Are green and growth compatible?

Rt Hon Lord Smith of Finsbury PC *Chairman, Environment Agency**

When I gave a lecture here at the RSA three years ago – 'Out of the red, into the green' – I did so in the confident knowledge that the environment, the value of natural resources, and the realities of climate change were all generally acknowledged, accepted and endorsed as political imperatives across the spectrum of public discourse. They remain, of course, fundamentally important. Indeed, I would argue, they are the most important of all the challenges we face, in this generation or the next. But I fear their political salience has waned. And part of my purpose in being here tonight is to shout out as loudly as I can that the environment still matters. That 'green' is as important as 'growth'. And that the two do, absolutely, walk hand in hand.

It should of course be axiomatic that the environment matters. The air we breathe, the water we drink, the way we produce our food, the natural resources that continue to be available to us, the waste we generate, the state of our land and landscape: none of these are optional extras, they are all essentials for life and for our quality of life. We ignore their needs at our peril. But in emphasising the importance of these things for public policy-making, there is something else, too. We are, all of us, creatures of place. We have a profound attachment to the space of earth in which we live. Safeguarding the condition of that 'place' which is the portion of the world we share with our families and neighbours is something that matters to huge numbers of people. Governments and policy-makers have to acknowledge this and respect it.

The drive for growth is – in our current straitened circumstances – an equally high imperative. Even if we were not living through a double-dip recession, we know that in a modern democracy the way to tackle poverty and disadvantage is to secure steady growth. We also know that, without growth, deficits will not reduce, and unemployment and distress will continue. And we know, also, that it is those who are most economically disadvantaged who routinely experience the most degraded environments and the poorest sense of place.

There are some in the green movement who argue that growth is an enemy of the environment and sustainable lifestyles. That we should rejoice in economic stagnation or decline because it forces us to recalibrate the way we live and what we aspire to. That husbanding existing resources and standards of living is better than striving for more or better. That contentment comes from an acceptance of what and where we are, and that striving to grow economically brings inevitable environmental deterioration, over-use of natural capital, and mortgages the future too. I do not accept this. Of course I understand that not all growth of all kinds is sustainable. But the imperative we have, especially in these times, is to search for growth that truly *is* sustainable. It can be done – as I shall hope to show in a minute or two. And the starting point must be a firm belief that we cannot abandon either green or growth.

This task is made more challenging, of course, by the reality of climate change. It is unsustainable growth over decades that has brought concentrations of greenhouse gases in the earth's atmosphere that are leading inexorably to a changing climate across the globe. It is now likely that we will face an average global temperature rise of at least two degrees in the course of this century. It may well be more, with devastating consequences for weather patterns, temperatures, sea levels, patterns of agriculture, floods, droughts, availability of water and movements of populations.

Here in England we have just experienced the driest combination of two winter periods since 1922. We had the driest March for more than 50 years. But now, almost as if to mock us, we have just lived through the wettest April since records began. And yes, it is absurd. We have hosepipe bans around many parts of the country and yet it has been bucketing with rain for days. There have been buses emblazoned with posters saying 'We are in drought' splashing their way through huge standing pools of rainwater. (I simply note in passing that the April rain has been terrific for crops, for gardens, for recharging reservoirs and streams, and for fish. It has not yet been enough to get right down to the groundwater reserves that we depend on in many parts of the country.)

There is an important message that has not yet emerged from all of this. And that is that this sort of combination of extremes of weather following in such rapid succession is likely to become a more frequent occurrence in future years, as climate change begins to have effect. I cannot say here and now that the rapid succession of drought and flood we have just experienced can be proved to represent an incipient impact of climate change – any more than I could point to the highest ever concentration of rain falling in one place in England in a 24-hour period, that fell on the Cumbrian hills in November 2009, with such tragic consequences. But what I do know is that the science of climate change tells us that we will see patterns of extreme weather increasingly affecting us over the years to come. We are going to have to get more used to violent changes of weather, to periods when everything dries up and others when everything gets deluged. This is the world we are moving towards.

* This article is a taken from a transcript of the lecture given by Lord Smith to the Royal Society for the encouragement of Arts, Manufactures and Commerce (RSA) on 8 May 2012 and reproduced here by kind permission of the author.

We have not been helped, these last two years, by the airtime accorded to a relatively small number of climate change sceptics. I cannot over-emphasise the damage that has been done to public acceptance of the lessons of climate change by the furore over badly-phrased emails at the University of East Anglia[1] and inadequately-checked references to Himalayan glaciers in the IPCC reports.[2] These were seized on by sceptics, keen to sow seeds of doubt in the public's mind about the accuracy of climate science, and some bits of the scepticism got through to some members of the public. I am pleased to note that the Government – indeed all main parties here in the UK – remains firmly committed to tackling climate change and its consequences. But we have to work hard to re-establish the case more broadly.

I pause briefly to reflect on the disastrous politicisation of the issue that has affected the Republican Party in the United States. Climate change scepticism has not only become *de rigueur* (they would hate me using a French phrase) but it has become, rather strangely, an integral part of a right-wing, small-government ideology – reversing in the process decades of conservatism that was all about conserving. Sarah Palin, for example, has claimed that man-made climate change has been disproved.[3] Quite the opposite is of course the truth. Climate change is a fact of life. It is something we have to deal with. In many ways I wish it was not true, and that we did not have to deal with it. But we do; and denying its existence will not remove the need for us all – big government or small government ideologues – to find ways of coping with its existence.

It is not just that climate change has been struggling rather more than before to find public acknowledgment. It is that the environment as a whole has slipped down the political and public agenda. This is perhaps inevitable, as the focus everywhere is almost exclusively on economic crisis, on deficit reduction and on the desperate need for growth. The environment's voice is far less powerful. As a taxi driver said to me the other day, 'Surely we've got more important things to worry about at the moment than the future of the planet'.

All is not lost, however. The political focus may have turned away for the time being, but the public's commitment to the environment as green space that allows humanity to breathe is as strong as ever – as the campaigners for public forests or for the protection afforded to the countryside by the planning system could attest. And the number of householders classing themselves as 'committed recyclers' has risen from 45 per cent in 2004 to 70 per cent last year. Seventy-four per cent of adults polled last year by YouGov for *The Sunday Times* thought the Government should use more solar energy.[4] And even in the field of climate change, there are signs that concern is rising again, as the number of people thinking climate change is a 'very serious problem' rose from 43 per cent in 2010 to 49 per cent in 2011.[5] Public opinion may be more in tune with the green necessities of the future than many policy-makers around the world might give it credit for.

Whatever the public or political perception may be, however, the truth is that we – humanity – are posing ever-increasing challenges to our environment, and the environment is challenging us back. Our human connection with it is becoming increasingly – not diminishingly – important. The impact of climate change, the needs of a growing population, the demand for food, energy and water, the depletion of natural resources, and the creation of more and more waste: these are all placing greater demands on the natural world we live in and depend on. Around the world, there will be three billion more middle-class consumers by the year 2030 – with lifestyles increasingly demanding on the environment. We have to know about these fragilities, we have to think carefully about how we address them and we need always to remember that we need to solve these problems not just for ourselves, but also for future generations.[6]

The world of business is already way ahead of us in recognising this. I can put it no better than the opening words of a recent 2012 report by KPMG International, entitled 'Expect the unexpected: building business value in a changing world'.[7] It states:

> For 20 years or more the world has recognised that the way we do business has serious impacts on the world around us. Now it is increasingly clear that the state of the world around us affects the way we do business. The resources on which business relies are becoming more difficult to access and more costly. Increasing strain on infrastructure and natural systems is likely as patterns of economic growth and wealth change. Physical assets and supply chains will be affected by the unpredictable results of a changing climate. And businesses can expect an ever more complex web of sustainability legislation and fiscal instruments. But this is not the whole story. The central challenge of our age – decoupling human progress from resource use and environmental decline – can also be one of the biggest sources of future success for business. More corporations are recognising that there is value and opportunity in a broader sense of responsibility beyond

1 L Hickman and J Randerson 'Climate sceptics claim leaked emails are evidence of collusion among scientists' *The Guardian* (20 November 2009) http://www.guardian.co.uk/environment/2009/nov/20/climate-sceptics-hackers-leaked-emails.

2 D Carrington 'IPCC officials admit mistake over melting Himalayan glaciers' *The Guardian* (20 January 2010) http://www.guardian.co.uk/environment/2010/jan/20/ipcc-himalayan-glaciers-mistake; D Hart 'Hockeysticks: Climategate Unit told by Information Commissioner to produce weather data' (2011) 23 *ELM* 3 133–4.

3 A Datta 'Palin: global warming not man-made' ABC News (29 August 2008) http://abcnews.go.com/blogs/politics/2008/08/palin-global-wa/.

4 'Poll: public overwhelmingly backs wind and solar power' (14 December 2011) http://www.businessgreen.com/bg/news/2132086/poll-public-overwhelmingly-backs-wind-solar-power.

5 Green Alliance 'What people really think about the environment' (Green Alliance policy insight April 2012) http://www.green-alliance.org.uk/uploadedFiles/Publications/reports/Green_affordable_Pol_Ins_singles.pdf.

6 See K Schneeberger 'Intergenerational equity: implementing the principle in mainstream decision-making' (2011) 23 *ELM* 1 20–29.

7 KPMG International 'Expect the unexpected: building business value in a changing world' (2012) www.kpmg.com/Global/en/IssuesAndInsights/ArticlesPublications/Documents/building-business-value.pdf.

> the next quarter's results; that what is good for people and the planet can also be good for the long term bottom line and shareholder value.

Hooray!

Not all companies and corporations would agree – sadly. But increasingly many do. The impetus among the large retailers here in the UK to restructure their transport movements, to reduce emissions from their refrigeration units, and to transform the way they deal with waste. The scramble amongst car manufacturers around the world for lower emissions and hybrid varieties and affordable electric vehicles. The way in which large-scale engineering companies are investing hugely in renewable technologies and carbon-reducing equipment. In the US, for example, while Congress is totally becalmed on the issue, company after company is simply getting on and doing it. There is some hope yet for the biggest economy in the world.

This sea-change in the attitudes of major businesses is remarkable and very welcome. In 2010 PricewaterhouseCoopers (PwC) carried out a survey of senior leaders in major companies across 15 different countries, conducting 700 interviews in total. The findings showed a substantial degree of consensus across all countries and sectors: a recognition of the challenge posed by climate change, support for a mixture of incentives, carbon taxes and emissions trading schemes to tackle climate change, and a desire above all for certainty and consistency in the way governments go about creating the necessary regulatory structures. In the UK, for example, there was 64 per cent support for a carbon tax and 68 per cent support for emissions trading schemes.

Perhaps most interestingly, 53 per cent globally saw 'environmental regulation as an opportunity for business'. Note, regulation and opportunity. This is not, of course, as counterintuitive as it might appear to those who take a simplistic view that all regulation hinders business opportunity. The reality is that good regulation in the public interest, intelligently administered, creates a level playing field, helps to support the smart and innovative companies, helps to stimulate new ways of doing things, new services and new products, and provides benefits for people, for the environment, and for business.

Good environmental regulation has in fact been something of a success story here in the UK during the past 10 years. Sulphur oxide emissions fell by 75 per cent between 2000 and 2010. Nitrogen oxide emissions fell by 37 per cent. Fine particulate (PM10) emissions fell by 39 per cent. The amount of waste recovered and reused at all the major industrial plants regulated by the Environment Agency increased from 37 per cent to 67 per cent in 10 years. The number of serious pollution incidents from industry fell from 884 to 343 last year. These are significant achievements, and they have come about because of a firm but proportionate regulatory framework on the one hand and intelligent business response on the other. Of course we always have to strive to reduce unnecessarily bureaucratic regulation, and to streamline where we can without losing impact, but let no-one try and tell us that regulation per se inhibits business growth.

Many companies have found that by reducing the amount of waste they generate, the amount of water they consume and the amount of energy they use, they can find better ways of doing what they do and can save money and costs in the process. Here in the UK, PepsiCo is encouraging the growers it works with to reduce water use by 50 per cent over five years. Marks and Spencer's Plan A (called Plan A because there is no Plan B) – targeting more sustainable use of energy, recycling of plastics, and lower carbon emissions – generated £70m of net benefit for the company in 2011. JCB has invested over £300,000 in energy saving since 2007, which has delivered over £4m in savings to its business in that period. And Kingfisher Group's green products now account for 13 per cent of sales. Being green can indeed be profitable. The two most important influences on corporate environmental practices are creating competitive advantage and reducing costs. There are many examples now of companies achieving one or both of these objectives by deciding to do the right 'green' thing.

There is economic benefit to be secured by becoming leaner, more efficient, and less wasteful. But there is even more economic opportunity to be seized by looking at the new products, services and processes that are becoming increasingly needed and demanded around the world as we adjust to the climate and natural resource pressures we all face. Twenty years ago we missed a huge first-mover opportunity here in the UK. We had done a lot of early work on the development of wind turbines for energy from wind, but then we allowed the further development of the technology and manufacture to head off to Denmark, and subsequently to Germany, China and the US. We lost out to others, and we have been having to buy heavily from abroad in recent years as a result.

We must not make the same mistake again. Above all, we must not make the same mistake with the development of wave and tidal power. We are an island surrounded by waves and tides. This is the most obvious natural source of energy we can look to for a renewable future. The development of the technology is still at an early stage, but we are – at this moment at least – well ahead of the rest of the world. Of the eight full-scale prototype devices currently installed worldwide, seven are in the UK. There are projects in Orkney, Northern Ireland, and (recently announced) in Cornwall and Devon. These schemes are being taken forward by innovative companies, in some cases partnered with universities, but there is still too little sense of an overall coordinated programme that could drive serious progress. Harnessing wave and tidal power is, of course, difficult. Large bobbing centipedes battling with huge swells and waves off the Orkney coast are not the easiest bits of machinery to build, to place and to monitor. And tidal power always needs to be considered with the impact on fish and the ecology of estuaries in mind. The Carbon Trust believes that practical and economic sources of wave and tidal power could provide 20 per cent of current UK electricity demand.[8] The global market could also be huge,

8 www.carbontrust.com.

with major potential for UK companies. But we need to get our skates on.

In our own small way, the Environment Agency has been helping innovative green product development. The biggest influence on our own carbon footprint as an organisation is the pumping we do in order to move water from one place to another – especially in response to threatened flooding. (On the River Foss in York last week, for example, we had to pump water into the Ouse in order to prevent flooding to several hundred homes.) Pumping will always be essential for our work, and we need to find ways of reducing its impact on the environment and on carbon generation in particular. So on 24 February this year we launched a competition, together with the Government's Technology Strategy Board, to design a low or zero carbon pumping solution that we could then apply to all our sites where we have to pump water.[9] Potential competition entrants were invited from the engineering and design industries, and from universities. By the closing date of 9 April we had received 13 entries, many of them offering exciting ways of achieving our objectives. The hope must be that we will find a technology that works, that saves money and energy, and that can then be sold on around the world too.

In the Agency we are consciously trying to develop the greenest ways of procuring goods and services from our supply chain. When we commission flood defences, or use materials in our engineering schemes, or purchase vehicles for our operations teams, or find ways of building up river banks to prevent erosion, we are constantly looking for the most sustainable ways of doing things, for the greenest products, for ways that will keep the carbon footprint of our operation to the minimum. Overall we spent £659 million with external suppliers last year. As we continually strive to make that spending more sustainable, I sometimes wonder what the impact would be if the same effort occurred across the whole of the public sector. We should never under-estimate the power of the public spending purse, even in these hard times, to change behaviour, to change the kind of products available, and to stimulate innovation. Perhaps the Government might consider bringing in a senior business leader who has had real success at greening the procurement profile of their company, to take a hard look at what happens across the whole public realm?

The search for new green solutions and products will not always be easy. There will sometimes be occasions where, in seeking one environmental objective, we risk upsetting another. These cases where we need to disentangle the various environmental gains and threats, where we need to compute a balance of natural cost and benefit rather than assuming a simple all-gain equation: these are the difficult ones. Take onshore wind farms, for example. A great source of renewable energy, yes. But there will be some places – not I hasten to emphasise in a 'nimby' context – where there might be a threat to acknowledged landscape value or wildness – and those need to be recognised, and decisions adjusted accordingly.

Small-scale hydropower schemes on rivers are another example. Harnessing the water power of a river to generate electricity, especially if sited at a place where for many years past there has been a substantial weir, can offer major opportunities for local, small-scale, sometimes community-based electricity production. And if an Archimedes screw is used, and appropriate mesh screens put at the bottom, and a fish-pass installed – so that the fish (especially trout and salmon migrating upstream) do not get caught in the blades of the turbines – then it is possible to achieve a win-win result that benefits both renewable energy production and fish life in the river. In a number of cases this has enabled the opening-up of stretches of river beyond the hydro site that have not been accessible for decades, with genuine benefit for migratory fish. This win-win result will not always be the case, however, and there will be times when conserving the ecology of the river will inevitably be more important than securing a small energy gain. Making the right judgment between these two objectives has to be done with care and with proper consideration for both. It is hardly ever easy.

If the surge in interest in small-scale hydropower is one example of a bundle of clashing environmental objectives with which we need to tussle, then we face an even bigger challenge in relation to the new energy 'kid on the block' – the development of fracking for shale gas. Shale gas is effectively gas that is trapped *within* rock, rather than sitting in a reservoir trapped *by* rock; and with modern drilling techniques it has become possible to release the gas, by drilling down (in most cases very deep, thousands of metres down) and then pumping a mixture of water, sand and chemicals at very high pressure to fracture the rock, releasing the gas and enabling it to flow back up to the surface through the well. It is a technique that has been used for some years now – not entirely without controversy – in the United States. Cuadrilla began drilling some exploration boreholes near Blackpool in August 2010; fracking was, however, halted after minor earth tremors were experienced in the area in April and May last year. An independent expert report recently published by the Department of Energy and Climate Change (DECC) concludes that the tremors were almost certainly caused by the fracking, but that with suitable preventative and monitoring measures in place there should be no reason why drilling could not recommence. These findings are currently out to consultation.[10]

Estimates vary widely as to the quantity of shale gas potential here in the UK. It is likely, however, to be significant, even if it is not huge. And if the drilling can be found to be cost-effective, the development of a new gas resource from within the UK, not dependent on foreign supply, and at reasonable cost, would be highly attractive

9 www.innovateuk.org/content/competition/low-carbon-sustainable-pumping-systems.ashx.

10 C A Green, P Styles, B J Baptie 'Preese Hall shale gas fracturing: review and recommendations for induced seismic mitigation' (DECC April 2012) http://og.decc.gov.uk/assets/og/ep/onshore/5075-preese-hall-shale-gas-fracturing-review.pdf.

for our energy needs. Potentially, it ticks the boxes on energy security, availability and cost. But does it tick the box on environment? The answer is complex, and is something like 'up to a point'. Gas is better than coal – both in terms of its immediate impact on the environment and in terms of its greenhouse gas effects. So a major shift from coal to gas, as the existing coal-fired power stations start to come to the end of their lives, would reduce levels of pollution and overall climate change impact quite considerably. But this would be another 'dash for gas', and could land us with an array of gas-fired power stations, all with potential lives way into the future; and the emissions from gas are far greater than those from either renewable sources or nuclear. We could have locked ourselves into a new generation of gas, with all the carbon consequences, and would then be unable to reduce the carbon impact of our power generation nearly to zero – which has to be the aim if we are to meet our climate change targets.

I fear we may already be heading for a new dash for gas anyway – whether or not we end up with major use of shale gas. With renewables still slow to acquire real mass, and with nuclear inevitably taking time to happen, and the need in any case to achieve a steady baseload capacity for electricity production, the attraction of looking to gas as the solution to keeping the lights on will become increasingly strong. This is why – and especially if shale gas takes off – it is essential that we look to develop carbon capture and storage (CCS) for gas, and not just for coal. CCS is quite simply a *sine qua non*. If we are to have a chance of reducing our greenhouse gas emissions around the world, CCS has to be brought into play for both coal and gas. Here in the UK we are exceptionally well placed to develop the technology, especially with the extensive storage capacity we have under the North Sea. But we need to get a move on. The original competition for CCS projects was launched by the previous Government way back in 2007. The current Government has now launched a commercialisation programme for CCS, with funding of £1bn. We need to press ahead – not just in order to help to meet our own emissions targets, but in order to secure some of the early-mover advantage still to be reaped from this technology. The International Energy Agency believes that CCS will be the key to delivering a fifth of all the greenhouse gas emission reductions we need globally by 2050.[11] We should be at the forefront of this.

Fracking, however, still needs to be done with care. And we need not only to consider the emissions results of a major expansion of gas but also the immediate environmental issues that arise from the fracking process. The two major concerns will inevitably be: first, the potential for leaks of contaminated water from the shale-rock layer itself, or from the borehole – and especially if this were to get into any of the water aquifers below ground it could have serious consequences for drinking water supplies; and secondly, the leaking of methane from the gas-recapturing process. In both of these cases it is imperative that we in the Environment Agency monitor with scrupulous attention and robustness to ensure that everything is, literally, watertight. We will absolutely do this.

My conclusion, therefore, is that with careful use of the drilling technology, with rigorous monitoring and inspection, and with the development of a major programme of CCS for gas-fired power generation, then shale gas could be a truly useful part of our energy mix in the years to come. What we must not do, however, is to assume that because gas is better than coal we should simply exploit it and leave it at that.

I take the same 'yes, if' approach to the development of a new generation of nuclear power stations.[12] Again, this is a policy area fraught with competing environmental objectives, but again there are ways to be found through the tangle of challenges and benefits and there is a green-and-growth solution to be found. If you had asked me 20 years ago about nuclear power, I would have taken the traditional 'green' view and said something like 'over my dead body'. I am happy to admit, however, that I have changed my mind – and it is the prospect of climate change that has changed it for me. Although there is of course substantial 'embedded' carbon in the sheer construction of a nuclear power station, the greenhouse gas emissions caused by the generating process itself are close to zero. If we are to achieve the goal we have to, of the decarbonisation of our production of power as a country, then nuclear quite simply has to be part of the answer. Renewables on their own will not do it. We have to have a combination of renewables, nuclear, carbon-capture-and-storage for fossil fuels, combined heat and power, and of course a major programme of energy efficiency work. It is only by doing all of these things – short of the holy grail of nuclear fusion being found – that we will be able to get anywhere near our necessary goal.

But while nuclear energy produces little carbon, it does produce extremely toxic waste. And at the moment we have no long-term storage or handling capacity for that waste. For some time now the aim has been to create a deep secure repository, underground, for long-term storage of the highly radioactive waste from the whole of our nuclear industry. Continuing for ever to hold it in rather old tanks at Sellafield, or in temporary above-ground facilities, is not viable. But at the moment we do not know where the long-term repository will be, or what form it will take, or even how long it is going to be before it might be ready. Some of the current estimates talk of it being as far into the future as 2040. There are some welcome signs that the Government may be recognising the urgency of this, but it needs to do so more, and we need to be much clearer about the practical reality of waste storage before we start laying the foundations for the new power stations that will depend on that storage for the end-point of what they produce.

Green and growth, then, are both essential elements of our economic and social recovery. We cannot opt for

11 IEA 'CCS' www.iea.org/roadmaps/ccs_roadmap.asp.

12 'Energy bill to boost cleaner energy production' (22 May 2012) www.bbc.co.uk/news/business-18144412.

either of them in isolation. But we must always remember that the relationship between them can at times be awkward and difficult. Finding more efficient ways of doing things, developing green products and services, using the power of public procurement and finding the right answers for energy production – all these are part of the picture. There is one other thing that we need to consider. Much of what we need to try and do, in reducing carbon and waste and water use, is about trying to stop climate change happening in the first place. But climate change is going to happen to a certain extent, even if we are successful in holding the overall impact to only two degrees – the lowest figure that anyone is currently predicting. Most scientists are now telling us it may be considerably more. So we need to prepare to deal with the consequences that will inevitably come from that. In January, Defra published the UK Climate Change Risk Assessment[13] – the first time any country has produced such a detailed analysis of the likely consequences of what is happening to our climate. The Environment Agency has a particular role in helping to inform and guide companies, organisations and authorities in making the best preparation possible.

Top of the list are floods and droughts. These will threaten us more frequently. And we need to build in better resilience – whether it is building flood defences, or preparing individual properties for better protection, or allowing flood plains higher up a river to be used once again for water storage, or advising householders on how to use less water, or ensuring that farmers can store more winter water in order to use in the spring or summer, or encouraging companies to develop innovative solutions that can help people to cope with either too much water or too little.

We also need to get more adept at developing our forward plans in a flexible way, a way that allows us to respond to changing circumstances as they develop. We know the direction in which climate change is likely to take us – more extreme weather patterns, more intense change – but we do not know exactly how fast all of this will occur. We do not know precisely when the impacts that are likely to happen, will happen. So we need to plan accordingly. Our Thames Estuary 2100 Plans are a good case in point. We set out there what we think may well be needed, over the next 90 years, to protect the outer Thames Estuary, including what the future should be for the Thames Barrier. But we set these plans out in a series of scenarios and steps, so that we can take the appropriate decisions, period by period, as we see exactly what is happening on the ground, and exactly what climate change is doing. We will, I suspect, increasingly need to build this sort of adaptability into our planning and projecting – and many other bodies and businesses are going to need to learn to do likewise.

None of this, though, will happen by accident. The degree of 'green-ness' in political and public life will I suspect constantly ebb and flow, depending on other issues and priorities. Some of us will try, also constantly, to push these issues to the fore. And we are helped by the simple truth I have been trying to explore here, that growth can and should be green, and that green can help to stimulate real growth. But none of this will really take hold unless there is a broad public sense that these issues are fundamentally important.

As I said at the outset, there is enormous public attachment to the idea of place, to the immediate environment that envelopes and sustains our own everyday life. People are passionate about their local stream, or park, or village green. Harnessing that passion for a bigger picture is an idea of tremendous power, turning the local truly into the global. I sometimes remind my erstwhile political colleagues that organisations like the RSPB and the National Trust have far more members, each, than all the political parties put together. And what they do is help to take people on a rather remarkable – dare I say political – journey. They take a tiny thing – a dipper, say. And they tell you that if you are interested in what's happening to this dipper, you need to understand about the habitat it lives in and which it needs for survival. You need to understand about water quality and about the fate of our hedgerows and about patterns of agriculture. You need to understand about the planning system and how it protects valuable landscape. You need to understand about the pressures of development and urban expansion and industrial growth. You need to understand about how the crucial decisions are taken, by business, by local government, by national government, by European institutions. And you need to understand about the impact that climate change is going to have and what causes it. And you need then to understand about the faltering international discussions and negotiations and how we must press for more and quicker action. And before you know what has happened, you've been taken on a journey of understanding from something incredibly small and tiny and vulnerable – a dipper – and reached into a hazy understanding of the global and national political forces that shape the future of our environment, and the dipper's environment.

These things are all interconnected. If we can help people and policy-makers to understand these interconnections, and to cherish them, we can make real progress. We can find ways that solve some problems, although probably not all. We can recognise that green growth is not a contradiction, far from it. And we may be able to make a modest contribution to the future of our planet.

13 'UK climate change risk assessment' (Defra January 2012) http://www.defra.gov.uk/publications/2012/01/26/pb13698-climatechange-riskassessment/.