

Leadership and the Environmental Crisis

**Speech given to the Environment Agency, Anglian Region
by
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It is a great pleasure to be here. I was very pleased to be contacted by Nigel Fawthrop, with whom I spent a very enjoyable weekend on the MBA programme at Reading University a few months ago. It is good to be speaking on this subject, which is the topic of my PhD research at the University of Bath. And it is good to be speaking to this group. I see that your vision statement includes the aspiration to create “a better environment for England and Wales for present and future generations”. I think that that statement positions you towards a leadership role in the environmental crisis so the fit of topic and audience is perfect!

Of course you know a great deal more about this subject than I do - my environmental experience comes from activism with Friends of the Earth and from a spell as an environmental manager and then as a consultant in environmental strategy, but I don't have your scientific credentials. My own expertise is in the fields of organisational learning, organisational culture and change in organisations, particularly at the deeper levels that we can't easily see. I was asked to be provocative in giving this talk, so will speak personally drawing on this area of expertise, in the hope of being stimulating.

Now my PhD uses an Action Research methodology, which encourages me to try to try out my ideas in my own practice. So my own particular research focus this evening is to learn more about how to establish relationships which acknowledge the truth of the environmental crisis as I and you see it which empower me and others - you - in responding to the environmental crisis. I would welcome feedback from any of you on anything that either helps or hinders building relationships in this way, either in the bar after the talk or by contacting me later.

I would like to begin by going back to a reception that I attended back in January 1995. The audience was made up of people like you and me - environmental managers and consultants from relatively well performing organisations. It was chaired by a distinguished environmental consultant and there were a number of short talks on the subject of sustainability, one of them by a leading environmentalist. The talks were good, but not exactly earth shattering. There was a good amount of discussion, but it has to be said that much of it was on the complacent side. Then one of the guests, a manager from one of the most advanced companies in environmental management, stood up and said: “Let's face it, none of us are doing anything like enough, are we?” The atmosphere in the room changed immediately and radically.

The questioner was furiously attacked. “I don’t know how you can say such a thing!”. “I find it disappointing to find someone from the business world saying that!” And so on. A colleague who was attending as my guest and who is remarkably perceptive when it comes to the emotional climate of a group, whispered to me: “This group has become incredibly unsafe”. I sat overpowered by sadness as he tried to articulate to the group the strong feelings of fear that he was experiencing. I’m not sure that anyone heard him.

Later I tried to make sense of what had been happening. One thing was reasonably clear to me: most of the people in the room would have agreed with the questioner, speaking in private. So where did the strong feelings come from?

In the early 1990s, I spent a few hours every week over three years serving as a volunteer in a hospice, so I became quite familiar with the stages of response to death both theoretically as outlined by Elisabeth Kübler-Ross¹ and practically in the people I met. You probably know these - the initial shock, then the denial (“they must have got the tests mixed up”), the bargaining (“let me live to Christmas, God, and I’ll be good and then I’ll go quietly” - all quite untrue, of course), the anger, the grief, the depression. And the acceptance which comes more often than one might believe and which is magical and awe-inspiring when it does. These are well known companions in any major change - if not as cleanly sequential as expounded here - and those of you who have gone through major changes such as divorce or bereavement are likely to be familiar with them. They are recognised as commonly present in change initiatives at work as well, and it may be that some of you may have felt some of these things during your own recent merger.

It occurred to me that there might be a parallel between the strong feelings experienced in that room back in 1995 and the emotions connected with death and dying². So I began to play around with that.

The **initial shock** was clear - for me it was Chernobyl and walking through the park with my baby daughter Kitty in a light rain and keeping the rain hood up out of fear that my beautiful child would be contaminated by the fallout. Naïve, perhaps, but it really brought home to me how small the world is when something goes badly wrong.

Denial is familiar to most of us, I would suggest. We know all this but just put it out of our minds on a day to day basis. This is, I would suggest, the main state for most people in organisations most of the time.

The parallel that I would make with **bargaining** is the normal company environmental programme, or even an initiative like Local Agenda 21. We pretend to ourselves that if we keep our side of this bargain - never too onerous for the bottom line or too radical in its demands on our fixed assumptions - we will have done enough and the day of reckoning will not come. And many of us know in our hearts that, while these puny initiatives are necessary, they are never going to be enough to be a response to this enormous challenge.

¹ “*On death and dying*” by Elisabeth Kübler-Ross.

² Joanna Macy has also made this connection, though she rejects too simplistic a parallel with the stages. I believe that there is value in the parallel in understanding the strength of feelings involved in this issue. See “*Working through environmental despair*” by Joanna Macy in “*Ecopsychology*” ed Theodore Roszak, Mary E. Gomes and Lester Brown, also “*The ecology of grief*” by Phyllis Windle in the same book.

Anger, I would suggest, is a common feature of those who work in the environmental pressure groups. The problem is someone else's fault - government, big business, car drivers, consumers. And this anger can be quite extreme - look at the demonstrations around the export of live animals, for instance. I recently met a woman who had earlier been a campaigner for an environmental pressure group. She looked so much happier than when I had known her earlier. I commented on this and she put it down to moving on from that organisation.

Our culture does not easily allow expressions of **grief**, though I have heard of a speaker at a Schumacher lecture breaking into tears in front of her audience for the pain of the damage that is happening to nature. I believe that **depression** is more common and that more of our mood swings than we appreciate might be down to this issue. And I don't yet know of many people who have yet been able to articulate their **acceptance** of what is going on.

I think that the analogy works pretty well as far as it goes. It certainly gives a basis for understanding the depth of feeling in the room. The culture of bargaining and denial was challenged and the anger that was being denied erupted all of a sudden. So the question is: what's dying?

This is where it gets quite interesting: I think that there are several deaths that are possible - the death of the biosphere itself in the worst case scenario, the death of a particular species - homo sapiens (to go alongside all the others that are being lost), the death of a civilisation¹ or the death of our ways of thinking and behaving, of our assumptions, of the things that stop our culture responding to the crisis. I propose that we can choose which death but that we can't avoid it. It is important that we choose well, which I suggest means choosing the death of our cultural assumptions and behaviours, because if we don't we will get something far worse.

I will go on to discuss some of the particular assumptions and behaviours that wouldn't be missed. Before doing so, however, I would like to go into some of the likely implications of not changing quickly enough. In doing so, I will be drawing on the World 3 model findings, developed under the auspices of the Club of Rome in the early 1970s and then updated in the early 1990s².

The World 3 model was developed using the well known *systems dynamics* modelling language³ which was developed to represent relationships with positive and negative feedback loops and which is therefore particularly strong at modelling ecological systems. It works at a high level of abstraction - there is only one generic variable for

¹ The civilisation would be that of the developed world, of course. Anyone who has experienced the regular power cuts in parts of West Africa knows how easily those civilisations cope and how much more difficulty we would have in that situation.

² The 1972 book was the well known "*Limits to Growth*" by Meadows, Meadows, Randers and Behrens. Their work was updated in 1992 and published as "*Beyond the Limits*" by Meadows, Meadows and Randers.

³ See "*The Fifth Discipline*" by Peter Senge for a fuller explanation of systems dynamics. Versions of the World 3 model are available at low cost for use on Windows software or (an outstanding version) the Apple Macintosh from The Laboratory for Interactive Learning, Institute for Policy and Social Science Research, Hood House, University of New Hampshire, Durham, New Hampshire, 03824, USA, tel 00 1 603 862 2186 fax 862 1488.

pollution, for example, but it is nonetheless extremely complex. A lot of effort went into researching the interrelationships - the way that expenditure on social services in countries with a high birth-rate tends to slow that birth-rate as people come to have greater confidence that their needs will be taken care of in old age, for instance. This research was summarised in a large report which is open to public scrutiny. As good modellers do, the authors refined the model until they could replicate behaviour using historical data going back to the beginning of the century. And then they produced scenarios for the period until the end of the next century.

In updating the model in 1992 they tested predictions against outturn in the last two decades and found that generally the model had done pretty well. No major changes were required. Although a few coefficients needed updating, the implications had tended to cancel each other out. When they came to run the model again they found that their conclusions from the 1970s were still valid but needed to be strengthened. They rewrote them as follows:

1. *Human use of many essential resources and generation of many types of pollutants have already surpassed rates that are physically sustainable. Without significant reductions in material and energy flows, there will be in the coming decades an uncontrolled decline in per capita food output, energy use and industrial production.*
2. *This decline is not inevitable. To avoid it two changes are necessary. The first is a comprehensive revision of policies and practices that perpetuate growth in material consumption and in population. The second is a rapid, drastic increase in the efficiency with which materials and energy are used.*
3. *A sustainable society is still technically and economically possible. It could be much more desirable than a society that tries to solve its problems by constant expansion. The transition to a sustainable society requires a careful balance between long-term and short-term goals and an emphasis on sufficiency, equity and quality of life rather than on quantity of output. It requires more than productivity and more than technology; it also requires maturity, compassion and wisdom¹.*

The implications of the first of these three points in particular are very challenging. The declines mentioned are likely to result in a catastrophic fall in the human population. The fall in industrial output that they are talking about would make the depression of the 1920s look puny in comparison. And they are talking about this being very possible within the lifetime of someone like me in their 40s and highly probable within the lifetime of my three children.

The model also makes it clear how urgent the need for action is. We can delay an effective response by 20 years or so. This would have significant costs - there would still be a significant decline in industrial output, for instance, and a serious, but not catastrophic, fall in world population. The world that resulted would be much poorer for all of us, but it would not have collapsed and it might eventually recover over decades and centuries. Leave the effective response for 40 years, however, and the situation looks tremendously grave. And the authors make it clear how many of the current signs of malaise in the world economy are already linked to these concerns - food stocks, fisheries, public infrastructure spending constraints, conflicts over water, etc.

¹ “*Beyond the Limits*” Introduction, pp xv to xvi.

The authors describe a situation with very clear risks and very attractive benefits - they make a very strong case, for instance, that the sustainable society that they describe would be more attractive not just for countries like the Gambia but also for us in the developed world¹. What is demonstrated very clearly is that there is not likely to be any single way of responding to the issue. Pollution clean up technology, while essential, is not enough. Population growth needs to be reduced, but more than this is needed. And so on. Concerted action is needed across a number of fields - but in each field it is not necessary to do things that are far beyond our current capabilities. What is needed is that we make an effective start on a number of fronts very soon - within the next 20 years or so.

So how are we doing?

Let me start by acknowledging some signs of progress:

- The Harvard Business Review in January-February 1997 had several articles on the theme of sustainability, positioning it as a mainstream strategic business issue rather than just as an ethical issue.
- One of the articles in that issue was an extended interview with the Chief Executive of the Monsanto Corporation. He said that it was clear that the world cannot indefinitely continue moving things about and increasing the number of products that are produced. As a consequence Monsanto was looking to move information rather than things and to switch to providing services rather than manufacturing products. This is a sign of sustainability issues beginning to affect firms' core strategies in a fundamental way.²
- Speaking to a senior personnel manager in one of the world's largest petrochemical companies recently, it was clear that that company is beginning to recognise that there are major issues within their strategic planning horizon that threaten the firm's operations fundamentally. It appeared that they didn't have a clue what to do about them, but the recognition of the issues is progress!
- Ed Gallaher of the Environment Agency was quoted in the Independent this morning, 17th July 1997, as saying that the tide is beginning to turn.

But there is a very long way still to go. A recent boardroom survey³ showed that only one issue, globalisation, ranked lower on average on firms' strategic agendas than the

¹ It appears from a variety of sources that physical throughput of goods and services in the sustainable economy would be roughly equivalent to that that obtained in Southern Europe at the end of the 1960s. This is well above the level in many developing economies but is clearly far below the levels that currently obtain in many developed economies. It is easy to conclude that this would lead to lower economic welfare for most of the readers of this speech. The Index of Sustainable Economic Welfare (ISEW), which subtracts costs such as crime, pollution clean up and accident recovery from the GDP and therefore more appropriately measures the human benefit of economic activity, shows clearly that this peaked in the late 1960s and started to get worse from the 1970s onwards. It is far from clear that life would get worse with lower levels of throughput - and this is before taking account of the impact of information technology on what might be achieved with a given level of physical throughput in the economy. (The ISEW is available from the New Economics Foundation, 1st Floor, Vine Court, 112 Whitechapel Road, LONDON E1 1JE, tel 0171 377 5696).

² Reviewing this in September 1998, I would not be able to let the reference to Monsanto pass without comment! At the time of giving the speech I was not fully aware of the work that they had been doing on genetically modified plants.

³ *Environmental Management and Business Strategy* by B. Garrod and P. Chadwick, in *Futures* Vol 28, No 1, pp 37-50, 1996.

environment. Can anyone be satisfied with progress since Rio? President Clinton has recently acknowledged that global warming is happening - progress of a sort - but still declines to do anything meaningful about it. Most countries have made little or no progress towards reducing their carbon emissions. The UK has, but only by using natural gas to produce electricity when it could be used much more effectively in other ways.

Progress is frankly pathetic. But this stuff really matters - to my kids and yours and to me and to you and potentially to most of the people in the world today. So why aren't we doing any better?

I am a Director of an organisational consultancy. Our work is change in organisations, learning in organisations and culture in organisations. All of these have visible elements that are easy to see and hidden elements. Usually organisations try to change the things that are easy to see and obvious, and usually things don't change very much, if at all, before they revert. So we tend to be interested in what is going on below the surface.

We use a five level model of organisational culture. Two levels are relatively easy to see - *artefacts* (dress codes, displayed policies, building and workplace layout, pictures and colour schemes, etc) and the *patterns of behaviour* (how mistakes are handled, communications patterns, how disagreements are dealt with, what gets rewarded, etc). Most change initiatives start here - BS7750/ISO14000, for instance, and the government's energy initiative, both ask that change begins with a statement of management commitment - in other words with an artefact. But an organisation's ability to change at these levels is constrained by the deeper levels of culture - by the organisation's *mindset* (its limiting shared assumptions), by its *emotional ground* (its collective feelings) and by its *motivational roots* (its shared sense of purpose, how its members find meaning in their work together). When change isn't happening - as with this issue - it makes sense to look below the surface. I'd like to talk a bit about our shared managerial mindset around this issue and then to return to the emotional ground that I discussed at the beginning of the talk.

I use a computer-based simulation, *Fishbanks Ltd*, with groups. I have played it about 15 to 20 times and I have found it a very effective way of looking at our mindset around the sustainability issue¹. Participants are divided into four or five fishing fleets, each with around four members. Their task is to maximise their assets over the life of the game - usually about 10 periods. To do this they have to catch and sell fish. They are briefed on their roles in the fleets and are also given a lot of information about the two fishing systems in which they are operating. They are not given any information about the social system in which the fishing fleets are operating - they are neither told to co-operate with each other, nor asked not to. It is possible to influence the behaviour of participants significantly as facilitator, but over time I have learnt that the best learning comes the less I intervene so I try to do so as little as possible.

The game usually develops along fairly predictable lines. Fleets all expand furiously. They charge into the more productive of the two fisheries. Catches begin to rise and fleets continue to rise. Little or no cooperation takes place between groups - indeed it has

¹ The game was developed under the supervision of Professor Dennis Meadows at the University of New Hampshire at the address given in an earlier note. It incorporates the modelling approach of the World 3 model and is based on observed interrelationships. It can be purchased at low cost and is excellently supported for use with groups using IBM or Macintosh personal computers.

only happened successfully once in all my times as facilitator. The catch levels off in the first fishery but this warning sign is ignored. Occasionally there are moves towards cooperation at this stage but too little is proposed and even this is not accepted by other group members. The next year the catch collapses catastrophically. The boats all switch into the less productive fishery, which by now has a higher population than at the beginning of the game. Within two years these fish are also extinct. Although the fish stocks have clearly all gone, participants usually want to continue so that they can see who has won and they can get quite upset if I try to stop things early. By the end of the game, usually all fleets are far below their potential assets.

Sometimes groups do a bit better than this. On two or three occasions, they have limited activities sufficiently to maintain some fish. Typically the fishing fleet can be sustained at about 1/3 of its potential level. This is a scenario in which the fisheries would eventually recover but in which there would be tremendous poverty in the fishing industry and in the societies that they are supporting. This is roughly what would happen on a larger scale if we don't get going seriously within the next 20 years or so. On no occasion so far has any group - even the one that collaborated from the start - managed to fish sustainably and no group has even come close to maximising its collective assets.

The game is enjoyable, but the real learning comes during the debrief that follows. Occasionally groups will protest that the simulation is not realistic: the evidence produced from other real-life fisheries shows that what has just happened is very similar indeed to what has happened time and again in the world's oceans. The groups come to appreciate that their own experience in the game is likely to give clues as to what is causing some of the world's problems. We then go on to look at the mindset that lay behind the group's behaviour. I shall go through some of the key assumptions that are typically brought by participants.

- **Assumption 1 - Success means beating the other fleets.** As noted above, fleets often want to continue the game after the extinction of all the fish so that they can see who has 'won'. I ask them why they want to do this and they tell me that this was the objective of the game. I remind them that the objective was to maximise their assets, not to beat the other fleets. It is often a profound moment when they realise that this assumption, which was not briefed in the exercise, has conditioned much of their behaviour. As facilitator it is harder for me to have this experience directly. A major learning occurred for me, however, in one session when we all realised that the only way that a relatively highly performing group could have performed better was by helping the less well placed fleets. This was certainly not a part of my own MBA training! A lesson of the simulation is that the 'defeat' of any fleet caused by its pursuing a faulty strategy is likely to have profound consequences for all fleets.
- **Assumption 2 - Financial success is necessarily at odds with the health of the environment.** Participants assume that the fisheries are bound to collapse and so their attention becomes very short-term. They are often very anxious to know the exact duration of the game so that they can switch their fleets to cash just in time. In fact the opposite assumption - that financial success is inextricably linked to the health of the fisheries - is much more useful. Assets can only be maximised over the simulation's duration by adopting this assumption *and by encouraging others to adopt it as well*. By doing so the concern about how long the game will last is removed at a stroke - the longer the game lasts the higher the potential earnings for all.

- **Assumption 3 - Information is not to be shared.** What always surprises me as facilitator is that with only one or two exceptions, each simulation has had several participants who have accurately calculated the size of the sustainable fleet in both fisheries. This information has never yet been made available to other participants, even when the sustainable fleet is being exceeded. Indeed sometimes the people holding this information exceed the overall sustainable fleet size in their own fleet, driven by assumption 2 above. I asked one very able German woman why she had not shared her own brilliant analyses of the overall situation more widely. She said: “But they can work this out for themselves”. The consequence of this information not being shared is that incorrect assumptions by other fleets are never corrected and that no informed discussions ever take place about the consequences of overall group behaviour on the fisheries.
- **Assumption 4 - When a problem becomes apparent, there will be time to act.** This is a widely shared belief, which is evident in the public policy arena as well when politicians ask for incontrovertible proof of the problems before taking action. The simulation shows very clearly that this is an unhelpful assumption. *By the time that it is clear that there is a problem, it is already too late for a fully effective response.* The fisheries system continues to perform even as its health is significantly weakened. At a simulation with a group of MBA students in January 1997, for instance, maximum catch for the more productive fishery was achieved with the fish population already depleted to below 50% of its starting level and by the time the first reduction in catch (by 18%) had been observed, the population was at only 11% of its starting level. Such signals almost invariably lead teams, as they lead most organisations, into a fatal increase of effort which completely wipes out remaining stocks. Key lessons of the simulation are that strategy must be driven by a keen appreciation of the health of the system which produces the operating results, that the operating results themselves are a very poor indicator of that health, and that they therefore need subtle interpretation to be helpful.
- **Assumption 5 - Leadership of the whole fisheries system isn't permitted.** In fewer than 50% of groups is any attempt made by a participant to discuss the situation across the different fleets in the room. With the exception of one group, these attempts have failed. Very often, participants make fun of the person who has raised the issue - often a sign that a cultural norm is being breached. It should be clear from the discussion above that leadership across boundaries is critical to the successful management of the fisheries and yet people who try to exercise it are left disempowered by their colleagues, caricatured as slightly idealistic and ridiculous. Not surprisingly they rarely try again¹. Occasionally, and unsurprisingly, the person who tries to play this role does not yet have the personal skills to play it successfully. Even in these cases, effective followers might have empowered the emerging leader, but this does not happen. In the debrief, participants say that they think I as facilitator, as the potential *deus ex machina*, am the one who should play this role. They name their suspicions that the potential leader is trying to trick them in some way - indeed on the only occasion on which I have intervened to enforce co-operation, the pact broke up swiftly because of this mistrust. They also think that in some way it is not allowed, that they are only allowed to do what they have explicitly been told they can do, rather than do anything that they haven't been told they cannot do.

¹ I am indebted to Peter Garrett for naming the phenomenon of the disempowered leader so neatly.

This last point links with your current position in the Environment Agency. You have recently merged three different organisations - HMIP, the National Rivers Authority and the Waste Regulation Authorities. Ed Gallaher hinted in today's article that this has not been easy for you. It rarely is easy - most mergers fail. But I have been impressed by one thing which I think gives you a greater chance of success than most merging organisations - you have a strongly shared sense of purpose. Three separate people I have been speaking to in preparing this talk have independently volunteered the information that almost all your staff are strongly motivated by the work that you do together for the environment. To have such strongly shared motivational roots gives your organisation a really strong base from which to grow.

This experience of merging different organisations gives you vital experience of managing across boundaries, experience which I hope to have demonstrated is critical to your role as environmental leaders. But if you are to fulfil your shared purpose you will have to take this experience much further. You will need to lead where there are no organisational structures in place, where there is much denial of what is happening, where the shared purpose is less clear, where nobody knows what to do about it.

Let me check this out: do you know what to do about this crisis, or do you know anybody who does know? I think that nobody knows what to do about it, not the government, not me, not you, not anybody, although many people have a partial view of what is required.

The need for and the difficulty of co-operation is clear for an issue such as global warming, but it applies to more local issues such as water eutrophication as well. To name a few of the interest groups involved shows the need immediately - farmers, water companies, detergent manufacturers, householders, agricultural manufacturers. I'm sure that you can think of others. An issue like this is very hard to legislate on - it takes too long and it's just too complex. Even if there were legislation, most countries' record on enforcement is a joke. So to fulfil your vision you need to become really good at working with others outside existing frameworks, ahead of the law, etc.

Now this is no surprise to the Environment Agency and I know that you are trying to do this: Ed Gallaher mentioned 35 co-operative agreements for site improvement that you have helped create. But it isn't at all easy - he identified great difficulties in working with the water companies, saying that "*a lot of cultural change is still needed*".

There is a huge need for this co-operation, but the evidence of successful cooperation is still hard to find. My own experience has been that my working relationships in the environmental field have been less satisfactory than in other areas of my working life and my observation of others suggests that this isn't unique to me. I believe that we must return to the emotional ground of culture to understand more about this phenomenon.

My experience is somewhat paradoxical. Working in this field clearly touches peoples' hearts and minds. People clearly want to talk about their experiences. With two colleagues, I ran a workshop for a hand-picked group of senior environmental managers earlier this year. We rang most of them beforehand to talk about what we would be doing. One of them spoke for over an hour in response to the question "*Why are you coming to the workshop?*". Clearly people wanted to talk and to share things. I and my

colleagues had invested great expectations in the event ourselves. Several of the people we spoke to had great understanding of the issues and we expected a high quality discussion.

The event itself was a great disappointment. Those who were knowledgeable for the most part said little. Some of those present denied the seriousness of the situation, saying that it was comparable in complexity and significance, for instance, to health and safety management. Others said that everything was under control. The relationships that we had built up with participants over the phone were less strong in the session itself. For our own part, we found that we gave less time to open ended discussion than we had hoped to do and that this was partly because we were trying to protect them and ourselves from having an open-ended dialogue which didn't lead to pragmatic actions - in other words we were trying to protect them from really engaging with the scale of the issue.

Discussion in the group at this point revealed that others had also experienced that people who had the greatest knowledge of the scale of the environmental crisis often stayed silent in groups discussing the issue.

Why do people tend to behave in this way in groups? Our own choices as facilitators, I think, came from anxiety as to whether we could hold the group emotionally if it really engaged with the scale of the issues. Others may have arrived in a state of denial; others may have feared challenging the denial. There is the risk of being criticised for one's own part in the issue. I know from speaking to Nigel that your working life often for good reasons aims at the 'least worst' environmental option rather than the *Best Practical Environmental Option* and that this doesn't necessarily fit easily with your own ideals. I myself have been challenged in front of a group for lack of alignment with my own ideals when talking about driving a car more than I would like, and feeling very guilty about that. There may be other reasons. But whatever the reason, we so easily hold back part of the truth as we see it, and to hold back our truth is a real relationship killer.

Let us not deny the difficulty of this. If I know how serious the situation is, and you know too, and we both agree that what is happening is woefully inadequate in response to the situation, and if we both know for sure what the other person's views are, then how do we relate at work on a Tuesday afternoon when our own actions are very far from being an effective response to the situation? This knowledge is uncomfortable to live with unless we let it touch our lives in a fundamental way. How many of us are open enough to do this?

There's a beautiful story from the Buddhist tradition about dealing with denial. There was a young mother whose son, her only child, had died. Distraught with grief, she carried him around with her, refusing to bury him. She heard that the Buddha was in the area and that he might be able to help her. She took the little body to him and asked that he might restore her child to life. He looked at her with great kindness and said that he could help but only if she could bring him a mustard seed from a house that had never tasted death. She rushed off, still carrying the corpse. She went from house to house and of course everywhere the story was the same: "*We'd love to help but only last month my grandfather died*"; "*I'm sorry but I lost my own son two years ago*"; and so on. She came to realise in her heart that death was inescapable and she buried her son. In time

she became one of the greatest of the Buddha's disciples. She moved on through sharing her experience with others and being open to their experience and I suggest that beginning to share our experience of what is going on can heal us and others¹.

So, to recap, your vision in the Environment Agency inevitably means:

- relationships with new people
- dealing with strong emotions in you, in them, in people like me
- working outside structures and ahead of the law
- acting when you are not sure what to do, and when nobody is sure
- acting without a clear sense of what the result will be.

And - guess what - this is the stuff of major strategic change. It's not easy, and this one is harder than most, but it needn't be impossible.

The new work on complexity theory as it applies to organisations gives some comfort here². The comfort comes from recognising that it is not only impossible to plan strategic change adequately but that it is usually harmful even to try to plan in great detail.

Planning is a special skill to be used in the cases where we have some agreement and we're reasonably clear as to what is going on - rare conditions in this sort of issue! What seems to work best is to act with purpose but with a clear learn-as-you-go mentality. You try something, and if it doesn't work you drop it and try something else. The whole time you are looking to connect with energy in yourself and in others. When you connect with it, like a surfer who finds a wave, you ride it and see where it takes you.

This brings me to *The Natural Step*. I understand that most of you have not heard of it, but your own Mark Everard has been seconded to it as Director of Science in the new UK organisation which has been set up under the auspices of Jonathon Porritt's Forum for the Future and I strongly recommend that you invite him to speak to you about it. A Swedish scientist, Karl-Henrik Robèrt, through an astonishing consensus building approach starting from some of the most basic elements of modern science such as the law of entropy, has managed to define quite clearly and with overwhelming support from the scientific community in Sweden some clear boundary conditions for sustainability - conditions which cannot be breached sustainably and which therefore make it possible to operationalise some of these ideas. This is, in my view, far ahead of other work in this field and too important to ignore. This initiative in Sweden has been researched³ and it

¹ Since writing this talk I have been reading Joanna Macy's *Despair and Empowerment in the Nuclear Age* which gives practical guidance on how to do this.

² Any of Professor Ralph D. Stacey's recent books on strategic change - for instance *Managing Chaos - Dynamic Business Strategies in an Unpredictable World*, Kogan Page, London, 1992, or *Strategic Management and Organisational Dynamics*, Pitman Publishing, London, 1993 - are relevant to support this point.

³ There was surprisingly little published on this significant development at the time of giving this speech. A paper is available on the world wide web at http://learning.mit.edu/res/wp/rtf_learning.html. Written by Hilary Bradbury of Boston College, it describes the growth of the organisation and discusses some of the reasons for its success. Hilary Bradbury is, of course, the researcher quoted in the speech.

was found that there had been change at three levels - efficient environmental compliance was improved, firms' strategies were improved, and participants' sense of meaning in their work was changed, sometimes radically. Although still in its early days, around 1% of world business has been involved in some way - companies such as Electrolux, Volvo, Monsanto that I mentioned earlier, Interface carpets, MacDonalds Sweden. The results have been astonishing. Karl-Henrik's advice is clear:

- Be focused on your purpose, but be loose on your strategy;
- Find people with both passion and critical intelligence, and use it to improve what you're doing - go towards resistance, not away from it.

Huge change is required and quickly and this seems impossible - but it needn't be. The invisibility of change in complex systems near the point of major change mentioned earlier in the context of fisheries can also give us hope. The Berlin wall fell very quickly when it fell, but people had been trying to get it to fall for a long time. Sometimes it can be enough to shift one key issue which will allow the system as a whole to begin to change. While not pretending that it is the answer, I am suggesting that learning to work with others in ways that acknowledge the truth of the world environmental crisis as we see it is very important. In my own way, I have been trying to do that with you here this evening.

A short story to close with. There was a snowstorm in a monastery. Nobody could find the oldest and wisest monk. Eventually he came in, covered in snow. "*What have you been doing?*" the monks asked him. "*I've been watching snowflakes falling on a branch of the old tree outside. I counted two hundred and eleven thousand, three hundred and sixty five fall and nothing happened. Then another fell and the branch broke*". We can never know whether we're the last snowflake or not - but the branch only breaks because of all the others that have gone before.

Feedback on this speech is welcomed and should be sent to David Ballard, david@alexanderballard.co.uk, 01672 520561.