and best practice;
- first hand experience across a range of sectors;
- structured learning.

The innovative programme includes work based learning in six key sectors:

- an environmental or development charity;
- a local authority an MP, MEP or government department;
- a leading business;
- a regulatory, financial or legal institution;

■ a national or regional TV/radio station, newspaper or magazine.

Placements in 1997 included BBC Today programme, BP, Eastern Group, Edinburgh City Council, European Parliament, HM Treasury, London Transport, Save the Children, Scottish Environmental Protection Agency, Tesco and WWF.

At the end of the programme, scholars are awarded a Forum Scholarships Diploma and are invited to join the

Forum Scholarship Alumni Association which provides an ongoing connection with other scholars, the Forum and its activities.

Scholars are normally aged 20-25 and have a graduate or equivalent qualification. Most importantly they have already demonstrated (in a voluntary or paid capacity) a strong commitment to sustainable development and show real leadership potential. The scholars are based in London and receive £6,750

plus travel and out-of-town expenses. All potential scholars must be nominated. No direct applications are considered. The closing date for nominations is Wednesday 11 March 1998.

For more information and nomination forms contact:

*Head of Scholarship Administration
Forum for the Future
227a City Road
London EC1V 1JT
Tel: 0171-251 6070.*

ENVIRONMENTAL NEWS

Promoting environmental protection investment in industry

Adrian Wilkes, Director, Environmental Industries Commission (EIC)

The question of costs (and the consequential impact on competitiveness) has been central to the political debate about environmental legislation in the 1990s. Cost estimates from mainstream industry have won headlines in the press and scared many policymakers. But some far-sighted UK and EC policymakers increasingly understand that costs are not the whole picture. To be offset against such costs are the countervailing benefits of promoting efficiency savings in mainstream industry, saving pollution-related costs incurred by third parties (such as the health service and the tourism industry), and creating markets (and jobs) for the environmental technologies and services (ETS) industry and for green consumer products.

Mainstream business can make substantial financial savings from pollution prevention. A host of recent waste minimisation projects have now proved that costs can be cut and competitiveness improved through waste reduction and recycling, reduced material use, energy efficiency, etc.

The Aire and Calder project was the UK's first major demonstration of the benefits of waste minimisation and cleaner technology. It revealed that the project has achieved savings for the eleven participating companies of over £2 million a year within the first 18 months, with another £2 million to be achieved over the next two years. Over 70 per cent of the measures had a pay-back of less than one year.

The overall conclusion was that 'the financial case for adopting a philosophy of waste minimisation is so overwhelming that companies should need little further encouragement to save money and the environment'.

Then there is the whole question of the costs of pollution. One authoritative study estimated that the full cost for Britain of water, air and noise pollution is more than £22 billion, equivalent to 6 per cent of Gross National Product.

Many Governments around the world are therefore now heavily promoting environmental protection investment by mainstream industry through a variety of support schemes, such as fiscal incentives. Notably, the Dutch government introduced accelerated depreciation in 1991 in order to speed technological innovation and to facilitate the diffusion of new, environmentally-sound technologies. The Dutch Government regard it as a great success with over 10,000 companies having taken advantage of the scheme. They have recently extended the scheme to cover 450 environmental technologies.

Following the success of the Dutch scheme, the EIC has called upon the UK government to provide fiscal support for environmental investments in the UK. Its aim is to accelerate the depreciation deductible from tax on investments on innovative environmental technologies.

Incentives for investment in environmental technology will help both mainstream industry and British

environmental technology and services companies. They boost investment, create jobs, boost exports and, last but by no means least, they help improve air and water quality and public health.

British Industry clearly needs a 'carrot' in order to encourage investment in environmental protection. Yet EIC's environmental investment incentive proposals were opposed by the previous Conservative government on a number of erroneous grounds.

First, Conservative treasury ministers said that such fiscal incentives would be expensive (although the Treasury has done no work to substantiate this claim) – but as the proposal only accelerates the depreciation into year one (rather than it being spread over many years) the cost to the Treasury will be a small loss of interest.

Second, they said that there is no definition of what is an 'innovative' technology – but the Dutch government's scheme (on which EIC's proposals are based) has an effective and practical method for determining what is 'innovative'.

Third, they said that such incentives would create a 'special case' and penalise those companies which had already invested. They could provide no evidence to support this claim.

Fourth, they said the costs of administration would be high (although the Treasury has done no work to substantiate this claim). The Dutch scheme, in practice, works simply and involves

very little paperwork. It is such a success that it is being extended.

EIC expects the 1998 Budget to be the greenest one ever. The new Government has announced its intention to produce a draft green Budget and EIC

believes that environmental incentives must play a part in the Governments strategy in order to help protect the environment and support the UK's ETS industry and encourage mainstream industry to invest in environmental tech-

nology. Incentives for being 'green' can balance the forthcoming taxes on polluters – to the benefit of UK plc.

For further details on EIC and its Tax Incentives Campaign, please contact Adrian Wilkes on 0171-935 1675.

How green a Budget?

Derek Hall MEnvSc

Environmental groups were less than impressed by November 1997's so-called 'green' budget, in which VAT on energy saving measures was reduced and proposals for a tax on industrial emissions contributing to water pollution were unveiled, as presaged in the previous budget. However, there was no further development of a tax on quarrying nor, more importantly, any suggestion for reforming taxation on transport, such as a carbon tax on emissions or providing a lead on congestion pricing.

Central to the 'greenness' of the budget proposals was a reduction from 17.5 per cent to 5 per cent of VAT levels on energy saving measures pursued under the Home Efficiency Scheme. It was claimed by the government that this

would add annually a further 40,000 low income homes to the 400,000 per annum having fuel and power saving material installed such as loft and cavity wall insulation, draught proofing and hot water tank lagging. In order to qualify for the full payments, occupants have to be on state benefits such as family credit or jobseeker's allowance. The maximum grant is £315, although the average sum disbursed is in the region of £170.

Defending the fact that the reduction of VAT to 5 per cent was not extended to all households – which would have brought taxation on energy saving goods in line with that on gas and electricity – the Treasury argued that such a cut might transgress EU law. Friends of

the Earth, however, among others, maintain that the previous reduction of VAT on fuel to 5 per cent has posed no legality problem with the EU, and that by including all households in this latest measure extra fuel saving across the country would be substantial, reducing significantly Britain's emissions of carbon dioxide gas.

According to the Newcastle-based company which manages the government scheme, the insulation of each home can reduce carbon dioxide emissions by one tonne a year. The scheme also sustains 4,000 jobs for those employed on installing the insulation. Thus far, the energy efficiency scheme has insulated 2.2 million low income homes in Britain.

Managing the risk of professional liability

All businesses undertake a continuous process of risk management on a number of fronts and on a variety of levels. Consciously or sub-consciously, we are all concerned with maximising our rewards while minimising or controlling our risks. Some risks we choose to incur, fully accepting the potential downside; others are a necessary part of doing business, which we control to the best of our ability, possibly laying them off with other parties; still others we choose to avoid, despite the price of a missed opportunity. Today, more than ever, the risk of being sued in a professional capacity is one which must be managed in this way.

In the last few years the courts have held that a professional owes a duty of care not only to those for whom he performs services, but also to any other party who foreseeably relies on his or her advice. Neither is it sufficient to

comply with the normal standard of his or her profession, as it is not unknown for the practices of entire industries to be retroactively condemned as negligent.

Adding to the maze is the proliferation of legislation (actual and proposed) from both London and Brussels which seeks to regulate the activities of both environmental professionals and their clients, and the increasing use of written, and sometimes conflicting, standards. Within society in general, and certainly in business, there is a greater willingness to pursue action in the courts, and the move toward a contingency fee based legal system in this country may encourage speculative litigation.

Those seeking to meet the demand from abroad for environmental expertise face additional difficulties, as business practices, regulations and systems of

justice may be unfamiliar, and sometimes undeveloped. Political as well as economic factors must also be accounted for.

However, professionals can take a number of steps to minimise their exposures and to mitigate the down-side in the event of a loss.

Client and project selection

Some customers and projects are likely to have a lower risk profile than others. Factors to be considered include the type of entity involved (eg, government body or private developer); length of relationship; prior experience; and funding. With regard to projects it is worth considering whether the results of the work will be relied upon by a number of parties; the nature of technology to be employed (established, evolving or new); the value and impact of the project; and the existence and extent of any potential sensitiv-

ities on the part of regulators, neighbouring property owners and/or occupiers, and interested third parties.

Managing client expectations

It is vital that the scope of the work being undertaken is clearly set out in writing and communicated to those whom it will affect. Meetings, discussions and verbal instructions should be noted and/or confirmed in writing wherever feasible. Proposal contracts and reports, where utilised, should be consistent, and significant details of the work to be performed, including any limitations, should be repeated in all documents.

Reliance by third parties

The contract should seek to limit reliance by third parties by stating that the services performed and any resultant data and opinions are for the sole use and benefit of the client.

Continuing professional development

An important element of risk management for professionals is keeping pace

with industry trends and legal and regulatory developments affecting their field of practice. The current pace of change in the environmental arena is rapid, and any investment in continuing education will be worthwhile.

Mitigation

What if the worst happens? What if, despite meeting the highest technical standards and diligently observing strict risk management practices, a professional becomes involved in a suit for professional negligence?

Firstly, notify your professional indemnity insurers in accordance with your policy terms and conditions. As well as providing financial security they will be able to assist you with drafting a response where applicable, and to help select a legal or other advisor where appropriate.

If you are uninsured, it is a good idea to seek immediate legal advice, preferably from an advisor with relevant experience. The best course of action may be to forcefully deny allegations, or to seek to be dismissed from an action quickly before substantial costs are incurred, but

alternatively it may be preferable to adopt a 'wait and see' strategy. Obtaining the right advice is therefore crucial.

Consider the use of ADR (alternative dispute resolution) techniques as a cheaper, less confrontational alternative to litigation. Many professionals are increasingly making contractual provision for the resolution of disputes in this manner, using standardised ADR clauses.

The downside of professional liability risk is so significant that it needs to be managed, and through a conscious and structured process rather than by chance. Those who consider the risk elements of prospective projects, are aware of the potential problems and act in recognition of these, are in a strong position to minimise and control their likely exposure.

Clare J Lawrence BSc ACII

Clare Lawrence is an underwriter on Beazley Syndicate 623 based in the Lloyd's insurance market. The Syndicate specialises in Professional Liability insurance worldwide and is an established market for consultants operating in the environmental arena.

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The Hon. Secretary's news desk...

Principles for environmental management

A joint panel representative of a number of professional environmental bodies and organised and promoted by the Chartered Institution of Water and Environmental Management has recently agreed a set of principles for environmental management. The institution was represented on this panel, which held meetings during the second half of 1997.

The consortium of bodies represented felt that it is important to develop a common understanding of the basic principles for environmental management and to influence awareness of these principles to guide individual behaviour in education, training, professional and industrial practice. The principles are being published in a short printed document provided for each organisation to use in their own way for the benefit of their members, subscribers and the community.

It is hoped to publish the document in full in the March/April edition of the Journal but printed copies will shortly be available free of charge to members on request. It is intended that a second stage exercise may be carried forward to produce a 'manual of best practice'.

Environmental Practice Committee: new members required

The committee meets five times a year in central London. It represents the interests of practising environmental professionals within IES and recent activities have included meetings programme, publications, setting up a CPD scheme and negotiating PI for IES members.

If you are interested in joining EPC please contact the Chairman, Richard Pagett: tel: 01793 771867.

New members, 1997

A membership and fundraising exercise organised by the Secretariat during the course of 1997 met with a limited response though we received many expressions of interest and moral support. I am pleased, however, as a result to welcome to Sponsor Membership both Marks & Spencer and Rio Tinto plc. These are substantial companies whose financial support and interest will be of great assistance. We are hopeful that these sponsors, together with our earlier sponsor, Unilever, will be able to extend their supporting role in the future. Also joining as Associates following the enquiry were The Berkeley Group and Nat West Group who we also hope will take an active interest in Institution affairs.

Committee membership, 1998

In the Annual Report 1997 I have recorded the fact that support for a number of the standing Committees has been dropping and attendances have been declining. The programme of Institution activities, developed from the overall business plan, depends on the work of the committees who carry the effort forward. This work is voluntary and does represent a call on members' time and expertise and a degree of commitment.

The Environmental Practice Committee needs more support for the organisation of events – meetings, seminars, etc – and the development of technical publications giving professional views on matters of topical environmental concern.

The Education Committee could also benefit considerably from additional assistance to develop research projects and contribute to educational leaflets and publications. Volunteers to serve on either of these committees would be most welcome and extensive professional experience is not a pre-requisite for membership.

RAF

Professional indemnity insurance

As announced in the November/December issue of the Journal, a professional indemnity insurance scheme designed for the benefit of the members has now been agreed with J&H Marsh & McLellan. Details of the scheme are set out in the brochure enclosed with your Journal.

This is the culmination of many months of exploration of the market and negotiation with a number of brokers but we are satisfied that we have now arrived at a satisfactory set of arrangements.

One of the difficulties faced was the wide diversity of practice within the membership and the range of cover that would potentially be required. The arrangement made is therefore of a flexible nature which will allow individual quotations to be given to suit each set of circumstances while still providing scope for a competitive level of premium and discounted rates for membership of the scheme.

All practitioners who are Members of the Institution are required to carry suitable professional indemnity insurance cover, either through personal or company policies. We trust that this scheme will prove of interest and benefit to many of you.

News of members

It is with regret that we have to announce the death of **Professor D. J. Whalan** having only recently learnt that he passed away last September. Professor Whalan was a long standing member of the Institution and was on the staff at the Australian National University, Canberra, Australia for many years.

On a happier note we learn that **Steve Branch** has joined the board of LBH Wembley Geotechnical and Environmental Consultants as Managing Director having previously held the position of Principal Engineer.

New members

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

Mr D. J. Bissett	Trainee Lecturer South East Essex College	Mr A. K. Sharma	Senior Environmental Consultant Aspinwall & Company
Mr J. Colduck	Recent graduate Manchester Metropolitan University	Miss X. Sheng	PhD researcher De Montfort University
Mr R. N. Craven	Student	Mr P. Sullivan	Recent graduate Manchester Metropolitan University
Mr J. E. Dafforne	Recent Graduate, University of Lincolnshire & Humberside	Mr J. G. Walker	Hydrology Officer The Environment Agency
Ms P. M. Finnegan	Environmental Consultant Croskery Environmental	Miss S. J. Williams	Recent graduate Manchester Metropolitan University
Dr P. N. Garrad	Independent Consultant in Water & Environmental Management	Mr S. P. Winter	Student
Miss E. R. Green	Recent graduate Manchester Metropolitan University	Miss H. Zaki	Environmental, Health & Safety Consultant, Managing Change Ltd
Mr S. Hildon	Recent MSc University of Leeds		
Mr D. Holland	Environmental Assistant British Polythene Industries plc		
Mr S. C. N. Hutchins	Safety, Environmental & Technical Advisor – Transco		
Mr M. S. Kler	Recent graduate Staffordshire University		
Ms F. McCammon	Recent graduate, Kingston University		
Miss D. McMillin	Recent graduate University of Sunderland		
Mr P. L. McNie	Senior Advisor (Environmental) South West Water Services Ltd		
Mr D. J. Morris	Environmental Project Manager P. T. & L. Environmental USA		
Miss E. A. Old	Assistant to Organic & Advisory Service, Elm Farm Research Centre		

Sponsor Members

The following new Sponsor Members and Collective Members were not featured in the last Journal due to pressure on space. They are warmly welcomed to the Institution.

Sponsor Members

Marks & Spencer plc (Sponsor Member)	London W1A 1DN
Rio Tinto plc (Sponsor Member)	London SW1Y 4LD

Collective Members

NatWest Group (Associates)	Environmental Mgt. Division London EC2P 2BP
The Berkeley Group plc (Associates)	Surrey, KT11 1JG

Forthcoming events

2-4 March

Environmental Risk Management and Communication

University of Surrey
Three day course concerning environmental risk management within current regulatory & socio-political climate.
Details: Centre for Environmental Strategy, University of Surrey, Guildford, Surrey GU2 5X11
Tel: 01483 259 047

20 March

Air Quality Management Planning Update

University of Westminster
Details: Joanne Nelson,
Short Course Unit, University of

Westminster, 35 Marylebone Road,
London NW1 5LS
Tel: 0171-911 5000

23-25 March

Industrial Air Pollution Monitoring short course

University of Leeds
Details: Jenny Bannister, Dept. of Fuel and Energy,
Tel: 0113 233 2494

7-8 April

Developing an Environmental Management System

London Environment Centre
Details: Edward Noble,
The London Environment Centre,

London Guildhall University,
100 Minories, London EC3N 1JY
Tel: 0171-320 1768

21 April

EC Environmental Policy

London Environment Centre
Details: Edward Noble, The London Environment Centre, London Guildhall University, 100 Minories, London EC3N 1JY
Tel: 0171-320 1768

22 April

Contaminated Land on Site and Real Time Testing

14-15 Belgrave Square, London
Details: SCI Conference Secretariat
Tel: 0171-235 3681

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Forthcoming courses and conferences

Teaching and learning at the environment-science interface

2-3 April 1998 at Woolwich campus of the University of Greenwich. The conference is being subsidised by FDTL.

The programme will include formal presentations, panel discussions, workshop and poster presentations focusing generally on the topics of inter-disciplinarity, critical thinking and values awareness in environmental science studies and geography.

The conference is intended for HE teachers of environmental science and related studies and those who are interested in curriculum development

Further information from June Balshaw, Project Manager, School of Humanities, University of Greenwich, Woolwich Campus, Wellington Street, London SE18 6PF. Tel/fax: 0181-331 8967.

Working with stakeholders

Resolving conflict and building consensus on environmental issues

Three day management development course in process design and facilitation skills.

18-20 March 1998.

School for Policy Studies, Bristol.

For further information contact Freya Levy, Environment Council, Tel: 0171-881 7614 Fax: 0171-730 9941.

Job vacancies

Demand for qualified environmental staff can be monitored by accessing the Environment Business Joblink service.

Joblink provides a comprehensive listing of environmental vacancies – abstracted twice a week from over 15 publications, and many unadvertised jobs.

Joblink is available in two ways:

- by faxback: just set your fax machine to poll/receive and dial 0374 507207, and press start/receive when prompted. An up-to-date list of all available jobs will be faxed straight back. Calls charged at standard national rates.
- All vacancies are also listed on the Environment Business Website: <http://www.ifi.co.uk>

Advertising

Advertisements are now accepted for inclusion in the Journal. They 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.

Diary dates 1998

4 March	AGM and Council	13.30
4 March	Education Committee	10.30
24 March	Environmental Practice Committee	11.00
20 April	GP Committee	13.00
7 October	Council	13.30

Contributors

The *Environmental Scientist* aims to provide a forum for members' contributions reflecting their interests, activities and news, as well as topical feature articles. Feature articles should be no longer than 5000 words and other shorter contributions may be up to 1000 words. All submitted material should be received by the Editor (three weeks prior to publication in the last week of January, March, May, July, September and November) at 25 Kennedy Avenue, Huddersfield, West Yorkshire, HD2 2HH; telephone 01484-426796, fax 01484-546640. **Views expressed in this journal are those of the authors and do not necessarily reflect IES views or policy.**

