

Barry Gardiner, Minister for Biodiversity, Landscape and Rural Affairs

Introductory speech at the Foundation of Science and Technology meeting

“How should government and business account for consumption of environmental resource when making policy choices?”

You and I live in such a way that if everyone of Earth consumer the planet’s resources at the rate we do in the UK we would need three planets to meet the global scale of consumption.

‘One planet living’ is Defra’s overarching goal. I hope to describe today how our work to develop an ‘ecosystem approach’ will be key to achieving this.

When the Prime Minister appoints you to a Ministerial post the general rule is that there is no arguing – no negotiation, you say ‘Thank you very much’ and that’s it. So some people may think that it was pushing my luck when the first thing I did on my appointment to Defra was to ask that my job title be changed from Minister for Rural Affairs, Landscape and Biodiversity to Minister for Biodiversity. It is not that Rural Affairs or Landscape are not an important part of my job, they are, but they are so fundamentally, as they contribute to biodiversity. Many countries have Ministers for the

Environment. I believe we are unique in the UK in having a Minister for Biodiversity. To me this is an essential step in getting Government to be able to answer your question of how to account for the consumption of resources when making policy choices. Because Biodiversity is the foundation (with air, water and land) of all our functioning ecosystems. And in order to prioritise our policy decisions we have to know their true cost.

Globally, the Millennium Ecosystem assessment has painted a bleak picture:

- In the second half of the 20th century we have changed the world's ecosystems more than at any other time in human history;
- The result is that 60% of ecosystem services are being degraded or used unsustainably;
- And of course it's the poor that suffer the most.

Environmental degradation is a significant barrier to achieving the UN's 2015 Millennium Development Goals for poverty eradication.

Years ago there was a development agenda and there was a separate environment agenda. Now there must and should

be only one agenda. They were like twins separated at birth who could not properly understand who they were until they were reunited.

Yet in some places that need for a single sustainable development agenda is still poorly understood. I want to work with you to ensure that Governments and agencies around the world have a truly stereoscopic vision of development and environmental issues. This means amongst other things ensuring that our development investments are climate change proofed. When all too often the reality is that they are not. Many of the poorest communities who are the recipients of our development interventions are also those most susceptible to climate change and we are literally building their house not just on sand but also below water level.

There are big gaps in our understanding of the functioning of ecosystems. We need to know more about the relationship between biodiversity and ecosystem services and about the drivers of change that cause biodiversity loss and changes in ecosystem services. We cannot hope to tackle these gaps without collaboration between Government and the

intellectual resource that you here at the Royal Society represent.

The irony is that in terms of our exposure to pollution our **domestic** environment has improved dramatically over the last 30 years. We have been very good at addressing point sources of pollution and specific environmental problems. But the nature of the challenge has moved on. Much of our pollution now comes from diffuse sources. Many of our current problems arise from cumulative pressures and cut-across *convenient* areas of environmental policy. These problems have arisen precisely because – as government – we tend to look at the environment on a compartmentalised ‘single-issue’ basis. If we are to reverse the tide of environmental degradation we must take a much wider view. Just as Government departments must take a wider view, a strong working relationship between scientists and economists is key to turning this around – this lies at the heart of the challenge facing us.

The Millennium Ecosystem Assessment outlined the vital importance of ‘ecosystem services’. Healthy ecosystems don’t simply provide vital societal and economic benefits,

such as the provisioning services of food, fresh water, fuel and natural medicines and fibres. They also provide the regulating services for water purification, flood and climate regulation, pollution and air quality that are much more difficult to quantify. Beyond that with the cultural services that biodiversity and landscape provide that are recreational / aesthetic / educational / and spiritual. And which of us can put a price on these – valuable as we know they are.

In the worst examples, unrestricted exploitation of these resources has caused irreversible damage to ecosystems – the Grand Banks cod fisheries collapse, acidification of Scandinavian lakes, and the manifold fisheries problems of Lake Victoria are but a few.

It is more easy to quantify some of these services – such as provision of tangible goods such as food – but much harder to quantify services such as water purification by soils. To ensure the future health of ecosystems – and by extension the provision of the ecosystem services on which we depend – we need to have a good understanding of how ecosystems function and respond to our demands on them.

I want to tell you of my experience at Green week in Brussels two months ago. I listened to an excellent paper by a Spanish scientist explaining to a group of committed environmentalists the pressures on the Iberian Lynx resulting from the road building programme in the South West of Spain.

He posed a simple question: “why are these roads necessary?” Most people nodded in agreement. I did not. You see it struck me that the question most of my voters would ask is not “why are these roads necessary?”, but “why is the Iberian Lynx necessary?”

Too often we are speaking different languages in that we have no way of comparing the value of the Iberian Lynx with the value of a new road.

If we are to communicate effectively we need a clear and coherent message yes. But above all we need a common language and a common metric that does not regard the importance of ecosystems services as essentially qualitative judgements as category errors in an otherwise quantifiable world.

But there is another gap – equally significant. It is not a gap in our knowledge it is a gap in our communication.

What does the MA represent: a superb study.

An unprecedented level of scientific collaboration. A clear statement from some of the best brains on the planet that our ecosystems are at crisis point. Yet how far has this report moved off our desks away from government departments into the real heart of public understanding?

The most important encyclopaedia of the world's biodiversity and its threats will be worthless if it is not mainstreamed, read and acted upon.

So where do we look for a solution? The more I reflect, the more I think we have to find some kind of objective system of measurement to help us make policy choices. The choices may not be any easier. But surely we must be able to develop metrics that will enable us to work out the value of environmental goods and the incremental 'cost' of our use of ecosystems. Can we find ways to provide a more concrete

measure of the value of ecosystem services that we can use to weigh alongside the value of a new development? Can we assess how depletion or enhancement of ecosystems, and the environmental assets within them, will affect our ability to enjoy these benefits in the future?

If we can do this then at least we know what is at stake when we make policy choices – about for example

- How much to invest in environmental protection;
- How to set priorities for ecosystem improvements;
- Which changes in land use or commercial development are desirable

These choices will then be better informed, more transparent and more accountable. Environment ministries will stand a better chance of speaking on equal terms to economic and development ministries. And it will be in the interests of economics ministries to understand the role environmental assets play and to value them accordingly if we enhance understanding of the way environmental and economic performance is intertwined.

I want to see government departments having to bid not just for their revenue and capital budgets from the Treasury but

bidding for their resource consumption of ecosystems services. So that the true cost of policy to the environment is accounted for not just the monetary cost to the public purse.

To address this challenge I have asked my officials to develop a more holistic approach to natural environment policy. This is not about 'joining-up' policies on an ad-hoc basis. We are taking a much more rigorous approach. The focus here is to develop a suite of methodologies, tools and techniques to progressively integrate policy making around the conservation and enhancement of entire ecosystems. This **ecosystems approach** is a dynamic and adaptive way to ensure the continued supply, and enhancement, of the services provided by those ecosystems to people, as well as new opportunities. ***Our intention is to ensure that in future we are able to better deal with cumulative pressures on the natural environment and capture the true value of ecosystem services, so that we can design our policies in a way which will enable us to work within environmental limits, towards one planet living.***

It is all 'well and good' for Defra to talk about an ecosystems approach – but we need to translate this into action across

the range of big development issues which affect our natural environment – such as housing development, transport and energy policy to mention but a few. We need to develop and communicate a clear and coherent story – that is relevant across government – on the key planks of the ecosystems approach, **environmental limits** and **environmental valuation**. And we need your help.

Environmental limits can be viewed in different ways. The mortality rate due to poor air quality needs to be balanced against the need of society as a whole to feed itself, and prosper. There are no easy solutions. Limits are often set according to how much damage society is willing to tolerate, in exchange for economic benefits – these are essentially value judgments and can be set through a trade-off process – assuming the values are known – often they are not.

In other cases there are distinct ‘thresholds’, beyond which ecosystems can collapse. In order to work, the ecosystem approach demands a good understanding of where these thresholds exist. We can then set limits to ensure that our **rates of consumption** are well within these thresholds. I say ‘well within’ since this will ensure that ecosystems are

'healthy & resilient' and able to cope with other pressures – such as drought for example – look at the current water situation in the south-east, for example. The ecosystem approach is adaptive – so should be able to cope with limits which themselves are variable, if the science demands.

In order to assess the benefits society derives from ecosystems services, we need some kind of objective system of **environmental valuation** to help us make policy choices. The choices may not be any easier. But surely we must be able to develop metrics that will enable us to work out the value of environmental goods and the incremental 'cost' of our use of ecosystems.

I have asked my officials to conduct a programme to develop the supporting evidence base -

- we are conducting research on which valuation methodologies work best in addressing these questions – both in assessing individual ecosystems, and in taking policy decisions on aggregate – and on how to use the valuation evidence that exists in policy making;

- we are discussing with the UK's research councils how to improve coherence and consistency across the large but fragmented evidence base on the condition and value of ecosystems. We face the challenging prospect of getting natural and social scientists to speak the same language and work jointly to seize this opportunity to inform policy;
- we are exploring the linkages between the condition of environmental assets and economic performance – what do different sources of biodiversity contribute to the economy in alternative uses? Where, when, and how much should we protect them? Do we currently use them too much or too little?

I am sure you can appreciate this is an ambitious, long-term agenda. Changes won't happen overnight, but the stakes couldn't be higher.

Effective dialogue between scientists and economists will be key achieving to our goal of one planet living. We must **integrate** the development and environment agenda. We must **communicate** the importance of our assessment. And

we must **calculate** within a metric which can embrace both natural and social science.