

SUSTAINING THE EARTH'S RESOURCES

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Introduction

Many people talk about sustainable economies or sustainable tourism or sustainable rural communities. But they forget that one of the critical elements of sustainable development is about the earth's resources and how we use them now and how also we want to leave capacity for future generations to use them. So let me start by talking about some perceptions, then give some views about definitions, then give an example from the uplands and finally draw some broad conclusions.

Perceptions

Often perceptions about the environment are ones that I do not recognise. Nevertheless, they are held by a wide range of people and, therefore, they are important and we should not ignore them.

First, is the view that the **carrying capacity of the environment is infinite**. Well, look at this map of the critical loads in Scotland which was compiled a good few years ago now, where you will see that there is a vast area of the uplands and the islands of Scotland where the critical load is exceeded. In other words, the buffer capacity of the soils in those areas is such that acid rain as a result of natural and human effects will make it even more acidic, aided and abetted, of course, by the fact that with the help of state funding, we tend to plant sitka spruce which is a very good scavenger of acidic rain water from the atmosphere and pushing it straight into the soils and into the streams. So there is an issue there about one of the things that we understand - exceedance of capacity - not being recognised in the way that government money is used and the way that people use their land.

The second one is the notion that we can continue **to increase the level of production of food and fibre**. I was very struck by a point in the New Scientist the other week about what farming costs us. The wider costs to society are something of the order of £210 per hectare of which the most significant relates to air pollution, greenhouse emissions, and to a lesser extent a variety of other issues. And yet, the agriculture policy agenda is not tending to deal with these, for example, at all. Our own Environment Minister recognises that biodiversity is important but we have yet to persuade people that soil erosion as a result of modern farming practice is important.

And the third perception, is quite a specific one but it is chosen quite deliberately: that **sustainable tourism is the goal for many countries and many rural areas**. If you have read newspapers recently, then you will know that Henry McLeish, as the Tourism Minister, is pushing quite hard on a new tourism strategy, and that this is going to one of the goals of regenerating rural Scotland. There are many rosy images but the critical thing is what we call "loving them to death", ie the over use by visitors, particularly of the special parts of the landscape and the ecology around the world. We have certain organisations in Scotland, notably the Scottish Tourist Board

saying it wants to have National Parks in Scotland because they are going to be, in effect, tourism promotion zones. However, these are areas which are essentially physically and ecologically fragile, and if we promote them too hard, we will love them to death and the asset will be reduced and devalued and people will not go there any longer.

So these are some of the challenges to us who like myself, work in the environmental area: to try and debunk some of the myths that are around.

Defining sustainable development

To help us we do need to have a common perception on what sustainable development is all about. The advertising brochure for another University struck me as being the classic confusion by stating that everything is sustainability whether is it ecosystem or industrial or natural resource or lifestyle or whatever. It strikes me that everybody has grabbed hold of the word "sustainable" or the two words "sustainable development" and is trying to fit them to their own purposes.

Take, for example, the debate in the Scottish Parliament the other week, 3 February. There were some really wonderful definitions which reflect the perceptions of politicians. I quite liked Kenny McAskill's version: "Sustainable development is not environmental luddism, nor is it the slash and burn of unrestricted free market capitalism or unlimited social libertinism. It is simply a sensible balance of environmental protection, wealth creation and social justice", but he then went on to conclude and this is the important bit, "United they stand, divided they fall". Whereas, Murray Tosh, said that "Sustainability is a measurement by which economic development proposals might be judged, shaped or moulded": a somewhat different perspective of life. John Farquhar-Munro said "that he is promoting, never mind trying to sustain development of any sort in the Highlands and Islands". Or another perspective came from Richard Lockhead: "The country has an abundance of natural resources and hundreds and thousands of jobs depend upon those natural resources. No country has a greater interest therefore in sustainability than Scotland and we must put the environment much higher up the agenda". Or another perspective was that sustainability was acceptable as a principle in environmental terms but the word sustainable has to be applied to Scotland's economy and its ability to provide sustainable employment.

So you can see from these, admittedly rather selected, quotes that we have quite different perspectives and the perspectives actually divide, not across the political spectrum, but divide on how individuals see the matter - and also probably on who has briefed them to make their contribution in the debate. Some of the comments by the SNP members were very apposite and yet that does not reflect the policy of that party, whereas those from Labour were a little weak and yet it is a fundamental plank of the coalition government in Scotland as well as the current UK government.

You will all be familiar with the definitions of sustainable development. The now famous Brundtland definition "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". This is a headline, visionary statement written in 1987. It has been criticised that it can be interpreted in many ways. So what about others? I thought you would

probably like this one “a pattern of social and economic transformations which optimises the economic and societal benefits available in the present without jeopardising the likely potential for future benefits”. Well I have some difficulty in understanding that myself and certainly persuading any Minister or my Board about what on earth it meant. I quite like this one: “Sustainable development is about the wise use of all resources within a framework in which environmental, economic and social factors are integrated”. I may be slightly biased here, because this was drawn up by the tne Secretary of State’s Advisory Group on Sustainable Development which was chaired by my current Chairman, John Markland. You can see connections there to what Kenny McAskill was saying in the debate: it is not the individual components, it is their integration together that is really quite fundamental.

Sustainable development is not about the definition as much as vision for the future. My own vision statement, is that “human society and in its natural environment are accepted to be inter-dependent”. That’s quite deliberate. But, of course, there are many in the deep ecological movement who think that people are not part of it, the environment, but are separate, whereas, I think societies around the world accept that to be the case. Therefore, the second element is that “people are an intrinsic part of the environment”, they are not something separate from it, even though there is a very high proportion of the world’s population that live in cities and there will be a higher proportion still in the future and the environmental and ecological imprint of those people is increasingly significant. Third that “we recognise the environment as a capital asset for society”. This is deliberate in the sense that a lot of my working life and the life of my colleagues is spent fighting the notion that environmentalism or anything to do with the environment is a negative, it stops people doing things, it stops the crofter cutting his turfs, it stops the uplands estate manager having a decent grouse bag etc. Whereas, we know well that many of the services that we have of clean air, clean water, etc are dependent on the proper functioning of the environment and that is the capital asset which we take of, if you like, the interest. And, finally, to recognise the constraints which the environment imposes so that we “use it within its carrying capacity, that undue risks are not taken” (which is really the heart of the precautionary principal, not to stop things happening but make sure that we understand the possible impacts of different types of activity, different types of development, on the environment) and, one element that conservationists have often forgotten, “that the functioning of natural systems is not significantly impaired”. We are very good at the sort of postage stamp nature conservation. We have got 1400 odd sights of Special Scientific Interest in Scotland, which we are trying to protect and preserve in many respects, but we fail to recognise, at times, that they are subject to a whole lot of dynamics as a result of the interaction between macro and meso environmental factors and human social factors.

These are major challenges for achieving Agenda 21, but it is the three circles of environment, society and economy coming together with human society in the middle making sure that we devise strategies which are relevant for now and for the future which is the graphic illustration of the vision.

There is a subset of Agenda 21 which is the Convention on Biological Diversity, comprising of three key elements and an integrating mechanism. One is conserving biological diversity, the protection of species and habitats in their near natural distribution. One, which we have not really thought about at all, is the equitable sharing of genetic resources, because it is thought of as something that is relevant to tropical rain forests or other parts of the world which have a large number of species and provide a fundamental genetic resource base for human society. Whereas we have very few species, probably only about 90,000 species in Scotland, of which well over half of those are in the marine environment, but we do not really understand them too much. We need to explore much further that genetic resource base, not for frankenstein foods but to see what options there are in medical science, for instance, given the appalling health record we have, particularly in certain parts of Scotland which is well below the average for the UK and other parts of Europe.

And third is the concept of sustainable use. This is again something that we have become familiar with in relation to tropical forestry exploitation (for example the whole movement towards certification of exploitation of hardwood forests) so that it is done in a way which is not the 'slash and burn' type of approach. We have got natural regeneration in these forests so that we have sources of timber for the future, but also we do not wreck the environment in terms of the species and habitats in it and also the functions it supports in terms of hydrological and atmospheric functions. But we have not really thought through within a UK and Scottish context what this is all about. Is current agriculture as we seek it down in the Mearns here or even up in Buchan really sustainable in terms of the soil resource that we can identify? What if we are going to come to something, a system which is equally productive but less resource intensive in its demands for inputs that can keep the level of production going. Does that not mean different ways of doing things?

We have now a challenge from our Minister, Sarah Boyack, that we have to think how we can link biological diversity conservation into the sustainable development agenda. In the UK, we have something like 350 action plans for individual species and something like 50 action plans for individual habitats and, in Scotland, we have all but one local authority producing a local biodiversity action plan. But all of these are really about conserving biodiversity. None of them are trying to see what this means for sustainable use and none of them is addressing the issue of the genetic diversity of our species and habitats and how could we use them. And also, none of them are trying to connect all these parcels into the whole ecosystem approach. This latter has now come back to life with effort led by geographers to hammer out what the ecosystem approach means. But unless we can get decision makers to recognise that all of the various threads are pulled together, because of the interconnectedness of the various issues, (hence the overlapping circles in the diagram) little, if any, progress can be made. Just last month, there was a breakthrough at a big international meeting in Montreal when all of the technical experts agreed that the ecosystem approach should be a formal proposal to the next Conference of Parties for the Convention on Biological Diversity which meets later

this year. So we are perhaps beginning to get some environmental fundamentalism into how we deliver international Conventions.

But you might say that all of this is a little bit disconnected from the hardcore of sustainable development. Well I would argue that it should not be, but it still is at the moment. If we go back to the three elements of sustainable development: social wellbeing, economic prosperity and conserving biodiversity - the three leg stool as the Lord Professor Sewel used to tell us when he was a Minister, then we find it is the top of the stool that sometimes is missing. So how do we connect all these pieces? How do we stop the economic development interests just thinking about sustainable development from an economic point of view? How do we stop social equality campaigners just thinking about community viability in the long term? And how do we stop nature conservationists just thinking about the protection of species and habitats? The answer is integrated approaches.

Sandy Mather and Rod Gunson did some work for SNH some years ago now looking at bioregions (which is a rather old fashioned thing in some respects but its time has come around again), to help us to address the question of how we can devise strategies from an environmental perspective which are also going to be meaningful from economic and social perspectives for different parts of Scotland. Similar approaches are being taken forward, for instance, in the Cordillera in Meso America, in New Zealand and also in parts of European Russia.

We are working on this ourselves in SNH. Instead of drawing up strategies in relation to administrative areas which, of course, are meaningless in terms of environmental factors, we divided Scotland into 21 Natural Heritages Zones. We are bringing all the information which we have to try and develop a vision and objectives for the next quarter of a century or so. We need to work on them ourselves and with others, like local authorities, enterprise companies, and tourist boards.

Elsewhere in Scotland, local authorities are being asked to produce Local Agenda 21 plans, which is their sustainable development plan, Local Biodiversity Action Plans and Community Plans. What is missing in this package is the word integrated, because we have lots of different initiatives but they are not being pulled together. And there is a rather interesting question about whether organisations are capable of taking forward all of these initiatives in a quite complex world.

Sustainability in the Uplands

Lets look at the uplands for a moment and test out these concepts. The uplands are extremely important as probably the most fundamental contribution which Scotland makes to rare habitats and species, often at the margins of their geographic range within north western Europe. They are very important as a recreational resource - Munro bagging and all the rest of it. They are also extremely important from an economic standpoint, although the economics are pretty dicey at the moment with the downturn in upland agriculture, and sporting estates needing cross-subsidisation from the other enterprises of their owners.

We basically need a paradigm shift from our traditional thinking reducing deer numbers and reducing the number of sheep and retaining hands-on management of

these areas, as well as improve facilities for people to have informal recreation there, to connecting all of these together to achieve to the wider sustainable development agenda.

Some of the trends are going up but there remain questions about whether these are altogether desirable. If one reviews the Indices of the Growth in Mountain Recreation over the last 30 years or so, a very steep upward trend is evident. Looked at from urban and health perspectives that is very good. But its potential impact upon people's management of their private land could be quite negative or can be at times, although that factor is often exaggerated. There is also real damage: physical damage, necessitating expenditure on repairing mountain footpaths, and potentially ecological damage as well.

On the other hand, if you look at the bread and butter of some sporting estates, you will see the incredible decline in the number of red grouse shot, despite the eccentricities of the shorter term cycle that red grouse are known to have. That in itself is a manifestation of a whole range of things, but there is still a lot of argument about what the real causes are. It is not just raptors, peregrines and hen harriers, despite what the hunting and fishing shooting community say; all of the research that we have done is quite conclusive on that point. It is the impact of the sheep meat regime of the Common Agriculture Policy, which encourages high levels of sheep numbers, and, with the decline in economics, a low level of shepherding because it cannot be afforded, together which create over-grazing. It is the impact of still very high numbers of red deer which also causes over-grazing. So there is major habitat loss in these areas, and the work that we have done in looking at habitat change in the uplands in the post-war period shows that quite conclusively.

Overall these trends are not very positive from a broader societal perspective or in the way public finance is used, so we need to think how we can moderate the position. There are a whole series of things that we can do. I am not going to dwell on each of these. But, for instance, in agriculture we were looking for less intensive sheep grazing, encouragement for cattle which will need a shift in the financial support regime but it will also need a shift in the skills which uplands farmers have, and a shift in the income support measures to environmental management. These are part of a set of proposals on which the Scottish Executive is consulting at the moment: modulation of the CAP, in other words, trying to shift money from outputs of livestock and crops to other aspects of the rural agricultural economy, of which we think that agri-environment is the most significant.

If we can get this improved, then there is a fairly obvious positive impact: recovery of the semi-natural habitat, and wildlife, a more diverse landscape that we have at the moment, which is self attractive to people. We should also achieve diversification of employment opportunities, not just in relation to tourism, but because we hope that we will be paying people not to just produce food, but that we will be paying them properly to be environmental managers, because we need these areas to be managed.

There is a similar story for other sectors. Let me just flag up sporting interests for a moment. What we wish others to recognise is that if people want to have good grouse moors, and good deer forests, then there needs to be a significant shift in the management of the habitat for the deer and the grouse from what is happening at the moment. It needs a much more hands on approach, it is expensive, and it seems fairly pointless that government is spending a lot of money through agencies like mine on biodiversity targets if it is not connecting through with the people that own and especially the people that manage upland sporting estates.

There is a big mentality shift required here because if you go out on the hill with the laird and his ghillie and stalker, you will find for the most part, and I have had this experience many times, that the laird is very much listening to what the ghillie or the stalker has to say about the management of that area - and these are often very traditional values. For instance, a large number of red deer hinds are needed to ensure big sports trophy stag heads for the shooting season, whereas what researchers have told us is that hinds are very territorially aggressive and that the number of hinds should be reduced dramatically to achieve the sporting objective and at the same time help to achieve the biodiversity objective.

We also have got to get the mentality shift away from what we call the large bags. You will be familiar with the usual disaster headlines on the 11th, 12th and 13th of August, in certain newspapers like the Daily Telegraph, because of course there are not any grouse. Well the mentality that demands that the same number of grouse shot at the beginning of the grouse season should remain as high as in previous decades is quite outmoded and has to be changed. We gave that message to the sporting estates last autumn and I can say that they did not like it at all, and they thought that we were in cloud cuckooland. We think the boot is on the other foot which means that we have got a long haul to persuade them to do other things.

The other element I want to pick our is renewable energy. As the result of the Rio package, and more recently the Kyoto deal on climate emission moderation, there is greater focus on non-renewable resources of energy production. But this is not without its environmental impacts as well. As a result, my colleagues have spent a lot of time in public inquires arguing against wind farms in highly scenic locations but also arguing against them where they are right in the middle of the day to day flight path of protected bird species. Here we have a classic clash between the European and global agenda: we need to have wind power and this should be captured in the windiest locations getting in the way of the implementation of European obligations on protected bird species.

So we need to have more integrated approaches and we need to do deals with the generation companies. The difficulty with this one is that the responsibility for setting

the parameters for renewable resources does not rest with the Scottish Parliament and the Scottish Executive. It is a reserved subject, so we have to negotiate with the Department of Trade and Industry in London and that does make things more difficult in the devolved situation.

I will not go through the remainder of the list, but for each of the main sectors or drivers, there are changes that we are wanting to see if more multi-objective sustainable management of the uplands is to be achieved. That means mentality changes, it means support changes, it means policy changes, way beyond what is in the government's agenda at the moment.

Our modest contribution to this was decided at our Board yesterday and is beautifully repeated in lots of newspapers today, 'Beavers to be reintroduced to the Highlands', 'Cautious go ahead for the return of Beavers', 'Welcome back' says the leader in the Scottish Daily Express, so bring back the European Beaver is in the headlines today. Not just because we should bring back something that was shot out by our predecessors but we are trying to recreate a much more natural environment in upland river systems and the Beaver is a wonderful river engineer and a dam site better than civil engineers and their works which are wrecking river systems and causing flooding downstream. And it is that sort of mentality shift that makes rivers more natural particularly in their upper reaches. Bearing in mind climatic change and the likelihood of more intensive precipitation events, and higher rainfall in total, then we should not need to build more flood mitigation works in places like Perth, because we will have sorted matters out further up the Tay system, for example.

So, in terms of the environmental agenda in the uplands, what we are wanting to do is conserve the distinctive elements of habitats and of landscapes for the reasons that are stated in the viewgraph. Seeking to connect it back to people who have a say in the political process, urban as well as rural, and that we work within the capacity and the resilience of the resource.

From the point of view of the social agenda, we want to ensure that wider public good outcomes are sought and achieved and that means that we require a new national/local balance. You will all be familiar with the great march of rural communities into Whitehall. You know that rural areas were having a poor deal and yet those of us, like me, who live in urban areas were wondering about the balance of power as most of the taxation comes from urban areas and there is a resource shift to rural areas. So we need to have a common interest between the local rural interest and the national interest that is represented by the majority of people who live in urban areas.

From an economic point of view, we want to see land uses of low impact within the environment's carrying capacity and also a recognition that the uplands do deliver indirect national benefits, like, clean water, and organic-style meat.

There are plenty of models where we are trying to push through this integration at the moment. A large initiative with something like 20 partners in the Southern Uplands, linking development amenity and wildlife interests in local projects. Projects funded by the European Life programme, for instance, in the Flow Country, trying to restore blanket bogs as natural functioning ecosystems. One you might be

familiar with, if you bother to read the P&J, is Operation Falcon with the Grampian Police and local estates, which is trying to reduce the amount of persecution of raptors as a means of getting better management of that habitat.

Principles for Sustaining the Earth's Resources

So, if we have some progress to report on the ground, there is still a long way to go, and if we go back to the importance of sustaining the earth's resources, I would argue that there are some very simple principles. I am sure you recognise these, and you may well say all of this is a bit naive and sort of undergraduate level and we know all this anyway. But I can assure you that if I go along the corridors of Pentland House, the Headquarters of the Rural Development Ministry of the Scottish Executive, people who are making policy will not necessarily recognise that natural change is inevitable, that we should work with natural functions and processes, that we should manage natural systems within their capacity limits, that we should manage natural systems in a spatially integrated manner, that we use non-renewables wisely and sparingly and use renewables within their regeneration capacity.

These are, in a sense, some age-old adages. But they have a greater resonance now because we have an agenda which is trying to join up bits of government policy in the way we use resources. It is therefore extremely important that we do not forget issues that have stood the test of time but we need to make sure that they are fully imported into the policy agenda.

So, if I can finish, what does this mean looking at the earth's resources in terms of the principles for sustainable development? These are deliberately skewed to an environmental perspective, because as I said at the beginning, that is what I am here to argue for today. So that we have a greater integration of environmental social and economic interests in policy development and resource development. It is not just the social or the economic, it is the environmental as well. Second, we need to have available all of the necessary skills and competencies, so I need to and do, employ social scientists, and economists as well as geomorphologists and biologists, and I want them to talk to each other and understand each other and have a common language, not just with themselves but also with other institutions. Third, we need to have a change in institutional cultures. The trendy word these days is the silo-mentality - that people in Ministries all live in little silos called social inclusion, justice, social work, education, (higher, middle, lower) environment, agriculture, fisheries, forestry etc, and we need to make sure that the leaders of those institutions recognise that to achieve sustainable development we have to bring the cultures together and deliver positive action.

Fourth, we need to have frameworks for decision making and action at the appropriate geographical scale, so we might have a European strategy for biological diversity which there is, we have a UK one, we have a Scottish one and we have an Aberdeenshire one. Fifth, we should ensure that environmental services and functions are better understood and accepted. This is something, I think, that always surprises students because you all know and understand this concept, but I can assure you that it is not understood and accepted elsewhere. Sixth, that we make sure that all of the scientific knowledge we have about the environment is available

and accessible. And finally, but fundamentally, that we should ensure that people, as defined by representative bodies, public institutions, local communities and individuals, are involved at all levels and stages in the decision making progress. That is the open government agenda which this government is pursuing in Scotland and in the UK. But it is also fundamental as part of the deal that was done in Rio and all the examples from around the world - national, sub-national and super-national - show that unless you involve people for instance, in the development of ideas about a Cairngorms National Park, you are spitting in the wind.