

# CONSERVATION IN THE GLOBAL ECONOMY

## *WWF Founders' Memorial Lecture*

Adair Turner

November 5<sup>th</sup> 2003

I am very honoured to have been asked to give this lecture in honour of Max Nicholson and Guy Montfort, two of the WWF's original founders. And very aware that compared with them my own role in the conservation movement is minimal. But I hope that the perspective from which I have come to involvement in conservation - as a business man, as an economist, and as a believer in market economics, but also as someone very concerned about our environment, – will enable me at least to stimulate some thoughts.

Now for many people the very word “economics” is a total turn-off. Economics after all is known as the dismal science: what has it got to do with a passion for the environment? But I hope to convince you that thinking about environmental issues in economic terms is vital and can lead us in some unexpected directions.

Economists like to start by defining objectives. And so the first question I want to ask is, why do we care about conservation, why do we care about our environment? And Max Nicholson touched on that question when he gave the first of the World Conservation lectures to which Robert referred. Max mused on

the different reasons which bring people to environmental concern. Some people motivated by their emotional desire to protect the prestige species – tigers, elephants, rhinos, pandas. Others by an intellectual belief that mankind is imposing demands on our global environment which are unsustainable and which will damage human welfare in the future. Others still motivated by an attitude towards man's relationship with other animals which is quasi religious – man having no right to upset the harmony of the planet; no right of dominion over other species.

Emotional, intellectual, quasi-religious – that array of motivations and approaches is still clear, and with some tensions between them. Some of the intellectual analysts consider a focus on saving prestige species hopelessly romantic. Some of the quasi-religious find the willingness of intellectual analysts to think in terms of humankind's own selfish interest, and to compromise with business, intolerable. But as Max Nicholson pointed out the different motivations also run into each other and evolve. He noted that "a passion for coming to the rescue of whales and tigers can readily be converted into campaigning against waste, pollution and excess population growth", and indeed suggested that "engagingly muddled thinking can be helpful", a way of keeping all the elements of the coalition on board.

But despite that defense of muddle, I think there is some value in being clear – not on how all the different motivations are compatible, because perhaps they

are not – but on why there is one set of motivations for a passionate concern about the environment which is fully compatible with the human focused viewpoint which underpins economic thought, and indeed underpins economics' wider roots in post-enlightenment humanism.

And I think we need that clarity – because whether you like it or not the majority of people are going to think in terms of the self-interest of the human race. And because unless we are clear that there is a robust case for a humanist concern for the environment – we will be vulnerable to the attack launched on the environmental movement in Bjorn Lomborg's recent book "The Sceptical Environmentalist", a book hailed by many liberal economists, and by the Economist magazine, as an effective debunking of green movement myths. And a book which has emboldened opposition to crucial environmental actions, such as the implementation of Kyoto.

Lomborg's success has been huge. And, sadly, part of his success is based on bad logic and manipulation of evidence which magazines of the intellectual calibre of the Economist ought to have seen through, even if they happened to like his conclusions. His account of forest cover statistics is misleading: his logic on fossil fuel prices confused: his chapter on global warming relies on logical sleights of hand. [And I have written elsewhere a detailed critique of his arguments and evidence.]<sup>1</sup> But one of his core arguments is valid, and

---

<sup>1</sup> Prospect Magazine: May 2002

challenges a tendency within the environmental movement to disparage material progress, and to deny its benefits from the vantage point of the already rich. For Lomborg is right to point out that material progress – economic growth, technology and science – is delivering huge benefits to people throughout the world. South Korea's growth from the same standard living as the Congo in 1950 to two thirds of ours today, has delivered to the South Koreans increased longevity, greater freedom from disease, household appliances which have freed women from the utter drudgery which was female domestic life for most of human history – and the freedom to go on holidays, to travel, to see other countries. The things that we in the West have taken for granted for decades. And if the green movement does not recognise and welcome those facts, even while pointing out the side-effect problems that come with prosperity – we will lose the argument. We need a case for environmentalism which works in human centered terms.

Some environmentalists, and some philosophers, faced with that statement will despair. For they believe that if human beings are bound to be more selfishly interested in their own interests than in those of other animals, disaster must inevitably result. The philosopher John Gray, for instance, in his recent book “Straw Dogs”, accepts and indeed positively argues that men are bound to pursue their selfish, human objectives but concludes that the result is bound to be disaster. Human beings, Gray argues, are incapable of agreeing collective actions which are in their collective long-term interest. And man’s distinctiveness

from other animals resides solely in our ability to develop technologies which we are bound to use for destructive purposes. As a result, Gray argues, human beings will inevitably despoil the world, covering it with a "plague of humans" and so polluting it that "humans will have created for themselves a new geological era, the era of solitude, in which little remains on the earth but humans themselves and the prosthetic environment which keeps them alive".

But that pessimism is, I believe, wrong for at least four reasons.

The first is that human societies, however imperfectly, are capable of thinking about the long-term, and are capable of recognising that some current actions which make our lives easier today will make them less pleasant in the future. We are capable of grasping the concept of sustainability and of acting on it. We are capable of agreeing and implementing the Montreal protocol on the ozone layer.

The second is that the technological progress which powers material prosperity is capable of being used to make that prosperity sustainable, provided we make sensible choices.

The third is that a concern for the environment often develops as the natural consequence of the prosperity which can also threaten our environment. Human preferences are driven by a hierarchy of needs. The hungry person will always prefer more food to preserving wild life. But the richer people are, the more they

wish to enjoy not only more food, televisions, or washing machines, but also clean air, clean beaches, urban environments that work and unspoilt countryside.

And fourth, that one of the naturally arising human preferences – and one to which we can give greater expression the richer we are, is a love of beauty for its own sake – including a sense of wonderment at the beauty of the natural world. People whose material needs are already well met can recognise that a leopard in the wild moves with an elegance which is breathtakingly beautiful. And they can be motivated by that recognition to trade off aspects of material prosperity – for the preservation of leopard habitats.

Together, those four factors create the possibility of optimism. And together they challenge both simplistic economic measures and simplistic environmental beliefs.

They challenge too much focus on simplistic economic measures, because measures like gross domestic product (GDP) cannot capture people's desire for clean air and clean water, nor people's love of wild countryside and beautiful animals. Big movements and differences in measures like GDP tell us important things about our ability to deliver prosperity: but the idea that we should never sacrifice the last percentage point of GDP growth is not sound economics, but the economics equivalent of religious fanaticism.

But these facts also challenge that wing of the green movement, which is suspicious of all forms of material prosperity or technological progress. And which believes that environmental responsibility requires us to abandon economic growth.

The environmental movement should not be opposed to economic growth and rising human prosperity, but committed to making it sustainable and making sure that it serves the full range of human desires. Given that objective – how are we doing? The answer is that the present position allows us the possibility of optimism but no inevitability of optimistic results.

Why should we be optimistic? Well, as already said, because rising material prosperity in itself delivers many wonderful things – greater freedom from disease, longer lives, dependable food supplies. But also because rising material prosperity is often accompanied by improving environmental standards, made possible by the technology that drives economic growth. London's air is far cleaner than 40 years ago because we have replaced coal burning with gas and electricity: the Thames has salmon in it. The UK chemical industry has reduced its discharges to water of red list substances, the most noxious pollutants, by 96% in 10 years: sulphur dioxide emissions are down 56%. Britain's beaches are cleaner than 10 years ago. Moscow's air quality has dramatically improved in the last 10 years, and I no longer get asthma when I visit Moscow, because old technology Russian cars produced by a failing

economy have been replaced by new technology German and Japanese. And across the world many efforts to prevent the disappearance of beautiful species – have through the intervention of the WWF and other organizations – been successful. The mountain gorilla population in Rwanda has increased 11% in the last 10 years. The elephant population in Selous National Park in Tanzania has doubled with effective action to stop poaching. The golden lion tamarin in the Atlantic forest of Brazil has been saved from what looked like certain extinction.

So there is much to be optimistic about. And yet the problem remains that despite those specific local environment improvements, and that successful application of technology in specific ways, and those specific habitat and species improvements, the overall impact of human beings on the ecology of the world is increasing and is in some ways unsustainable.

The world population has grown 3 billion in the last 30 years and will grow another 3 billion in the next 50.

Co2 emissions are increasing rapidly as increased energy demand overwhelms improved technology.



The numbers of key forest species are in gradual decline.

And human demands for water are relentlessly increasing with an impact on fresh water systems throughout the world.

And those trends mean that we are still on a path not, I believe, to disaster, but simply to a less pleasant and less beautiful world. Yes, we can make local environments cleaner, particularly in already rich countries, but unless we tackle the global problem of global warming, we will unleash major harm to ecosystems and to human beings throughout world, and in particular to the most vulnerable human beings. Yes we can ensure the survival of the tiger species, but unless the population of India at some time stabilises, they will be managed tigers in spacious zoos, not tigers in the beauty of wild spaces. Yes, we can continue to improve water and air quality in Britain, but unless housing growth at some time ceases in the south-east of England, we will end up with a very extensive though very clean suburb.

So despite the progress, we are still on a path of increasing human impact on the world's ecology, an impact which increases both with population growth and with impact per capita, an impact per capita which in turn tends to increase with material prosperity.

And in some respects we are already beyond limits of sustainability – already doing damage to the environment which will make future human lives poorer.

So my question this evening is – what can economics tell us about the likelihood of getting back below the sustainable limit, and what policies are likely to get us there?

Let's begin with population. And here there is some good news, and good news linked to material prosperity, which is that better-off people have fewer children. Material prosperity in the 20th century unleashed a dramatic fall in infant mortality, undoubtedly a good thing, but as a result, a huge surge in world population. But it also unleashed a transformation in the role and the independence of women – and it is an extraordinarily universal fact that wherever you have prosperity, high female literacy, and a supply of contraceptives which are reasonably cheap, safe and free of moral stigma, you get a collapse of fertility rates towards replacement levels.

And you get it, in Catholic Italy as much as Lutheran Sweden, in Shinto Japan as much as in Sunni Muslim Turkey, in Confucian China, as much, surprisingly, as in Shiite Iran where fertility rates are also now collapsing. But above all we get it wherever there is material prosperity, and that is one very powerful reason why

environmentalists must never disparage economic growth. Because one of the things that economic growth is delivering is the possibility and that the world population will come close to stability within about 50 or 60 years.

I showed this slide earlier as bad news, the bad news of 3 billion extra people in the next 50 years, but there is also good news on the slide which is that it shows decelerating growth, and very slow growth by 2050.

And that raises the possibility that we will get to a sustainable world in a two step process - first a surge of population and of impact per capita which takes us beyond sustainability, then the stabilisation of population, combined with reduced impact per capita.

Three questions then about that path.

- First, is a stable population economically sustainable?
- Second, can it be universal?
- And third, can we actually achieve the reduction in impact per-capita which is a necessary part of the second step, which we need alongside stabilisation of population?

First, is a stable population economically sustainable? That question may surprise you. Surely it is more sustainable even economically because it demands less resources. And my answer to the question is yes, it is sustainable.

But there are people questioning the sustainability of stable populations, and arguing by implication, for continually rising populations.

Some of the arguments for population growth are nonsense.

A stable population means a lower absolute rate of economic growth: it is the key reason why Europe grows more slowly than the US. But even in the most narrowly economic terms, a focus on absolute GDP growth is absurd: the measure of prosperity is income per capita. And population stabilization does not reduce that.

But leaving aside such non-issues, there is one real problem with stable populations. And the essence of the problem can be understood in simple diagrammatic form. [SLIDE 9] If we arrange the population structure in a geometric shape – built up of slices each of which represents a number of people in a particular age band – the number of 0 - 4 year olds and then of 5 – 9 year olds and at the top the small number who reach a hundred, in the past – the shapes were triangular – both because people died off steadily throughout life, and because each generation was larger than the previous one.

But in the rich successful economies, [SLIDE 10] population structures are now becoming columns with small triangles on tops – each generation the same size as before, and most people surviving to, say, 60 or 70, and then dying off over 30 or so years thereafter.

And the consequence of that – if you leave retirement age unchanged – is that you get a declining number of workers per pensioner and you either have to make workers sacrifice more taxes or savings, or you have to make pensioners poor.

And that is why the Economist magazine argues for high levels of immigration into Britain as a necessary solution to the pensions crisis, but with the implication of rapidly growing population. And that is why David Willetts, the shadow spokesman on pensions, produced a pamphlet a month ago arguing for policies which might raise European birth rates.<sup>2</sup>

Now as it happens, there may be a case for avoiding the extremely low birth rates we see in some countries, such as Italy. But the big picture is this - if you try to keep retirement ages unchanged and pension systems unreformed, and try to fix pension affordability via either immigration or increased fertility, you need a permanently expanding population in Britain, in Europe, and eventually across the world.

---

<sup>2</sup> David Willetts: “*Old Europe? Demographic Change and Pension Reform*”, Centre for European Reform, 2003.

But a permanent population growth is not only ecologically unsustainable at a global level, it also at the local level, for instance in south-east England, means more transport congestion and higher house prices which themselves undermine economic growth. So even in economic terms the case for permanent population growth has problems. And there are alternative responses, increased retirement ages, in particular which can make pension systems sustainable. We do not, as The Economist implies, need permanently rising populations. But we do need to engage in a debate about the economic consequences of population stability. Max Nicholson in his lecture focused on population growth as one of the three big issues – the three Nasty Giants as he called them – but his concern was solely about relentless growth. But the environmental movement will increasingly have to struggle with a war on two fronts – with the ecological consequences of continued growth in total numbers and with an emerging debate about the pension system consequences of the population stabilization now being achieved in many countries.

But not yet in all. And so my second question about the possible path to sustainability still remains – can population stabilisation be universal?

Well we don't know. The good news is that some surprising countries – such as Iran as I have already mentioned – are on a clear path to lower fertility. The bad news is that some countries still seem in line for explosive growth – Nigeria's

population predicted to grow from 115 million today to 260 million in 2050, Pakistan's from 140 million to 350 over the next 50 years.

And it is this population growth rather than economic growth which might make it impossible to get back below the sustainable limit. [SLIDE 11]. Korea currently imposes a far higher ecological impact per capita than Pakistan, but it now has a stable population, and there is at least the possibility of a future path to sustainability. Looking at Pakistan, stuck on a path of poverty stricken population growth, it is far more difficult to even imagine the path to sustainability.

So environmentalists have to be in favour of economic growth in Third World countries, even though the initial consequence of prosperity is greater ecological impact per capita, more energy consumption, more cars. If Africa had been as successful over the last 50 years as Korea, Thailand or China – the world ecological outlook would already be more favourable – as well as millions of Africans more prosperous. And sadly there is much that we do not understand about why Korea soared economically while the Congo failed. But there are policies more likely to produce successful economic growth, and some where a distinctively green contribution to economic development is possible.

There is a need for specific conservation projects, on the ground, in poor countries, to combine conservation and economic development in a sustainable way: creating jobs through carefully designed tourism development; ensuring a

balance between farming activities and wildlife preservation. The WWF's work in Namibia, through a local Namibian organization, is an example.

At the wider policy level, meanwhile, we need to refocus Western trade policy on developmental and environmental objectives. Those words are often spouted, but Western trade policy is still heavily focused on two objectives: on protection and export subsidy of an agricultural sector which is both uneconomic in world competition and environmentally harmful at home. And on market opening for Western goods and services in developing countries, which is to the considerable benefit of specific Western companies, but trivial actually, when you analyse it carefully, in terms of total benefit to our standard of living. The developed world has far more long-term interest – economic, political and environmental – in ensuring sustainable development in poor countries – than any tactical advantage from increased trade access. We should re-orient trade policy to development aims.

But economic issues are determined not only by narrow economic policy, but by the wider political context. And the greatest threats to economic growth and to the environment in poor countries come from political instability, corruption and war, from political elites spending money on advanced weaponry not female literacy, and from the complete social breakdown that occurs when criminal economic activity – trading in conflict diamonds or in drugs, crowds out normal economic development. The economic benefit to rich countries of selling fighter



jets or small arms is, even in narrow economic terms, trivial: even if we were solely interested in world economic development, and unworried by ethical concerns, we should impose far tighter controls.

And, as tonight's deliberately provocative thought, if we want to help sustainable economic development in the drug states – such as Colombia and Afghanistan – we should almost certainly liberalise drugs use in our societies, combating abuse via education, not prohibition, rather than launching unwinnable “wars on drugs” which simply criminalise whole societies.

But let's suppose we could – by these policies and the more classic ones – sound macro management, sensible taxation policies, well regulated markets – achieve everywhere the economic growth path achieved by Korea, by Thailand, by China – yes, we would get population stabilisation – but wouldn't we still have increasing impact per capita? Is my step two of decreasing or even stable ecological impact actually compatible with economic growth? Don't we need, once we have population stability at pleasant levels of prosperity, also to abandon the idea of perpetual increases in material prosperity, of perpetual economic growth?

Well I do not believe so – so on this dimension too I am cautiously optimistic, optimistic because sustainable growth is possible, cautious because to make it so we need to win arguments and select sensible policies.

One reason for optimism is that many aspects of economic growth do not imply increasing environmental impact. Economic growth occurs wherever we manage to satisfy existing human needs with fewer labour resources, and free up labour to do other things that people want. And in the modern service economy, many of the new things people want are not environmentally harmful. Cheaper mobile phone calls and internet access do not harm the environment. A growing healthcare sector does not on the whole create environmental complications. Increasing demand for better quality organic food – as people use higher incomes to demand better taste and better health – is positively good for the environment. Somebody once worked out that the weight of the UK economy, i.e., the number of tons of material – of steel, coal, cars, machines – produced and carted about the country, has actually fallen in the last century. And the energy intensity of GDP – the extra energy we need to produce an extra increment of GDP is falling: British GDP has doubled since 1970, energy consumption is up just 15%.

So there's some natural arising good news, many of the things consumers increasingly want as they get richer impose much less strain on the environment than when they wanted their first delivery of heating coal, their first washing machine, their first car.

But despite that good news – at least so far we are still heading upwards on this chart, not down. Energy per unit of GDP is declining, but total energy use is still rising. Some growing consumer desires have limited impact, but some, and in particular the desire for mobility and for immediate gratification – more domestic travel, more tourism, fresh mangoes from Guatemala, and just-in-time manufacturing systems to meet immediate fashion demands – are driving increased environmental impact.

And some consumers, particularly in the USA but also to a degree in other rich countries, seem hooked on a conspicuous consumption of raw materials almost for its own sake and even at the expense of any rational calculation of consumer benefit – air-conditioning so cold that it is uncomfortable, the sports utility vehicle so big that you waste time trying to find a parking space.

So GDP growth will not automatically become less environmentally harmful, it needs to be made so by deliberate choices.

Choices about how we use technology and improved efficiency to achieve less harmful growth: and choices about how we change consumption patterns to reduce ecological harm.

New technology and improved business efficiencies have huge potential to solve many ecological problems, to reduce raw-material consumption, to reduce

pollution. And above all huge potential to offset climate change. For there is no inherent shortage of clean energy to support the standard of living the rich countries of the world now enjoy. Every day the energy reaching the earth from the sun amounts to 10,000 times human energy consumption. And there already exist technologies – such as wind, wave, and solar energy, which can capture that energy in a clean fashion. And there exist huge opportunities to improve the efficiency of our energy use, even without changing consumption except in quite trivial ways. Homes can be redesigned to keep people's warm in cold climates or cool in hot, but with 30 per cent per cent or 50 per cent less energy consumption. Cars could be produced which would deliver twice the present fuel efficiency with only a minor sacrifice of acceleration. And cars can run on hydrogen produced from clean energy.

There is no technological barrier to the UK reaching by 2050 the 60 per cent reduction in CO<sub>2</sub> emissions targeted in the Government's Energy White Paper. But there clearly is some economic cost. But what it is surprising when you run the figures is how small that economic cost is. Clean energy sources are still more expensive than fossil fuels – but we are talking 20% or 50% or 100% more expensive, not 10 times. And that means that renewable energy would clearly be cost competitive if the oil price was now at the same real level as in the early 1980s, a level which was quite compatible then with economic growth. And realistic estimates suggest that the cost to the UK of cutting CO<sub>2</sub> emissions 60% by 2050 would be about 0.5 – 2% of GDP, British consumer prosperity reaching

sometime in April or October 2050 the level it would otherwise achieve in January, a level likely to be about 2 – 3 times the current level. And the costs would be similar in the US.

Any idea therefore that that represents a threat to the American way of life, or to American jobs, or to the whole idea of economic growth is complete nonsense. If the world failed to take action to offset climate change in the face of massive economic costs and wrenching sacrifices of material prosperity, that would be regrettable but understandable: to fail to take action in the face of the costs we actually face would be just plain stupid.

But small though the cost can be, we need to take action now to ensure that the costs are as low as possible. For the earlier we send clear signals to the market that the cost of emitting carbon is going to increase – the sooner we do that via emissions trading limits, via higher fossil fuel taxes or even just the expectation of rising fossil fuel taxes in future, via tighter building and car emissions standards – the sooner we will unleash the remarkable power of the market economy – the invisible hand of which Adam Smith talks – to seek out the precise mix of efficiency improvement, clean technology, and changed consumer behaviour which will achieve that reduction. And the sooner that stimulus is provided the lower the eventual cost. And that is why Kyoto, though its reduction targets clearly will not in themselves achieve more than a minimal reduction, is a vital

first step, a stimulus to governments to put in place the policy initiatives which will stimulate business and consumers to take the actions required.

So the market economic case for Kyoto is absolutely clear and compelling. But unfortunately not persuasive enough so far to overcome the power in American special-interest groups, and the irresponsibility of current American political leadership. And that is a huge problem because America's emissions are 25% of global emissions, which in turn is the key reason why the US's overall ecological footprint per-capita is so high. [SLIDE 12] This slide maps the world's ecological impact along the two dimensions I showed earlier – footprint per-capita and population, but with the actual figures for different countries, and makes clear that, as global population grows, and as the footprint per-capita of poorer countries inevitably grows with increase prosperity, that we must find ways of reducing the footprint per-capita of the richer countries – our own included – but also the US. And if we cannot persuade the US to sign up to CO<sub>2</sub> emissions reductions, what, some would ask, is the point of us doing so alone, and won't we put our "competitiveness" at risk? But rigorous economics provides us with compelling answers to both those worries.

First there is a point in action without the US, and one suggested by this chart. Which is that it is vitally important as the poorer countries grow, that they achieve prosperity without ever getting to the footprint per-capita of the richer countries – and to do that they will need new technologies and more efficient production

processes. And the developed world even without the US is a large enough economic bloc to drive the development of those technologies, and to drive more efficient product and process design. We will eventually have to persuade the US to come on board, and that is a vital but extremely difficult priority of world economic diplomacy, but we should still proceed with Kyoto and with steadily tightening environmental standards in general, confident that they will drive technological efficiency developments which will help other countries grow prosperity without growing footprint per-capita to unsustainable levels.

And confident also that the supposed threat to national or European “competitiveness” is an almost complete red herring.

Environmental improvements – not just in relation to climate change, but in relation to chemical industry regulation, congestion charges, planning restrictions, or whatever – are so frequently attacked as endangering “competitiveness”, that most people probably think that “national competitiveness” is an economically rigorous concept. It isn’t. Companies compete for profits: but nations do not compete for prosperity, since there is no zero-sum pot of prosperity to go round. And high employment in developed rich economies is not dependant on beating other countries in third world markets, and certainly not on doing so via lower environmental standards.

And the countries that apply tighter environmental controls have not as a result made themselves poorer: look at Sweden. I cannot prove to you that national competitiveness is nonsense without devoting my entire lecture to the theory, but trust me, I am an economist. Or better still, don't trust me, because the alternative is to read the second chapter of my book, "Just Capital" – and my publisher hates it when I fail to take all opportunities for shameless commercial plugs.

So technology can help us dramatically reduce environmental footprint per capita, and national competitiveness is a largely meaningless barrier to us pursuing that path.

But the question still remains, is technology and efficiency improvement enough to reduce footprint per-capita to sustainable levels, don't we also need to change our consumption patterns? I suspect the answer is no in relation to some environmental impacts, but yes in relation to others.

I suspect for instance that the potential of alternative technologies and of energy efficiency improvements is so great, that we might within a century have solved the global warming problem even if car traffic or air traffic volumes were then much higher than today's. We can have more traffic but travel in hydrogen powered vehicles, with the hydrogen derived from renewable resources. But that would still leave us with destructive road and airport building, with congestion and



noise, with countryside destruction. And there isn't a technological fix to those categories of environmental impact.

So influencing consumer behaviour is an important challenge and poses the trickiest issue for the liberal economist trying also to be green. If people want to buy increasingly large cars or to consume unrenovable timber, who am I to stop them if they individually do not care about the environmental impact? For the liberal economist that is a serious question. But a question which nevertheless has two good answers.

The first is that if the consumer's choice is imposing costs on other – through congestion, through global-warming, through local pollution, through noise, through countryside destruction – it's quite reasonable to ensure that the price they face reflects that: which is why as a free market economist, I have not the slightest qualms about supporting congestion charges, road pricing more generally, and air travel taxes.

The second is that actually enough consumers in rich societies do care about the environment to make a big difference, provided they know the facts about the impact of their actions. As they get richer, and as their other more basic needs are met, many consumers are willing to devote some of their income to buying environmental and social improvement – by buying organic, by buying sustainable timber, by buying fair trade food. And the environmental movement

therefore has a major role to play in stimulating the shifts in consumer behaviour which can be unleashed if people know the ecological consequences of their actions. And that is a role which green lobby groups have to play using all the tricks of emotive and arresting communication which business itself uses to stimulate consumer demand. One of the few actually funny bits of Bjorn Lomborg's book – though the humour is quite unintentional on his part – is when he castigates green lobby groups for their enormous lobbying power and slick presentation of arguments, but fails to consider the lobbying power of businesses, or the slick and emotive presentation used to stimulate consumer demand. We operate in a world where almost every single car advert you see on TV, is a misrepresentation – the fantasy (probably photographed in northern Sweden at 4:00am) that you are going to be driving along empty roads through unspoilt countryside, when actually 95% of all journeys in Britain will be on congested motorways and urban roads with the next driver only a few yards in front of you. And the fantasy that your off-road 4 wheel drive is going to ford rivers and get you out of snowdrifts, when in fact it is going to a ferry you around London, the bull-bars tightly in place just in case you meet a rhino along the King's Road.

The green movement like company marketing departments must stay within the rules of factual accuracy but within those rules we should never be ashamed at using every professional technique available to get the message of environmental consequences through to end consumers, many of whom will

respond in environmentally responsible ways if they know the consequences of their action for species, for habitats, and for long-term ecological balance.

Let me sum up. I said I would discuss economic issues which the conservation movement must face. But I have not focused on the issues often considered when economics, business, and environmentalism meet – the supposed dangers to business competitiveness or to jobs, since those issues are red herrings based on poor understanding of economics. Rather I have suggested that sensible environmentalism requires engagement with far wider economic issues:

That environmentalists must welcome material prosperity, and must favour economic growth in currently underdeveloped and failing states – integrating economic development into specific habitat and species projects, and influencing key policy levers – such as trade policy, arms trade policies, and, my deliberate provocation, drugs liberalisation.

Second, that we have to engage in a debate about population stabilisation, and be willing to support the changes, such as retirement age increases, which can make stable population economically sustainable.

Third, that the rich developed world must reduce its ecological impact per capita, and to do so must embrace the use of market incentives, rejecting the confused economics of national competitiveness.

Fourth, that we need to unleash the natural consumer preference of richer people for environmental improvement, using all the professional techniques that businesses use to sell products.

That therefore defines some elements of the overall green agenda. What then of the work of the WWF? Well, the WWF has defined its mission in terms of a hierarchy of activities, and the importance of that hierarchy is clear from the argument I have presented.

An environmental organisation interested in preserving wildlife for the benefit of humans, has to be engaged in debating and influencing the big policy levers – taxation policies, trade policies, environmental regulation, climate change responses – because if we don't get those levers right the big trends will overwhelm all our specific projects.

It needs to influence consumers to make consumption choices less harmful.

It needs to be closely involved in the issues of sustainable forest products, or sustainable fishery.

It needs to be engaged in integrated projects to protect habitats and entire ecosystems, and to be alive to the need to integrate human development with habitats that work for animals.

But it also needs to be motivated by the preservation in significant numbers in the wild of the prestige species that capture people's imagination and by the preservation of wild spaces, of the diversity of truly wild life. For while species preservation without a focus on the big levers will ultimately fail, a focus on levers alone can become an arid intellectual activity, a policy battle for its own sake. And while some policy objectives must be expressed in terms of global numerical aggregates – volumes of water extracted, Co<sub>2</sub> emissions released, we must never underplay the importance of emotional and aesthetic motivations, nor of the preservation of beautiful or intriguing animals as an end per se. For our aim is not merely to prevent disaster, to avoid health risks, to achieve balance for balances sake – but to ensure that future generations can enjoy the beauty and the quiet of wild countryside, the wonder of starlight above black velvet night, the sense of wonderment which we feel in observing the order and yet diversity, the harmony and yet continued change of the natural world, the sense of elegance we see in the big cats, the majesty and the mystery of elephants. The conservation movement needs to make its efforts compatible with global economics, to come to terms with some of the difficult trade-offs and choices we face. It needs to be able to converse at times in the language of the dismal

science. But it also needs to capture people's imagination and to inspire people to want to preserve the beauty of a wonderful world.