

# Responsibility & Resilience

What the Environment means to Conservatives

**CONSERVATIVE  
ENVIRONMENT  
NETWORK**





**CONSERVATIVE  
ENVIRONMENT  
NETWORK**

# **Responsibility & Resilience**

What the Environment means to Conservatives

**February 2014**

Edited by Ben Goldsmith and Toby Guise

*Published by the Conservative Environment Network  
2 Fitzhardinge Street  
London W1H 6EE*

[www.cen.uk.com](http://www.cen.uk.com)

## Foreword

Environmental protection has become synonymous with empowering governments at the expense of free enterprise. But those countries where government power has been greatest – such as in the Eastern Bloc – have often been those where nature has been most depleted. Whereas it is those nations which have prospered under capitalism that have developed the tools and the resources to respond to environmental imperatives.

Many on the Left do now hold the environmental cause close to their hearts. Yet from this relationship has developed the syllogism that to be an environmentalist is to be on the Left. Fearful of being tainted by such an association, some Conservatives have ceded this ground to their political opponents – and unwittingly empowered them by doing so.

But this defies the very meaning and practice of Conservatism. From Burke to Mrs Thatcher, Conservative thinkers have aligned themselves with the prerogative to conserve the bases of human society for future generations. It is furthermore the mechanisms of environmental protection which leverage the free market rather than curtail it which produce the greatest environmental as well as economic benefits.

The purpose of this publication is to resituate both environmental responsibilities and solutions into a Conservative political framework. Our contributors do not speak with a single voice – indeed, a healthy pragmatism and plurality of viewpoints is a hallmark of Conservative solution-finding. But, taken together, they provide abundant grounds for the Right to reclaim its positive track record and future vision for environmental stewardship.

Ben Goldsmith,  
Chairman, CEN



## Introduction

When it comes to resource issues, the numbers speak for themselves. Commodity prices fell by around 70% during the Twentieth Century, helping drive huge wealth creation. But in the past decade, inflation-adjusted prices have returned to where they were at the beginning of the century. As the world's attention was transfixed by the financial crisis, a fundamental paradigm shift took place in the availability of natural resources.<sup>1</sup>

With falling prices no longer a driver of global growth, a root-and-branch rethink of our economic models is inescapable. Economic recovery and debt reduction provide an equally inescapable context for this challenge. State interventions to penalise environmental externalities and reshape the energy market have been seen by many on the Right as an economic deadweight – a deadweight that business and consumers can scarcely afford.

But it is falsehood to think of the physical environment as a cost when it is in fact the source of value on which our economies are built. More efficient use of that value means better economic performance – and, crucially, the maintenance rather than depletion of the resource base of future generations. The debt and pensions crisis have brought home to us the danger of borrowing from the future to pay for the present. No Conservative should advocate doing the same with natural resources.

---

<sup>1</sup> 'Time to Wake Up: Days of Abundant Resources and Falling Prices Are Over Forever' by Jeremy Grantham, GMO Quarterly Letter, April 2011

Personal responsibility and economic resilience are rallying cries for Conservatism: yet they are also at the heart of our transition to greater resource efficiency. To this we may add the virtues of entrepreneurialism and competition – both essential as we develop and deploy the technologies on which our future economy will rest.

Our publication is divided into four sections, each addressing a misconception about the Conservatism and the environment. Within each section, you will find a multiplicity of views: some emphasise government leadership, others lead on the strength of existing institutions; some advocate limited economic intervention, others trust more completely in the market. But all our contributors share the conviction that governments must closely guard the Conservative traditions of freedom and economic liberalism to achieve long-term environmental security.

The first misconception is that Conservatives' taste for small government leads them to disclaim environmental responsibilities entirely. Professor Roger Scruton outlines a political economy where the institutions of free societies themselves provide a self-correcting check on environmental imbalances – and where stewardship is rooted in civic society, not the state. In a contrasting piece, Geoffrey Lean, contributing editor to the Daily Telegraph, reminds us that when central government has chosen to legislate, it has more often been right-of-centre governments which have been effective. Education Secretary Michael Gove describes how Conservative education reforms are placing nature more centrally in the world view of future generations. Environment Secretary Owen Paterson asks us to consider Britain's dynamic relationship with the land, seeing both economic and environmental health rooted in our 'natural capital'.

The second misconception is that environmentalism means big government. Much centre-right disquiet over the environment rightly stems from the inefficiency of centralised approaches and their deadening effect on growth and innovation. Richard Sandor – described as ‘the father of financial futures’ – cautions government against being lulled by environmental taxation when regional governments are implementing ‘cap and trade’ solutions. He looks forward to the moment when such regional mechanisms are joined across national boundaries without the intervention of central government. Former World Bank President James Wolfensohn examines the flexible ‘grey-green’ infrastructure solutions which could address changing environmental and demographic patterns. He calls on the markets to extend payment- by-results financing methodologies towards such projects – unlocking their potential while keeping them off central-government balance sheets.

Kathryn Murdoch, director of the Resource 2012 conference and trustee of the Environmental Defense Fund, also seeks to devolve decision-making to the market. She provides a classic study on how self-regulation by fisherman is driving economic and environmental recovery where central quotas and subsidies created ruin on both counts – nothing short of Thatcherism on the high seas. And, in a radical intervention, the founder of Bloomberg New Energy Finance Michael Liebreich calls for clean energy to be liberated from centralised mandates and the distorting effect of subsidy. He argues that as the cost base of such energy declines the free market will allocate to it more efficiently than the government. Closing this section is a challenge from Sir James Dyson for the UK to nurture a generation of engineers who can take the place of politicians in innovating environmental solutions.

The third misconception is that environmental improvement is a cost to big business rather than a driver of better financial performance. Two of the UK's best-known corporate leaders – Sir Stuart Rose and Sir Ian Cheshire – outline environmental-change programmes which have left their businesses better performing, more resilient, and more trusted by consumers. Paul Polman of Unilever presents a global perspective, stating that business must aim to eliminate environmental and social costs if they are to thrive in the long run. Yet for all the liberalising zeal of their some of their co-writers, these businessmen caution government against leaving it all to the private sector – sharing the difficulty of bringing their own stakeholders into line with an agenda about which government appears ambivalent.

This sentiment is echoed in our last two contributions, which address the misconceptions that regional prosperity is hindered rather than improved by environmental measures; and that regional politicians would defer such responsibilities onto central government or local business. Two of America's most high-profile regional governors – former Mayor of New York Michael R. Bloomberg and former Governor of California Arnold Schwarzenegger – outline how they saw first-hand the entwining of their electorates' economic and environmental fortunes, calling on their conservative counterparts elsewhere to do the same.

Britain stands at a crucial juncture – politically, economically, and environmentally. If the Right does not stand up for its values and track record on the environment, the cost will be felt on all three counts.

Toby Guise  
Project Director, CEN





## Contents

### A. Conservatism and Conservation:

#### Should the Environment matter to Conservatives?

1. Free society is the best safeguard of the environment p.16  
– Roger Scruton  
*The self-correcting systems and institutions found in free societies provide better environmental safeguards than the centralising solutions of the Left.*
  
2. Doing the Right thing p.24  
– Geoffrey Lean  
*While the Left has made the most noise about the environment, the Right have done more to protect it in practice.*
  
3. Nature belongs at the heart of Education p.30  
– Michael Gove MP  
*Children should be brought into a closer understanding of the natural world both within and outside the classroom.*
  
4. Natural capital: Growing the economy, improving the environment p.34  
– Owen Paterson MP  
*Environmental stewardship and economic growth are not mutually exclusive – they are mutually dependent.*

## **B. Small state, big solutions: Can the free market be harnessed towards environmental growth?**

5. Sticky taxes can never beat market mechanisms p.42  
– Richard Sandor  
*While central governments are tempted to tax externalities, their regional counterparts are successfully implementing trading systems.*
  
6. Smart infrastructure needs smart finance p.48  
– James Wolfensohn  
*Smarter ‘gray-green’ infrastructure would be encouraged by introducing the payment-by-results methodology emerging in other areas of bond financing.*
  
7. Plenty more fish p.54  
– Kathryn Murdoch  
*Where government quotas almost destroyed fish stocks, self-regulation is seeing a rebound in their health – and profitability.*
  
8. Clean energy needs less regulation, not more p.58  
– Michael Liebreich  
*As clean energy becomes competitive in its own right, central mandates are stifling competition and holding back adoption.*
  
9. Believe in the drawing board p.64  
– Sir James Dyson  
*We must focus more strongly on inspiring a new generation of engineers to tackle our resource issues.*

**C. Resilience and results: Are shareholder value and consumer confidence linked to environmental impact?**

10. The five drivers of green growth p.72  
– Sir Stuart Rose  
*Corporate competition and a concerned public makes resource resilience a core focus for business leaders.*
11. Don't let business go it alone p.76  
– Sir Ian Cheshire  
*Radical change within companies is being hindered by inconsistent environmental messages from government.*
12. The transformational change imperative p.82  
– Paul Polman  
*Global businesses must develop responses to global challenges – seeking not only to mitigate but to reverse them.*

**D. Cities and regions: Can localities thrive without environmental security?**

13. Clean cities mean healthy growth p.90  
– Michael R. Bloomberg  
*Urban population growth will place unprecedented social and environmental pressures on cities, making these outcomes central to economic success.*
14. The four legs of a stable future p.94  
– Arnold Schwarzenegger  
*We cannot look forward in confidence without an equal focus on jobs, security, health and environment.*



Section A

# **Conservatism and Conservation**

*Should the Environment matter to Conservatives?*



## **Free society is the best safeguard of the environment**

*The self-correcting systems and institutions found in free societies are the best safeguards of the environment. By contrast, the centralising solutions of the Left are vindictive and damaging, writes **Roger Scruton***

The root idea of English conservatism is that politics is not about shaping a new society obedient to abstract principles and far-reaching goals. It is about conserving an inheritance and passing it on. This does not exclude room for improvement or reforms: but it does imply that these should serve the long-term obligation of trusteeship. That goal is central to environmentalism and is why environmentalists, if they are honest with themselves, ought in the end to be conservatives.

The protection of the British environment began through civic, not state, initiatives. Many of these were founded in the second half of the 19<sup>th</sup> century by followers of John Ruskin – himself as a proud Tory – with the purpose of both putting pressure on Parliament and educating people to look after natural assets regardless of political action. We should study these forerunners to understand how people are motivated towards urgently-needed action, and support those environmentalists who emphasize citizens' initiatives. Yet many 'greens' on the Left have only the vaguest knowledge of how such initiatives work; of what draws people to take part in them; or of how long they have been around.

Environmental solutions must respond to two drivers of environmental degradation. First is the disposition of human beings to

externalise the costs of their activities onto others, including future generations; second, the collapse of homeostatic systems, namely those which correct themselves in response to malfunctions. Their resolution lies in both ensuring that all actors internalise the costs of their activities, especially their economic activities; and in repairing, creating and – if necessary – imposing homeostatic systems in the place of those systems without feedback loops which have damaged the world.

In place of this, Left-environmentalists often simply blame the market for environmental costs and propose state-imposed controls as the solution. But a proper market, as Adam Smith and Hayek have defended it, is one in which each agent pursues the benefits and pays the costs of his own activity – including environmental costs. When equipped with features such as the laws of contract, occupier's liability and tort, the market is a perfect example of a homeostatic system.

The state in its normal manifestation is not a homeostatic system as it does not typically rectify its costs but passes them on – preferably to the unborn, in the Keynesian manner that we witness today. In business, the law of bankruptcy restores the business environment to equilibrium by punishing those who make foolish investments or seek to pass on their costs. This feature has been absent from European politics in particular as governments and big banks protect themselves from such costs by stealing the assets of future generations. European-wide politics has the additional danger of giving rise to regulations that are difficult to reverse. Environmentally-catastrophic regulations – such as requiring a qualified vet at every slaughterhouse or forcing producers and distributors of food to package their products at source – can never be removed by the process that created them. Such regulation is compartmentalised and not subject to discussion from outside the

relevant committees – and bureaucrats are rarely at risk of dismissal for getting things wrong.

Soviet Russia remains the best showcase in the modern world for the social and environmental costs of a non-homeostatic system. Yet the Left still remains reluctant to acknowledge the truth about Communism, a refusal which also infects its attitude to modern China. Environmental destruction proceeds there at a frightening pace as economic, social and political systems wrenched free of their old forms of homeostasis continue on a one-way path to catastrophe.

By contrast, environmental protection entered English law not by a top-down act of Parliament but by a judgement of the courts under common-law principle – homeostasis in action. The 1865 case of *Rylands v Fletcher* concerned a flooded reservoir and established that the one whose activity causes damage must compensate the victims, regardless of whether that damage was intentional. The same happened a century later when the Anglers Association used common-law principles to obtain a judgement against the major river polluters, namely local governments and nationalised power suppliers. We should be highly protective of those precious legal instruments that we already possess, which depend on principles of equity and natural law rather than the edicts of governments.

As such, the ‘tragedy of the commons’, as identified by Garrett Hardin, need not be the necessary result of rational beings competing for shared resources. Negotiated solutions are available and can perpetuate themselves over centuries – but only if those entitled to a resource are identifiable, answerable to each other, and able to protect their assets from predation. This has been shown with detailed examples by Elinor Ostrom but was already at the back of Burke’s mind when he evoked the

'little platoons' on which public spirit ultimately depends. Homeostasis is restored by accountability and accountability is a relationship between people who feel tied to each other; not just here and now but from generation to generation.

Knitting this all together is *oikophilia* – the love of home, which is a real motivation in all of us. It is particularly awakened when people become attached to their surroundings and to the customs that prevail there. Such attachment in turn motivates the 'little platoons' of Burke's vision, the revitalisation of which should surely be a major conservative cause in environmental politics. In this regard, over-regulation by the state is not simply a failed solution to environmental degradation: it is actually part of the problem. Here lies the real conflict between conservative and leftist policies. The ideology of the Left has become internationalist, repudiating national loyalties as atavistic and even dangerous survivals from a previous order. The Left-environmentalists are always looking to replace these with treaties, international committees and transnational regulators: in short, unaccountable bureaucracies with no attachment to the places over which they exert their power.

Treaties are advanced as the only solution to mega-problems such as climate change. Yet of the big polluters, only the United States would obey an emissions treaty. Doing so would not only cripple its economy but deprive it of the energy needed for scientific research into a new energy source, the discovery of which we are all praying for. The only safety for the world will come when this great advance takes place in America and is made available around the world – to China and India in particular.

Climate-change treaties use up the sparse treaty-making power of nations on a problem that no treaty can solve, and lead us away from those problems that could be solved. These include the over-use of packaging around the world, leading to the death by plastic of the oceans; the over-fishing of breeding grounds; and the destruction of biodiversity by pesticides. I suspect that the Left-environmentalist insistence on a global treaty has further negative motive – to punish America and those big businesses on which the American economy ultimately depends.

So what is the answer? Not vindictiveness but trusteeship; not unenforceable treaties but real examples of successful stewardship; and not an attack on markets but the use of markets to restore equilibrium.

*Roger Scruton is visiting professor of Philosophy at the University of Oxford*



## **Doing the Right thing**

*While left-of-centre parties have sought political capital from the environment, the Right has done more to protect it in practice, writes **Geoffrey Lean***

When George W. Bush first received the newly-elected Angela Merkel in the White House, he expected finally to find an ally in resisting action on climate change. Her right-wing government, he assumed, would be far less concerned about the environment than the preceding ‘red-green’ coalition. So he suggested that she could join him in ignoring the Kyoto Protocol.

‘Mr President, you are mistaken,’ retorted his guest, drawing herself up to her full five feet five inches. ‘I am one of those responsible for the protocol!’ In fact she was understating her role: the treaty would probably have been impossible without her. As her country’s environment minister, she stitched together an agreement that paved the way for it and then led the German delegation at the negotiations that approved it. And she went on in the following years to press for a further treaty – and harry the U.S. President over climate change – far more effectively than had her supposedly environmentalist predecessors.

Mr Bush had been misled by the increasingly common misconception that the environment is primarily a left-wing issue. In fact, despite the current rejection of ‘greenery’ by many of its leading figures, the Right has had the better record over the last decades. In more than 40 years of covering the environment I have found that, while

figures, the Right has had the better record over the last decades. In more than 40 years of covering the environment I have found that, while the Left may have made most of the noise, the Right has – on balance – made more of the progress.

Right-wing environmentalism's intellectual pedigree reaches all back to Edmund Burke, the so-called 'father of conservatism', as Michael Gove explains on page 30. It came most forcefully to prominence with Margaret Thatcher's campaign towards the end of her premiership for action to combat ozone depletion and climate change. But as good a place to start is with someone who may appear to the Left as an even more unlikely person – Richard Nixon.

Although many years after he left office he still described himself to a senior Republican friend of mine as 'an environmentalist', Nixon's environmental interest originated with pure politics. Impressed that voters in the 1968 election ranked the environment only behind the economy and the Vietnam War in importance – and expecting to face a green opponent in Ed Muskie at the 1972 Presidential Election – he constructed an edifice of institutions and legislation. This includes creating the Environmental Protection Agency (EPA), long the world's most powerful green regulator; as well as passing tough, pioneering acts to clean up air and water pollution, protect wildlife, and require government bodies to prepare 'environmental impact statements' for their plans.

Nixon moved a planned airport that would have endangered the Everglades and scrapped a controversial Florida canal that had been prioritised by the now semi-sanctified Democrat, John F. Kennedy. Abroad, his administration led drives that resulted in international measures to ban commercial whaling, regulate trade in endangered

species, and prevent the dumping of waste at sea – although his enthusiasm then waned as his presidency descended into deceit and disgrace.

Back in Britain, Ted Heath's Conservative Government created one of the world's first Environment Departments in 1970. In a somewhat Orwellian moment, he originally wanted to call it the 'Department for Life' – until somebody pointed out that that would make his pushy minister, Peter Walker, 'Secretary of State for Life'.

Under Labour in the 1970s, green issues effectively went into abeyance – only to come back forcefully when Mrs Thatcher came to power. Her ministers took measures to oppose whaling; bring in countryside laws; introduce agricultural support for conservation as well as production; and first reduce and then phase lead out of petrol. All that took place years before she became the first world leader vigorously to push for action on climate change. Despite very much later having what she might have called 'wobblies' over global warming, it is not entirely fanciful to imagine that – had she not fallen – the world might have had an effective climate treaty long ago.

In the United States, Ronald Reagan pledged to reduce environmental regulation when he succeeded an outspokenly but ineffectually green Jimmy Carter. But instead 'the Gipper' ended up signing 38 bills that preserved more than ten and a half million acres of wetlands, mountains, forests, and deserts as protected wildernesses. And his administration led the world in pressing for international action to save the ozone layer. The resulting Montreal Protocol, under which scores of ozone-damaging chemicals have been phased out, is the greatest-ever global environmental success story. And its most prominent cheerleader in Europe was none other than Mrs Thatcher.

Reagan's successor, the elder George Bush, campaigned as 'the environment President' and appointed as head of the EPA the leading green Republican William Reilly, who cleaned up toxic waste sites and introduced effective measures to reduce acid rain. He and Michael Howard – the then Environment Secretary – thrashed out the details of the original UN umbrella treaty on climate change so that Bush, despite opposition from sceptics in his administration, was able both to sign up to it and furthermore get Congressional support for its ratification.

In comparison, the Clinton administration achieved little. This is spite of expectations raised by Vice-President Al Gore whose tome, *Earth in the Balance*, had seemed to establish him as the world's leading green politician. Indeed, as one disappointment succeeded another, activists began asking: 'Has Al Gore read his own book?'. When Gore himself ran for president he actually underplayed his environmentalism, enabling Ralph Nader – running as a Green candidate – to deny him victory by taking enough votes to cause him to lose the crucial state of Florida.

By contrast David Cameron's early espousal of environmental issues led the 'detoxification' of his party, making it (almost) electable again. Green issues, which had fallen down the political agenda after a promising start in Tony Blair's first term, were pushed sharply up the it again. Indeed, the 'greenest' measures of the Labour's last years in power – such as the passing of the Climate Change Act and the introduction of feed-in tariffs to encourage renewable electricity generation – largely resulted from Tory pressure. The Conservatives initiated the chain of events that led to the Act – proposing their own measure before the Government did – and sought to toughen the Bill in parliament by introducing annual reduction targets. They were far ahead of Labour in espousing the feed-in-tariffs for renewable energy,

helping to force Ed Miliband to adopt them when he became Energy and Climate Change Secretary. Michael Fallon, the present energy minister, piloted through the Planning and Energy Act as a private members bill. This enables councils to make developers meet increased standards of energy efficiency and install microgeneration like solar panels on buildings – though ministers now seem set on repealing it.

But even Cameron was outshone by Arnold Schwarzenegger, Governor of California (and another co-contributor to this pamphlet). Environmentalists were initially horrified when the Hummer-loving Guvernator was elected. But he went on to introduce the world's toughest measures to combat climate change, going into battle against the gas-guzzler culture. He was just one of a clutch of Republican governors mobilising against global warming including George Pataki of New York, Mitt Romney of Massachusetts, and Florida's Charles Crist (affectionately known as 'chain-gang Charlie' for his early views on penal policy). Republican senator John McCain both led congressional bids to bring in climate laws and shamed Gore by making global warming a centrepiece of his presidential campaign.

Against this background, the present right-wing backlash on climate change and some other environmental issues appears as an aberration. Though it traces its intellectual origins in the United States back to Dan Quayle and the younger Bush, it has only taken over the Republican party since Barack Obama first took office – and has spread to Britain even more recently. It seems unlikely to last, since most conservatives still believe with Margaret Thatcher that 'no generation has a freehold on this earth. All we have is a life tenancy – with a full repairing lease'.

*Geoffrey Lean is Contributing Editor (Environment) at the Daily Telegraph.*



## **Nature belongs at the heart of school life**

*Both within and outside the classroom, reforms are bringing school children into a closer understanding of our relationship with the natural world, writes **The Right Honourable Michael Gove MP***

History, Edmund Burke wrote, is ‘a pact between the dead, the living and the yet unborn.’ Nowhere is this pact more important than in our relationship with nature.

Conservative governments have always sought to protect and enhance the natural environment – whether through Disraeli’s Public Health Act, which sought to limit the environmental impact of the industrial revolution; or Eden’s Clean Air Act, which helped lift the London smog. We shouldn’t forget it was Margaret Thatcher’s drive to cut sulphur emissions that stopped the acid rain which was damaging our woodlands and killing the fish in our lakes and rivers.

It’s not just a safe and secure environment we are obliged to bequeath our children – but a love of nature, an appreciation of natural history, and an awareness of how human behaviour affects the world around us.

Last autumn, I visited Holme Grange preparatory school in Berkshire. Holme Grange is a successful independent school with a difference – the ‘forest school’. Developed in Sweden in the 1950s, the forest school model sees children taught outside, in the woods, within nature. Rather than constantly sitting at their desks or in front of computer screens, children at Holme Grange are often outdoors. Nature isn’t an afterthought but an integral part of school life. The school’s

centrepiece is the ‘Teaching, Leadership and Communication Hub’ – a vast open air canopy which can accommodate classes of up to 40 pupils around a log fire. Children’s education is enhanced and enriched through their contact with the natural world.

It is inspiring to see – but the opportunity to be immersed in nature should not be restricted to children whose parents can afford to pay school fees. I want state schools across the country to look at Holme Grange and think: ‘How can we do that?’

That is why our reforms are putting nature back at the heart of school life. From September next year, maintained schools will be teaching a new national curriculum. Our abiding aim has been to help every child secure the knowledge they need to participate as 21<sup>st</sup> century citizens – and a crucial part of that is making sure children leave school with a thorough grasp of the fundamental natural processes that sustain life.

Whether in geography, biology or chemistry, we are ensuring children learn about – and experience – nature. Children should know the names of different plant and animal species; they should understand natural processes such as photosynthesis and reproduction; and they should know about how physical and human geography changes over time.

In science, we’ve ensured pupils will be taught to identify and describe the functions of different parts of flowering plants, such as roots, stems, trunks, leaves and flowers. They will explore what plants need in order to survive – air, water, light, nutrients and room to grow. They will look at the role flowers play in the life-cycle of plants; studying pollination, seed formation and seed dispersal. They will be taught how to use classification keys to help group, identify and name a variety of

living things in their local and wider environment, and they will understand how environments can change, sometimes posing dangers to nature.

The science of evolution and inheritance will be covered in detail. Pupils will learn how living things change over time, and what fossils can tell us about living things that once inhabited the Earth. They will be taught how animals and plants adapt to suit their environment and how that adaptation ensures survival and leads to evolution.

We don't just want children to learn about nature but to venture outdoors and see it for themselves. There will be opportunities at all ages for learning outside the classroom. Throughout the curriculum, teachers are encouraged to make use of their school's local environment.

Children will have the opportunity to observe plants and animals in their natural habitats from the very first year of school. They will be able to watch flowers and vegetables they themselves have planted grow; examine how habitats change through the year; and analyse life-cycle changes in the natural world around their school. They will be able to grow new plants from seeds, stem and root cuttings, tubers and bulbs. And they will be able to study changes in animals as they grow – for example, by hatching and rearing chicks – and compare how different animals develop.

In geography, there is a renewed focus on physical geography, including humans' impact on the world around us. Pupils will learn about how landscapes develop and change over time and the impact on nature of weather and climate. They will study the similarities, differences and links between places on opposite sides of the globe.

Schools will have to be much more ambitious in the way they use field trips. Children as young as 5 will start using fieldwork to study the

geography of their school, its grounds, and the surrounding environment. By the age of 11, children will have observed, measured, and recorded the human and physical features in the local area. They will be taught to use methods such as sketch maps, plans and graphs, as well as the latest digital technologies. At secondary school, pupils will use field work in different areas to collect, compare and contrast data to analyse different environments.

One way we all interact with the natural world is through the food we eat. The School Food Plan – brilliantly crafted by Henry Dimbleby and John Vincent – sets out not only how we need to improve the quality of food on children’s plates but also how we must ensure they understand where their food comes from. Drawing on the Plan, we are making sure that from September next year, all children up to the age of 14 will be taught how to cook. They will learn about where ingredients come from, how the seasons affect foods in different ways, and what constitutes a balanced diet.

All these changes – in science, geography and cooking – will help schools nurture happier, healthier children; in touch with, and closer to, the natural world around them. That way we are helping fulfil Burke’s pact – and, hopefully, leaving the natural world in safer hands.

*The Right Honourable Michael Gove MP is Secretary of State  
for Education*

## **Natural capital: growing the economy, improving the environment**

*We should reject the false choice between economic growth and environmental conservation, instead partnering with the public to act as confident stewards of nature, writes Rt Hon Owen Paterson MP.*

There is no doubt that our natural environment is under pressure. Populations of UK farmland birds have declined by 50 per cent and woodland birds by 17 per cent since the 1970s. Such declines are indeed related to habitat loss and increasingly intense human use of the countryside. That said, it's not all doom and gloom. While many species have declined, others have increased significantly in range or abundance over the last two to three decades. These include common and widespread species, as well as some formerly declining species that are conservation priorities.

Yet the choice that's often presented to us of growing the economy or protecting the environment is a false one. We cannot have sustained economic growth without a healthy natural environment; neither can we invest in nature from an ailing economy. Mrs Thatcher said, in a speech to the Royal Society in 1990, that 'We must enable all our economies to grow and develop because without growth you cannot generate the wealth required to pay for the protection of the environment.' I will never forget Albania under the disastrous rule of Enver Hoxha, when economic failure led to environmental failure. The brooks ran black with oil.

Edmund Burke wrote that we are ‘temporary possessors and life-renters’ of the earth who must not ‘leave to those who come after... a ruin instead of a habitation’. To fulfil this commission, we must acknowledge that the health of nature and of our economy are closely linked. The natural environment in Britain is overwhelmingly managed by man; improving it requires a partnership approach. There are severe limitations to any top-down approach to the natural environment, as Roger Scruton writes elsewhere in these pages. We must instead work with the grain of nature and society. We must harness the enthusiasm and expertise of the public, farmers and landowners. We need to nurture the rich seam of practical environmentalism running through our country.

In 2012, we set up the Natural Capital Committee, the first of its kind in the world. Natural capital refers to the environmental resource bases from which economically-important income streams are derived – such as food, water and energy. A natural capital approach therefore aligns long-term environmental and economic health.

The water industry is a prime example of economic investment as environmental investment. Since privatisation, £116 billion has been poured into the industry and several of our major rivers, which were once classified as sterile or biologically dead, are cleaner than they have been for decades. Otters have returned in every region of the UK, while salmon and trout are rebounding where they have not been seen for a generation. Upon my arrival at Northumbrian Water’s waste treatment site on Tyneside last year, one of the staff showed me a picture of a large salmon which he had caught only yards from where I stood, in what used to be one of England’s most polluted rivers.

The Water Bill will reform the water market still further – removing barriers to competition and leading to a water industry that is more efficient and resilient, with lower environmental impacts. Less leakage, pollution and unsustainable abstraction is not just good for the environment; it is good for business.

Like the water sector, the forestry sector demonstrates the marriage between environment and economy. Britain now has three times as much woodland as it did a century ago. Woodland cover in England reached a nadir of 5 per cent at the end of the First World War. Today, it stands at just over 10 per cent – similar to the level in Chaucer’s time. Government and the forestry sector working together could achieve 12 per cent woodland cover by 2060 – an increase equivalent to a county the size of Derbyshire. This growth will continue to be driven by industry initiatives such as Grown in Britain, which works to increase demand for British wood products and in turn provides an economic driver for well-managed woodland. Thanks to Grown in Britain, Heal’s is stocking a new range of British grown and manufactured ash furniture.

Another policy which has huge potential for improving natural capital is biodiversity offsetting. In a small and heavily-populated country, there will always be some trade-offs between development and the natural environment. It could be a housing development infringing on woodland or a new road crossing a wetland. Biodiversity offsetting is a measurable way of making good this residual damage to nature; it guarantees that there is no net loss to biodiversity and aims for an eventual net gain. Offsetting could create a market for farmers, landowners and environmental organisations to supply land compensation for residual damage to nature. This could provide new, long-term opportunities for investing in our habitats and biodiversity.

In the light of rural England's £33 billion a year tourism industry, which accounts for 14 per cent of employment and 10 per cent of businesses, the landscape itself must be viewed as natural capital. Yet some of our most iconic landscapes, including the Lake District and the Downs, are managed landscapes resulting from farming. The names of the barn owl, the harvest mouse, meadow pipit, corn bunting and hedge sparrow among others demonstrate the importance of the managed landscape to our natural history. As Aldo Leopold wrote, 'The hope for the future lies not in curbing the influence of human occupancy... but in creating a better understanding of the extent of that influence and a new ethic for its governance.' A growing population, increased pressure on land and changing farming practices should focus our minds on this approach.

Our countryside is something that needs constant management and intervention. It is after all human activity that has, across the centuries, removed many of the countryside's natural predators and introduced invasive non-native species. It would therefore be a dereliction of duty for us to shy away from continuing to manage wildlife populations. We must manage both landscapes and species.

Delivery of practical environmentalism must empower, encourage and utilise farmers, land managers and civil society; all of whom have knowledge and experience of where they live and work. These 'little platoons' are key to our ambition of leaving nature in a better condition than we inherited it. The contribution of the public to combating Ash Dieback was invaluable in identifying diseased trees and monitoring its spread. An innovative use of technology made this possible: the Chalara mobile app. The Observatree project extends this principal, making volunteers the first line of response to the reports of tree pest and disease sent in by the public; it creates an early-warning system for pest and

disease threats to the UK's trees. Thus people are mobilised for tasks once considered the preserve of specialists.

Farmers, landowners and participants in country sports already see themselves as stewards of the land they own or farm. Delivery of meaningful environmental benefits depends on partnership between government, local authorities, landowners and communities. This is especially the case when the majority of the land and gardens are in private hands. Many of the 12 Nature Improvement Area (NIA) partnerships are led by voluntary organisations, working across large, discrete areas to deliver benefits from flood protection to pollination services. Seven million pounds has been invested over three years to establish the 12 Areas – and for every pound invested, an additional £5.50 has been leveraged from private sources. The Nene Valley in Cambridgeshire once had a high rate of species extinction and low rates of land protection. The local NIA is turning this around and building strong local ties. It has raised an additional £1 million of investment, secured 3,300 days of volunteer time and added 1,500 hectares of farmland to Higher Level Stewardship schemes.

The countryside is not something that can be preserved in aspic nor would we wish it to be. It is something of which we are custodians. As a practical environmentalist, I believe that a prosperous economy is key to a healthy environment. We must not be afraid to intervene in the natural world, managing both landscapes and species. If we are to leave our habitats and ecosystems in a better condition than we found them, we must work with the grain of the countryside, in partnership with farmers, landowners and the public.

*The Right Honourable Owen Paterson MP is Secretary of State for Environment, Food and Rural Affairs*



Section B

# **Small state, big solutions**

*Can the free market be harnessed towards  
environmental growth?*



## **Sticky taxes can never beat environmental free markets**

*Market-based carbon-trading systems may appear unfashionable at central government level but a closer examination of both local governments and emerging economies reveals a different story, writes **Dr Richard Sandor***

Talk of a ‘carbon tax’ has again become fashionable in many world capitals. This has the appeal of raising revenue and providing a perceived solution to climate change, which may be behind massive natural disasters. Although this seems enticing, is a tax the best – or only – solution? Or are market-based instruments more effective tools to bring down environmental pollution in the long term?

The air and water pollution which can be addressed by these two differing approaches are commonly referred to as ‘externalities’. As these externalities’ have not been properly priced, the costs have historically been borne by society and not by those responsible. Early in the 20<sup>th</sup> Century, the Cambridge economist Arthur Pigou identified the problem of externalities and proposed using the taxes and fees to impose these prices. Those economists who advocate using this approach to the problem of carbon emissions are known as the Pigou Club.

However, British-born economist Ronald Coase – a Nobel-laureate in Economics at the University of Chicago – demonstrated that a better approach would be for the parties to reach an optimal solution through private negotiation. This became the theoretical basis for emissions trading, commonly known as ‘cap-and-trade’. Such an approach has

since become the economic mechanism and policy tool that achieves emissions reduction at least cost to society. It sets a cap on aggregate emissions in order to reduce harmful pollutants and their impacts, with each participant being assigned a fixed number of ‘allowances’ representing the right to emit a unit of the pollutant. A participant which reduces emissions below its allocated number of allowances can sell the extra excess reductions, and is incentivized to do so, to another participant. The latter can use them hedge their compliance needs – at a cost – until they can install new technologies to meet their reduction targets. In the meantime, systemic reduction have been achieved.

In contrast, ‘command and control’ policies give emitters no flexibility to meet reduction targets and no incentive to find new low-cost technologies and approaches to reduce pollution. They result in high costs for pollution abatement, while a properly-designed emissions trading system provides emitters with the flexibility to find the lowest-cost route to reductions. It generates direct financial incentives for new low-cost control technology and other solutions to reduce emissions, motivating private entrepreneurship towards these ends. For these reasons, such market-based solutions are superior to taxation.

Cap-and-trade effectively acts as a changing tax by allowing the price of carbon to react to supply and demand. This replaces the difficulty of setting a fixed tax – if set too low, it is most likely ineffective; if set too high, it could then result in inefficiencies. There is also no clear mapping from a tax to the exact amount of reductions that will occur. In cap and trade, however, we know the reductions because they are set *a priori*. It is much preferable for reductions to be set in advance and allow for price uncertainty than it is for uncertain reductions to follow price certainty.

Both taxes and subsidies are inherently ‘sticky’ – or unable to react sufficiently fast to changing markets – not least as legislators and regulators may find it difficult to adjust the level of tax when conditions have changed. During the Korean War, for example, the U.S. government subsidized the production of alpaca wool to allow American soldiers to have warmer coats. It may not surprise you to know that the alpaca subsidies of 1952 were not taken off the books until 1995!

The implementation of a large-scale cap-and-trade system was first tested in the United States and is still to this day one of the most successful examples of a cap-and-trade system in the world. The US Environmental Protection Agency (EPA) Acid Rain program – enabled by the Clean Air Act Amendments of 1990 – facilitated the reduction of sulphur-dioxide (SO<sub>2</sub>) emissions by well over 66%, at a fraction of the forecasted cost. An external study using EPA data estimated a 40-to-1 benefit to cost ratio for this programme.<sup>2</sup> In 2010 alone, healthcare costs were reduced by \$123 billion at a cost of between one and three billion dollars – also saving between 30,000 and 40,000 lives. Despite its success, the SO<sub>2</sub> program in the US has now become a victim of the Federal Government’s inability to agree on consistent policies, and trading has come to a virtual halt. Furthermore, a Bill to establish a Federal cap-and-trade system for greenhouse gases came to a silent death in the Senate in 2010.

Yet at a State level – and contrary to public perception – cap and trade is alive and well. Since 2009, 10 states on the East Coast of the USA have participated in the Regional Greenhouse Gas Initiative (RGGI) with a goal of reducing power plant emissions by 10% from 2009 levels by 2018. And California – a state which is often a national trend setter in innovation – began a cap-and-trade program in 2012. The program is

---

<sup>2</sup> Lauraine G. Chestnut and David M. Mills, “A Fresh Look at the Benefits and Cost of the US Acid Rain Program,” *Journal of Environmental Management*, Vol. 77, Issue 3 (November 2005), 252-266.

performing well and providing a much needed price-signal function to the rest of the country. Open interest in California Carbon Allowance Futures – the measure of the breadth of the market – at the Intercontinental Exchange in New York is now larger than for established commodities markets such as oats and lumber. On October 1, 2013, California and the Government of Québec announced the completion of an agreement that harmonizes and integrates the California and Québécois cap-and-trade programs. The State is also working closely with other western U.S. states and Canadian provinces. It appears that cap-and-trade policies in the United States are going to emerge ‘bottom-up’ from the State level, like seat belt laws before them. It could be argued that the further away you go from Washington, DC, the more innovation flourishes!

Europe has been historically less inclined to use a market-based approach. Yet a multinational system for EU carbon trading begun in 2005 and has now become the world’s largest carbon market. The EU has now reduced carbon emissions by 17% against its 2012 mandated target of 8%. Numerous articles in the popular press overlook this incredible accomplishment and erroneously herald the failure of the European Union Emissions Trading System (ETS), citing low prices.

Countries such as Mexico and Korea have already passed enabling legislation for emissions trading while Brazil, India and China are also pursuing ‘cap and trade’. China is piloting a total of seven different cap-and-trade programs, which will cover around 7% of the country’s total emissions (roughly equivalent to the total emitted by Germany each year). This critical development will have a tremendous impact in any ongoing discussions on the future of emissions trading as a policy tool. It is no surprise that recently California and China have signed a memorandum of understanding to explore ways of linking the two

programs. In assessing the future of cap-and-trade, we may be better served by observing Sacramento and Beijing rather than Washington, DC and Brussels.

Markets in emissions and ‘rights-to-use’ have already solved environmental problems and created enormous investment opportunities. They achieved this by commoditizing an externality and then letting the market price it. The same concept could also be applied to water quality and quantity issues. Pricing should create incentives to develop infrastructure, generate water conservation (the equivalent of energy efficiency in carbon markets), and foster innovation.

Markets have been successful from an environmental standpoint. Their price signals have had very positive impacts on economic growth, allowing industry, entrepreneurs and innovators address externalities and plan investments. Institution building and the development of human capital are also better accomplished when a market is well-functioning. Although it is good that we are again debating putting a price on carbon, this author believes that in the real world a well-designed and regulated emissions market can perform much better than taxes.

*Richard L. Sandor is CEO of Environmental Financial Products and a Lecturer in Law and Economics at the University of Chicago Law School*



## **Smart infrastructure needs smart finance**

*Smarter infrastructure solutions would be encouraged by introducing the payment-by-results methodology emerging in other areas of bond financing, writes **James Wolfensohn***

Innovation and infrastructure are two words which are not associated often enough. Yet our global environmental and economic futures may depend on just such a meeting. The twin challenges of urbanization and climate change have significant implications for the role infrastructure has to play in human wellbeing, both in terms of mitigating climate events and increasing resource resilience.

Both developing and developed economies require hundreds of billions of dollars worth of infrastructure investment to maintain global stability and adapt to warmer and more volatile weather. The growth of cities in particular both places stress on existing infrastructure and demands the rolling out of new projects. Coastal resilience, water availability, water quality and storm-water management are the toughest challenges. Even well-designed and maintained systems were not built to anticipate this century's 'new normal' for climate and weather volatility.

One example is the California water system, which was designed in the 1950s and 1960s to capture water based on historic weather patterns and distribute it to Los Angeles and surrounding areas. Yet precipitation patterns in recent years have diverged from the historic norm with the advent of less frequent and more intense rains. These frequently

overwhelm the current system, allowing much fresh water to flow straight back out to sea. Natural engineers are now beginning to update this antiquated infrastructure. One innovation is to use naturally-occurring formations such as geological sound aquifers to capture water during large rain events, storing it for low-availability moments. Such enhancements increase efficiency for public authorities, improve ecological land usage, and present an investment opportunity for private capital. Such solutions embrace the full 'value chain' and potential of water systems.

A second example is to revalue upstream watersheds not simply as land but as natural capital, with the income from this capital being fresh water. Organizations can now invest in the intact ecosystems which provide fresh water flows, as well as enhancing these flows by incentivizing farmers reduce the run-off from nutrients such as fertilizers. The result is to save local businesses and water utilities the cost of investment in new or upgraded facilities, with something of that saving being passed onto the investors in upstream watersheds. This crystallizes the current and future benefit of preserving such watersheds into current value. Organizations such as The Nature Conservancy and Rare are examining such solutions with a focus on Latin America; while a similar programme has been in successful operation in the Catskills Mountains of upstate New York since the early 1990s. In 2007, the Environmental Protection Agency confirmed this naturally-filtered water was clean enough for the City to avoid spending \$8bn on a new water treatment plant.

A third, larger-scale example of a water solution which draws on the natural environment is the building out of coastal resilience in New York City. The large, complex and heavily-populated Jamaica Bay area was hard hit by super-storm Sandy and has become a focus of attention for

mitigating damage from future storms using ‘grey-green’ flood-defense solutions. The restoration of sand dunes and the development of oyster reefs and mussel towers offshore both serve to mitigate storm surges. Natural solutions for storm-water management in urban neighborhoods will take the form of green central street reservations or vacant lots transformed into community gardens.

In all three examples, a mix of public and private investment is best positioned to deliver these integrated ‘green and gray’ solutions. Some reforms to planning and financing structures may be necessary to facilitate such outcomes rather than the rollout of more conventional infrastructure, which will be subject to the same limitations as what has gone before. Indeed, projects which are almost always funded by public resources for a public purposes should take into account the better payback for naturally-orientated, distributed solutions.

So what barriers stand in the way? Custom, inertia, and greater convenience for incumbent providers – including the fact that it is easier to model traditional solutions – all help account for resistance. Most of the infrastructure value chain is decided by small groups of government actors, using private engineering and construction firms geared towards centralized solutions. The expertise of the engineering industry itself tends to be backward-looking, and can often trump more forward-looking voices in the decision making process. To these we may add a lack of incentive for cost savings and cost avoidances; a lack of clear success metrics; a ‘tragedy of the commons’ approach which causes different jurisdictions to converge on the lowest common denominator; and the short-termism inherent to electoral and political decision-making.

The challenge is to break this cycle when it comes to infrastructure planning and implementation. There are three reasons why I believe ‘green-gray’ infrastructure will increasingly replace old ‘gray’ solutions.

First, they are often cheaper than their conventional counterparts. In the case of Philadelphia, a conventional ‘gray’ solution to its storm-water management challenges under the US Clean Water Act was anticipated to cost more than \$6 billion. But an integrated ‘green and gray’ approach is estimated by regulators to cost only \$1.8 billion – \$1.3 billion in distributed green solutions and the rest in pipes, tunnels and other conventional hardware.

Second, they pay social as well as environmental dividends. Instead of disturbing urban neighborhoods and landscapes – or disrupting rural livelihoods and communities – green infrastructure enhances such communities. The benefits in terms of biodiversity, aesthetics, physical health and mental wellbeing can be enormous. Such dividends can be measured in terms of reduced emissions, improved air quality, greater biodiversity and the creation of recreational space.

Third, natural systems are inherently more resilient than the purely built environment. Solutions designed by engineers tend to meet the goals envisioned by scientists and engineers at the time of their building, whereas natural systems adapt to the changing environment better – and at lower cost – than their centralized counterparts.

Two innovations in other areas of public financing show the possibilities of recognizing and monetizing value from such longer-term outcomes. These are International Finance Faculty for Immunization (IFFM) bonds and Social Impact Bonds (SIBs). IFFM bonds accelerate cash to promising health solutions by securitizing future payments for disease prevention and bringing those cash flows into the present. Social

Impact Bonds meanwhile introduce a pay-for-success methodology to the delivery of social services, attracting private investment to the delivery of social interventions. As these are primarily preventative – for instance in reduction of re-offending rates among ex-prisoners – the savings from such prevention can be used to fund returns for investors.

This principle of borrowing from the future to spend on preventative solutions should be extended from these social outcomes to smarter infrastructure. Introducing a ‘pay-for-success’ relationship to infrastructure investment would encourage governments to take into account cost-savings not just as modeled, but on a performance basis. It could furthermore provide surplus payments to solutions which provide defined and measurable co-benefits, such as those listed above. This particularly applies to coastal resilience; water availability and water quality; and storm-water management. For these innovations to take root, the public sector must evolve and innovate new methods to select and pay for infrastructure projects.

*James Wolfensohn is Chairman and CEO of Wolfensohn Fund Management and former Chairman of the World Bank.*



## Plenty more fish

*Restrictive regulation and lavish subsidies did not stop the decimation of fish stocks, writes **Kathryn Murdoch**. But a radical policy change has cut costs, increased profits and seen stocks rebound.*

The abundance of fish was repeatedly remarked upon in accounts of early settlers of America. There were complaints that the fish were so thick it made crossing the rivers difficult and one settler bragged that a single haul from the Chesapeake Bay would have fed his community for a year – if only they had enough salt to preserve it. How things have changed. This famous abundance collapsed from sea to shining sea – starting with the Cod in the North East in 1992, and within a decade reaching the Red Snapper in the Gulf of Mexico and Salmon in California.

This story isn't new. Aristotle first observed: 'For that which is common to the greatest number has the least care bestowed upon it. Everyone thinks chiefly of his own, hardly at all of the common interest'. Later termed the 'Tragedy of the Commons' it has played out all too often – and in particular in commonly-held fishing waters worldwide. The global mismanagement of fish stocks is today estimated by the World Bank to cost around \$50 billion a year.

What is new, however, is that we are starting to figure out how to solve commons issues. The clue is in the name. Under the old system, many well-intentioned but ultimately naïve regulations and policies worsened the problem by using a centralised command-and-control method that acted 'in the common good'. Banning certain gear and

seasons was first imposed by Philip IV of France in 1289 and continues to the present – only encouraging fishermen to fish as hard and as fast as they can during those specified times. Increasing restrictions simply increased desperation without helping fish recover. Accidents went up, fishermen barely made a living, and fish stocks continued to plummet.

Many countries then piled on subsidies to make up for the failing economics, creating a vicious cycle where governments paid for the destruction of dwindling fish stocks. In 2009, thirteen member states under the EU Common Fisheries Policy gave out subsidies that actually exceeded the value of the catch, while 87% of Mediterranean fish stocks were over exploited in the same year. The fishermen themselves fared no better. The fleet operated at a 1.5% economic loss and 4.6% in real terms with the subsidies stripped out. In other words, a road to economic and environmental disaster was being paved by EU taxpayer finance. This scenario played out around the world to varying degrees.

In the US, the situation became so bad that regulators were convinced to try something new. This approach was rights-based management that scientifically sets a total allowable catch for a fishery and then distributes a percentage to fishermen or communities. Shares can be bought or sold and grow in value as a fishery recovers. This makes it in the owners' financial interest to help stocks to recover. Hence, they become more innovative with their timing and techniques, vastly decreasing the unwanted fish thrown back dead (bycatch) and improving the quality, and therefore the value, of the fish they do catch. This approach, called 'catch shares' in the US, allows fishermen to fish when and where it suits them, greatly improving their quality of life and ending the 'race for fish' that encourages waste and dangerous practices. The fact that these shares can also be passed down to their children gives them another tangible value for their stewardship of the fishery.

So what are the results of this radical change? Through the catch shares system in the Gulf, fishermen are incentivized to use more efficient gear and techniques, resulting not only in a 50% decrease in bycatch but a whopping 70% increase in snapper quotas and a 33% increase in earnings. This is not a one-off result. A study of US and Canadian catch shares showed an average revenue increase of 68% and a three-fold increase in safety. Compliance was nearly perfect because fishermen could see how the system helped them.

As fisheries become self-sustaining, subsidies become unnecessary and eventually government involvement declines. If the remaining 45% of fish in the US not caught under a catch share program were brought under this management, it would take a billion dollars off the national deficit. A survey of 11,000 fisheries worldwide found that there was one common characteristic of those that were healthy: some form of rights-based management. These range from centuries-old traditional area-based systems, such as ‘TURF’s in Chile to highly tailored, multi-stakeholder individual fishing quotas in Denmark or California.

So why aren’t these management policies the norm worldwide? They require three things to function well: accurate data, good design and open minds from stakeholders. With large amounts of human and intellectual capital being poured into the first two, the main barrier may now be the last.

The EU Parliament and EU Council has recently taken two big steps along a path to a more hopeful future – eliminating some subsidies and laying the foundation for rights-based approaches to advance. Yet it is the ideological discomfort that some environmental groups and politicians have with market-based systems that has caused resistance thus far.

This opens up a huge opportunity for conservatives to lead in an area that has only recently been ceded in its entirety to the Left. These are proven solutions, they are consistent with conservative values, and the results are tangible enough to land on voter's plates as well as lightening their tax burden.

Believers in a limited role for the government should not be advocating for a free-for-all when it comes to managing natural resources. History and experience tells us that this will fail. What the failures and successes of fisheries management tell us is that more regulation is not the answer, smart management is. This means listening to scientists and using markets. It means understanding that people need to be allowed to make a living and that government intervention should have an exit plan.

It's time for conservatives to harness changing demographics rather than being steamrolled by them. A good way to start is by listening to the people who work the land and the water, in the understanding that our fortunes are tied to smart management of natural resources. It is time to reclaim the mantle of environmental protection. Citizens of all stripes will support programs that bring clean air, clean water, secure food systems, healthier populations and secure jobs. The lessons we've learned from starting to solve the fisheries crisis can be applied to other environmental commons problems. It's time to turn tragedy into triumph.

*Kathryn Murdoch is visiting fellow at the University of Oxford and a trustee of the Environmental Defense Fund*

## Clean energy needs less regulation, not more

*Clean energy technologies are reaching a tipping point where they are competitive with incumbent fossil fuel solutions. However, statist regulatory approaches which mandate their use and stifle competition are holding back adoption, says **Michael Liebreich**.*

In most sunny parts of the world it is cheaper to generate power from photovoltaic modules on your roof than to buy it from your utility. The best newly-built wind farms are selling power at the equivalent of 3p/KWh before subsidies, which neither gas, nor coal, nor nuclear power can match. LED light bulbs can be bought for a few pounds, providing home-owners a quick and cheap way of cutting their utility bills.

The fact is that wind and solar have joined a long list of clean energy technologies – geothermal power, waste-to-energy, solar hot water, hydro-power, sugar-cane based ethanol, combined heat and power, and all sorts of energy efficiency – which can be fully competitive with fossil fuels in the right circumstances. What is even more important is that the cost reductions that have led to this point are set to continue inexorably, far out into the future.

For the past ten years, my team at Bloomberg New Energy Finance has been documenting ‘experience curves’ for clean energy technologies: the rate at which their costs drop for each doubling of cumulative installations. We have had privileged access to data from clients, many of whom are manufacturers and project developers. What this data tells us is that all clean energy technologies, without exception, benefit from

strong experience curves. Where Moore's law has given us dirt-cheap electronics and phones, Liebreich's law is going to give us abundant, cheap clean energy.

Meanwhile, over the past decade, the world has been waking up to the true cost of fossil fuels. It's not just the half-a-trillion dollars a year or more of direct subsidies to fossil fuel consumers. What is becoming increasingly clear is that further hundreds of billions of dollars in energy costs are borne not by the fossil fuel industry or directly by energy consumers but by the general public. These so-called externality costs include medical costs of air pollution, negative economic impacts resulting from commodity price spikes and the cost of defending our energy supply chains. They pop up in our medical bills, our unemployment figures, and our defence budgets. And that is before bringing the environment or climate change into the equation; or the heightened geopolitical risk caused by dependence on some of the world's most volatile countries; or the corrosive effect on our political life caused by fossil fuel stakeholders fighting to preserve the status quo.

So we have ever-cheaper renewable energy versus increasingly obvious costs and down-sides to fossil fuels. Are there any game changers on the horizon? Shale gas has certainly been an astonishing success story in the US and looks promising in the UK, Poland, Mexico and China. Gas has a lower carbon footprint than coal, and domestic production offers significant economic and geopolitical benefits over imported resources. But there are economic caveats, aside from any environmental concerns. The US natural gas price has already more than doubled from its historic lows in 2012 to over \$4.00/MMBtu; operators will need a long-term price of around \$5.00/MMBtu to justify continuing to drill, frack and build pipelines. And that is in a country where conditions are ideal. Elsewhere in the world, it is hard to see shale gas

coming to market much below \$8/MMBtu, around the same as the wholesale prices which have been driving up European utility bills so sharply over the past few years.

Before the Fukushima accident in 2011 there was much talk of a nuclear renaissance, and some countries remain committed to building new plants. However, the UK experience is instructive: the government had to offer a power price of £92.50/MWh, adjusted for inflation over 35 years, to get new nuclear power stations built. Nuclear power works and it is low-carbon – but it's not cheap and most likely never again will be.

The bottom line is that there are no silver bullets on the horizon. The electricity system of the future will be based on a mix of super-efficient appliances, renewable energy, natural gas and nuclear power. Our cars will either have to be vastly more fuel-efficient or else they will be electric.

We will, of course, have to learn how to manage the intermittency of renewable energy. That means improving resource forecasting and interconnecting the power grid over larger areas to smooth out the variability of individual renewable energy assets. It means power storage, currently mainly in the form of pumped hydroelectric power but in future most likely in the form of batteries for electric vehicles. But the killer app is a digitally-controlled smart grid, which will provide the ability to shift demand to match supply in ways either imperceptible to the consumer or else remunerated by the energy provider.

This energy system of the future is not a pipe dream. Worldwide, over a quarter of a trillion dollars a year is being invested annually in renewable energy, energy efficiency and supporting technologies. Germany derives over 25 per cent of its electricity from renewable energy. Texas, synonymous with the oil and gas industry, generated

nearly ten per cent of its electricity from wind last year. China is the world's largest player, with around half of its new power capacity over the next 20 years expected to be renewable, rather than coal, gas or nuclear.

The problem for the political right is that this epochal shift to clean energy has completely wrong-footed it. For too long it has allowed the left to claim ownership of the environment, despite its own achievements in the area (as described elsewhere in this booklet by Geoff Lean). For the left, being pro-environment and anti-business are one and the same: its approach to environmental protection is based mainly on controlling or blocking enterprise. The mistake of the right has been implicitly to accept that protecting our environment is in opposition to achieving a prosperous and free society.

In particular, the right has allowed the left to make all the running on clean energy. Feed-in tariffs are nothing less than state price controls. Renewable energy targets are indistinguishable from Soviet five year plans. Over-regulation and complex planning requirements add costs, slow down projects, reduce transparency and increase risk. Green Investment Banks are the very embodiment of state capital allocation. Capacity payments and carbon price floors are evidence of failure in the design of markets. Don't get me started on price caps.

We have seen the results of these approaches. Germany may have reached over 25% renewable electricity, but at what excessive cost to its household energy users? Spain reached 42%, but its retro-active policy U-turns have left its entire economy all but uninvestable. Around the world the energy industry – fossil fuels as well as clean energy – is in the grip of a pandemic of rent-seeking, subsidy-farming, inefficiency, misallocation of resources, and the inevitable picking of losers.

The big mistake of the right has been to leave unchallenged the assumption that leftist tools are the only ones available to manage the transition to clean energy, instead of coming up with good conservative solutions – ones which have improved services, lower costs, competition, wealth creation, pricing in of externalities, personal responsibility and freedom at their heart.

Wind power in Brazil is among the lowest cost sources of electricity in the world. Why? First, a reverse auction system forces providers to compete on cost. Second, Brazil has a grid which, if superimposed on Europe, would allow a Portuguese wind farm to sell its electricity to a client in Moscow. In Europe, a Portuguese power producer can't even sell its electricity in France. Meanwhile the EU is trying to impose more top-down renewable energy targets on member countries rather than focusing on creating a single market for energy and related services.

When it comes to energy, the right has to regain its reforming mojo. It has retreated into corporatism – hunkering down with its corporate funders and resisting change instead of taking up the cudgels on behalf of the individual, the consumer, and then reaping the electoral benefits.

Where is the self-confidence with which it transformed the world's other major industries? Time and again we were told that telecoms, airlines, steel, cars, mainframe computers, yoghurt – or whatever – were natural monopolies and strategic industries which had to be protected from competition; and that only central planning could provide stable outcomes. In short, that leftist, statist solutions were the only ones available. Luckily Thatcher, Reagan and their successors rejected that narrative and the results are history.

The time has come to apply this sort of rigour to the energy sector. Where is the Easyjet of clean energy, or the Virgin Atlantic? Where is the

Vodafone, the Safaricom? Where are the new services, the new providers? The answer is they don't exist because policy is being written with the state and industry incumbents in mind, using mainly the tools of the left. Only by releasing a maelstrom of entrepreneurial and competitive activity will the world be able to build a high-performing clean energy system without driving costs to unacceptable levels. And only by leading the process will the right find its natural voice on energy and the environment.

*Michael Liebreich is founder and CEO of Bloomberg New Energy Finance*

## **Believe in the drawing board**

*With only the majority of post-graduate engineering students at UK universities now born outside the EU, we must focus more strongly on inspiring a new generation of engineers to tackle our resource issues, writes **Sir James Dyson***

It is engineers, not politicians who will save the planet – and not by peddling greenwash but by putting their faith in long-term research and development of new and better technology. Being environmentally conscious is not about accepting second best but allowing us to do more with less. That is precisely what engineers do – develop solutions that use fewer resources while improving performance by approaching problems from new angles. We should invest ambitiously towards that goal, setting them a challenging brief and creating an environment which encourages them to find the answers.

The world faces some sickeningly big problems, including ageing populations and growing pressure on energy, food and water. But leaps in material science offer exciting potential to improve lives and tackle our greatest challenges. Dyson is working with over a dozen British universities to develop and commercialise new materials like graphene – which is being developed by Andre Geim in Manchester – and carbon nanotubes in Cambridge. These individual technologies are more durable and efficient than existing materials and will drive a wave of development of tangible technologies.

But it is not just new technologies on which we must rely for a better future. We must also improve what we have and draw on the

ingenious mind of engineers to reduce our demand on the world's resources. It is possible without accepting compromises. There is even a point to be made on the seemingly mundane point of drying your hands. Traditional hand dryers are useless. They rely on energy-hungry heating elements which are slow and inefficient. You could tweak around the edges and only attain a marginal improvement. But by going back to the drawing board and starting from scratch, Dyson engineers improved energy efficiency by 80% while ensuring that the machine actually dries your hands in the process. The need for wasteful paper towels or even heated air has been eliminated. The technology saves on the pocket as well as the environment – you can dry eighteen pairs of hand for the cost of a single, non-recyclable paper towel. When you consider that the average public washroom uses 200 paper towels per day – given most people use two at a time – that's quite an impact.

This advance was only possible because of our digital motors, which are some of the smallest and most efficient motors in the world; spinning at over 110,000rpm. They are a result of 15 years of toil and over £150 million worth of investment. But the graft was worth it as the motors are now present in much of our technology, making them all more efficient.

This is a small example, yet the impact grows as the scale of our problems grows. Rolls-Royce is another inventive British company, with a team of engineers working to improve their technology. Heat-resistant blades allow the jet engine to run at a higher temperature – improving combustion and reducing fuel consumption. Given that Rolls-Royce engines power half of all aircraft flying today, this will make a big impact.

Both people and governments need intelligent technology that does the job well if we are to tackle the problems we face. The good news is that Britain has a rich history of problem-solving. Isambard Kingdom

Brunel knew how to think big. He built twenty-five railway lines; over a hundred bridges, including five suspension bridges; eight pier and dock systems; three ships; and a pre-fabricated army field hospital. This was thinking never known before. If we channel our greatest minds into our biggest challenges, we can once again have technology on the Victorian scale.

Nationally-significant projects that are bold and ambitious are inspiring. Advancements in nuclear fission, tidal power, geo-thermal energy and hydrogen-powered cars have great spill over effects. They not only improve our country and create jobs but also inspire a generation of young people. There is no better way to encourage young people to go into careers in engineering and science than the promise of solving major problems.

I'm a believer in putting great faith in young engineering minds which remain unsullied by past experience. They think big and are undaunted by scale. Importantly, they don't think that we have already found the right way of doing something but look instead for new ways. They have a new perspective and will find ingenious solutions. Sam Etherington, who is 24, won my foundation's engineering award last year with a highly efficient wave power generator. Conventional wave-power converters only use the backward and forward motion of waves. But Sam's invention – inspired by his passion for windsurfing – is a multi-axis wave power converter which harnesses movement from all directions. It can more than double efficiency yet it is a relatively simple idea. It is an iterative improvement on an existing technology and Sam is making real progress towards commercialising his technology.

But even this will be a slow process. There are few shortcuts. It is long-term investment in research and development which leads to

breakthroughs. And for that, we need engineers. The problems cannot be solved if we don't have the engineers to take the helm. We need more skilled workers in the UK, especially engineers and scientists who can solve the problems of the day.

Postgraduate engineering needs a re-vamp, given that the majority of post-graduate engineering students at British universities are from outside the European Union. This makes it difficult for them to stay here when they finish their studies. Many may end up taking the technology they have developed in the UK back home and into the hands of our competitors.

We should encourage and excite the younger generations, letting them witness what the UK can achieve when we set our sights high. Rather than set restrictive targets for manufacturers, the Government should set a broad brief and let the engineers do the rest. This demands the creation of an environment which encourages research and development and long term gains from technology. By challenging engineers to think big, we will soon see equally big problems being solved.

*Sir James Dyson is the founder of Dyson Ltd and the James Dyson Foundation, which aims to encourage the next generation of design engineers*





## Section C

# **Resilience and Results**

*Are shareholder value and consumer confidence linked  
to environmental impact?*



## The five drivers of green growth

*The demands of corporate and national competitiveness allied to an increasingly well-informed public places resilience centre stage for business leaders and policy makers, writes **Sir Stuart Rose***

Growing global consumption will require 50% more energy, 50% more food and 30% more water in less than 20 years. Alone, each of these challenges is huge. Yet what is missed by many policy makers – and what will define the future – is how they are interrelated. The need for sharp thinking and long-term, consistent policy has never been greater.

In January 2007, Marks and Spencer launched its own corporate-wide resilience plan, which we named Plan A – believing there was no ‘Plan B’ – and eventually ran to 180 specific commitments on both environmental and social issues. And the Plan A programme responded not only to moral imperatives but also to business ones. This was proven when the company started reporting financial dividends from the programme running into hundreds of millions of pounds. Seven years on, the imperative for business and government to take a lead on ‘green growth’ is growing, as is the role of the right enabling policy framework.

There are five reasons why sustainability must be central to the business and policy outlook in the UK.

First, the above data allied with evidence of a growing crisis if the issue is not addressed create something of a perfect storm. The public is increasingly aware that both corporate and political credibility are now

rooted in adequate responses on resource over-consumption. Science investment in central. The UK has always ‘punched above its weight’ on R&D and must remain a world leader on both sustainability – in food, energy and material science – and understanding the risks of climate change and biodiversity loss.

Second, trust has moved centre stage in the public’s relationship with both government and business following the recent advent of recession. Regaining trust is a primary challenge for corporate and political leaders. The good news is that trust in UK business has stabilised after an initial fall caused by the financial crisis. The bad news is that it is fragile and easily lost. The horsemeat scandal and continuing dreadful factory accidents only serve to remind us of the need to engage properly with complex global supply chains.

Transparency and trust can now be added to the traditional drivers of corporate reputation, namely product quality and financial returns. This is a dramatic shift but one which is here to stay. Sustainability in particular is no longer an optional extra for consumers – it is increasingly a given, and not one for which they are not willing to pay a premium. As such, it is no different from food safety. Consumers will not now pay more for a product because it claims to avoid exploiting people or natural resources – any more than they will pay more for a product that claims to be safe. Business leaders should forget the pursuit of a so-called ‘green premium’, as sustainability is now the baseline for retaining the trust and confidence of your customers and thereby remaining a viable business.

The most important thing any leader can do is to listen to their customers and voters, then act on the signals they receive. The signal we are getting today is that people want a more sustainable and equitable future – yet they place the responsibility on business leaders and

politicians to deliver that without compromising their needs today. It is a tough ask but that's what leadership is about.

Third is the case surrounding business and competitiveness. When Plan A was started, we expected to invest £40m per year in its delivery. Last year, it delivered £135m of net benefit to M&S shareholders from the company having slashed its energy use and waste production. The message is clear. Those companies – and by extension countries – that can 'close the loop' on their use of energy and raw materials, including deriving value from what was once considered waste, will be the ones that prosper in the future.

So-called 'eco taxes' are much debated part of this picture and have met with resistance. Yet knee-jerk reactions miss the core premise of such interventions: to shift the burden of taxation from solely wealth-generating activities to those which create waste and undermine our natural resource base. Doing so is not simply a punitive net cost: it should also alleviate the tax burden on profitable but efficient businesses.

Fourth is the opportunity around innovation. Some of the technologies we need to become much more sustainable now exist at least in the laboratory, and there is a global race to turn this Intellectual Property into multi-billion pound markets. Where once the UK and EU led, there is now a risk that the developing world – particularly China, India and Brazil – is overtaking us. Perhaps this is driven by greater immediate need as these country witness first-hand the impact of inflation in food and energy costs, the impact of extreme weather, and regular air and water pollution. But the long-term results will be the same for all of us. Even so, the developing world may alleviate these outcomes globally by developing the circular resource technologies and business models which will dominate the 21<sup>st</sup> Century economy.

We might feel better off today in the West but real leadership is about spotting the ‘shift’. A perceived position of environmental and social competence in the UK today could instead create complacency, which will allow others to redefine and capture a new approach to economic growth.

Fifth is the new generation of business leaders who are already driving change. Although nationally we may risk falling behind – and missing out on significant growth – we still have national and EU champions which are dramatically influencing their business sectors; including not only M&S but Unilever, BMW, GlaxoSmithKline, BT, SAB Miller, and Philips.

As much as we should celebrate and learn from such leadership, an economy is not built on the actions of a few. In the midst of enormous economic pressure, the same pressures that shape the tough Government decisions are driving fundamental shifts in business. Such shifts are aimed not simply at incremental improvements in business operations. They are aimed at making a fundamental shift towards circular business models which deliver improvements to all stakeholders from customer to supplier to investor. Policy makers must sit down with these business leaders and ask the questions of how such changes can become systemic.

Being a politician or a business leader has never been more demanding. But it has also never been more important to make long-term decisions about balancing the demands of economic growth, society and the environment. Doing so will secure not only a better quality of life but the UK’s future economic prosperity.

*Sir Stuart Rose is former Chairman and CEO of Marks & Spencer PLC*

## **Don't make business go it alone**

*For all the ambitious sustainability improvements that are possible at a corporate level, such efforts will still be undermined by inconsistent statements from the Government, writes **Sir Ian Cheshire***

Leadership is about doing what is necessary not just what is easy. Running a FTSE 100 group during a time of unprecedented global economic instability has brought this truth home to me. The recent turbulence has brought into sharp focus the need to take tough decisions not only to address immediate issues but for longer term benefit.

It is always tempting for both business leaders and politicians to find reasons not to take hard decisions, especially when faced with such a multitude of economic challenges. But leadership brings responsibility. In my case, this is to several million weekly customers; 80,000 colleagues; thousands of supplier; and those who invest their faith and their funds in our £11bn business. No matter how all-consuming current conditions appear, the future wellbeing of these parties is what really counts.

Central to making good on our commitment to all of these stakeholders is our 'Net Positive' programme. This is focused not only making our business sustainable but – as the name suggests – making it environmentally and socially restorative. And such goals are not mutually-exclusive with profitability: on the contrary, the two ends are mutually-reliant. Financial success is dependent on thinking beyond business as usual and recognising that our actions have direct

consequences for society and the planet. The goal of Net Positive is not only to eliminate the environmental impact of Kingfisher's operations but for these to have a *positive* environmental and social dividend by 2050. We aim to reach a tipping point towards this outcome in the late 2020s or early 2030s.

The programme is centred on four pillars.

The first is timber, for which growing demand is likely to increase prices by up to 75% during the rest of this decade and lead to a global shortfall of up to 30%<sup>3</sup>. With wood found in a third of our home-improvement products, this is a situation we cannot afford to ignore. Our goal by 2020 is for all wood products in the group to be certified from sustainable sources – a goal already reached by B&Q in 2011 – and for Kingfisher to create more new forest than it uses. These strategic plans are estimated to drive final savings of between £45 million and £60 million by 2020 alone.

The second is energy, for which global demand is expected to increase by up to 50% by 2035.<sup>4</sup> This pressure will help drive the growth of a €70bn market for in-home energy efficiency by 2020 which, as Europe's largest home-improvement retailer, we are well placed to serve.<sup>5</sup> We have set an interim target of 38 Terawatts of energy to be saved across our customer base by 2020 – equal to the annual energy consumption of 2.3 million British homes, or the entire domestic usage of Scotland.

Over the same period, we aim to reduce energy intensity across our own estate by 45%. But, as with timber, the real goal is to become Net Positive – providing the opportunity for the homes of all Kingfisher

---

<sup>3</sup> Boston Consulting Group for Kingfisher PLC, 2011.

<sup>4</sup> U.S. Energy Information Administration, 2010.

<sup>5</sup> BCG Report, 2011

customers to become not only zero-carbon energy users but also generators of such power by 2050. While these goals may seem ambitious, we have established that in 2011 alone our customers saved 2.5 Terawatts of power. And across our own properties we have already achieved a 21% reduction in energy use – exceeding our initial target by a huge 11%.

The third is innovation. A company such as ours has considerable influence via its massive supply chains. We are using that influence to help our suppliers switch to ‘closed-loop’ manufacturing systems, which eliminate waste and seek instead to reclaim and re-use raw materials. As with energy and timber, there is a huge financial driver: without a closed-loop approach, the cost of solid waste management globally is expected almost to double to \$375bn by 2025.<sup>6</sup> Yet factoring in both waste reduction and reduced need for new raw materials, closed loop processes offer costs savings estimated at \$630bn across Europe for the same period.<sup>7</sup> Kingfisher aims to stock 1000 closed-loop products by 2020, stimulating innovation and company growth via its supply chain. An early success is Clean Spirit, which costs the same as White Spirit but generates no toxic by-product.

The fourth and final pillar is communities. Here we are focusing on transferring skills to individuals and local communities which will enable them get better and longer-lasting value from their built environment. Half of respondents to a recent survey by the Royal Society of Arts (RSA) and B&Q said they lacked the confidence to complete DIY jobs. Yet we believe that making and mending has an important role to play in personal wellbeing and community cohesion. We therefore aim to establish 4000 community projects by 2020 which will enable people

---

<sup>6</sup> World Bank Report, 2010

<sup>7</sup> Ellen McArthur Foundation, 2012

themselves to achieve 'Better Homes, Better Lives'. By now, it won't surprise you to hear that a business incentive is not far off: the RSA has also conducted research which shows that customers spend double when they know a business is committed to a positive impact in the local community. By 2050, we aim for every Kingfisher store to be a local hub for such activity.

These are four planks of our transformation to a Net Positive business. Investors are regularly appraised of their progress and the economic and risk mitigation benefits to the business. But the fact that companies alone can push through such ambitious and realistic plans is no excuse for government to wash its hands of this agenda. There are limits to what business can do without the Government making a consistent case to support these goals, in difficult times as well as good.

Indeed, inconsistent rhetoric has lately sent mixed signals which served to drain time, money and effort from these efforts – unsettling investors and threatening to destabilise green-growth opportunities.

The intense focus on energy policy is a case in point. There has recently been talk of diluting the UK's carbon-budget commitments; a prospective decarbonisation target has been kicked into the long-grass; and renewable energy projects have been shelved while existing subsidies continue to incentivise fossil fuels. The primary policy intended to help the fuel poor and incentivise home energy efficiency has been placed at risk of redirection.

This backdrop of national uncertainty does not help us convince shareholders to support multi-million pound investment decisions into these areas. Similarly, how can we ask our customer to support and take responsibility for energy reduction, if they are lead to believe a solution

is simply to switch between a handful of energy suppliers? Or indeed that it is within the Government's gift to freeze energy prices?

Knee-jerk policy changes that artificially hold household energy bills down are not sustainable. There are no quick and cost-free fixes to reduce energy costs. Instead, we need long-term downward pressure that reduces both energy demand and wastage. That means improving the energy efficiency of the UK's housing stock, with priority being given to protecting the most vulnerable. We are highly sensitive to the balancing of environmental benefits with costs to householders, as we constantly seek ways to reduce costs and improve the benefits to our own customers. We have therefore backed efforts to ensure that government schemes – such as the Energy Company Obligation (ECO) – are delivered as cost-effectively as possible. We recently launched an energy-saving business in the UK both to help homeowners protect themselves from rising energy bill and to help reduce domestic carbon emissions, a quarter of the UK's total.

Both business and government – as well as NGOs and the media – must re-engage in an authentic conversation on resource-intensity. Energy is a good starting point but it should also cover the development of long-term solutions for a much wider range of issues and resource constraints.

*Sir Ian Cheshire is Chief Executive of Kingfisher PLC*



## The transformational change imperative

*Business and government must work together to promote transformational change, writes **Paul Polman***

At Unilever, we believe we cannot thrive as a business in a world which risks breaching environmental limits: the human cost of climate change, for example, was powerfully brought home to us by images of Typhoon Haiyan and its victims in the Philippines. Neither can we thrive in a world where too many people are still excluded or marginalised from global economic activity; where one billion go to bed hungry every night, 2.8 billion are short of water and 2.5 billion lack access to basic sanitation.

We are convinced that businesses which address both the direct concerns of citizens and the needs of one planet we all share will prosper over the long term. We need to build new business models that enable responsible and equitable growth, decoupling this from environmental impact. This thinking lies at the heart of our Sustainable Living Plan and our Compass vision of doubling the size of the business whilst reducing our environmental footprint *and* increasing our positive social impact.

To achieve these outcomes, we have set clear goals to halve the environmental footprint of our products; to help more than one billion people take action to improve their health and well-being; to source 100% of our agricultural raw materials sustainably; and to enhance the livelihoods of people across our value chain.

We wish to grow in line with our purpose to make sustainable living commonplace. The lens of sustainable living is helping us to drive brands that have strong purpose in people's lives, to reduce costs and take waste out of the system, and to drive innovation that will make a positive difference to the environmental and social challenges facing us all. The Plan pushes us to think ahead, reducing risk and making the business more resilient for the long term. And as the thinking becomes embedded in our business, there is increasing evidence that it is accelerating our growth in ways that contribute to positive change in people's lives.

Brands that put sustainable living at the heart of their proposition are achieving strong growth – Lifebuoy soap recently delivered another year of double-digit growth while scaling up its handwashing campaigns. Investment in a new palm oil processing factory in Indonesia, working with partners and other initiatives, are all helping us to make progress towards our new commitment to 100% certified sustainable palm oil, which is traceable back to the plantations on which it is grown. We are also helping to improve the livelihoods of farmers while guaranteeing future supplies, and we will increasingly place a special focus on women, due to the multiplier effect we know that women have in developing societies.

But the truth is that while businesses like Unilever can and are re-orientating their business models to enable them to grow sustainably, there are limits to how much we can do on our own. The big social and environmental problems that the world faces today are too complex and inter-connected for any one government or any one company – however large or powerful – to tackle alone.

Even if we exceed every sustainability target we set ourselves, if no one follows us, we will have failed by meeting the target but not solving the overall problem. Deforestation is a good example. We are on track to meet our target of 100% sustainable agricultural commodities by 2020 yet, despite our size, we know that if we want to ensure zero net deforestation we have to work with others to transform the entire consumer goods industry. This will have profound implications both for the sector and for forested nations like Brazil and Indonesia.

Elsewhere in our value chain, big system breakthroughs will be needed to meet some of our targets, such as halving the greenhouse gas impact of our products across their lifecycle. Much of that impact takes place when people use our products to cook, clean or wash. But helping people to use less hot water and energy when washing, showering and doing the laundry is challenging. We continue to experiment with ways to tackle this, such as developing detergents which perform well in shorter, cooler wash cycles. But we know that we do not control the big levers that will drive the development of high-efficiency appliances and decarbonised energy grids. These are necessary not just to meet our targets but to increase energy security and reduce both emissions and energy costs to consumers. To get to scale we also need to tackle the things that are locking us into the status quo – perverse incentives, lack of consumer information, and high fixed costs for infrastructure change.

This makes the role of government crucial, both in the UK and further afield. In developing markets, business can be a critical enabler of inclusive economic growth and job creation, both key to poverty reduction. For the private sector to grow and generate employment, government needs to put in place a series of enablers: well-functioning public institutions, good governance and rule of law, and access to

financial services; as well as transport, water, energy and healthcare infrastructure.

Governments in the emerging markets will also be fundamental in tackling some of our big environmental challenges. For example, an enduring solution to deforestation will only come about if India and China – which import more than half the world’s output of commodities like soy, palm and beef – demand certain minimum sustainability standards. Unilever is a member of the Tropical Forest Alliance, which can encourage the US and other governments to raise questions of this kind with policymakers in China and elsewhere. If the Chinese government was to insist upon certain basic criteria for the products which the country imports it would, overnight, transform the markets for soy and palm oil.

In developed markets, businesses like Unilever see an active, enabling and incentivising role for government in setting the policy framework that will guide the transition to a low-carbon and resource-efficient economy. We recognise the role of policy and legislation in driving innovation, although crave both policy certainty and clear signals that aren’t undermined by calls to water down our ambition from those who believe that sustainability and growth are mutually exclusive. We need government’s support in shaping a longer term, more ethical and equitable capitalism through the implementation of many of the recommendations set out by economist John Kay, in his review of equity markets and long-term decision making.

We also see a critical role for government in the cross-sector collaborations needed to tackle systemic challenges. New forms of collaborative governance such as public-private partnerships offer some of the best routes to reaching tipping points in our societal responses to

these challenges, whether deforestation, lack of clean water and sanitation, or food insecurity and under-nutrition.

At Unilever we believe that incremental improvement is no longer enough. We have to work together – business, government, investors and civil society – to shift entire systems onto more sustainable paths.

*Paul Polman is Chief Executive of Unilever PLC. The above article does not imply support for a UK political party.*



Section D

# **Cities and Regions**

*Can localities thrive without environmental security?*



## Clean cities mean healthy growth

*The experience of New York in the past seven years shows that the environmental, economic and social imperatives of regions are closely entwined, says **Michael R. Bloomberg***

We are living in a golden age of cities. For the first time in history, the majority of the world's people are city-dwellers and by the middle of this century, it is expected that three-quarters of humanity will live in cities. That's a great thing when you consider the extent to which cities are drivers of technological innovation, commerce, and culture. They provide those willing to work hard with economic opportunity and a chance at a better life. They can foster tolerance and understanding between people of different backgrounds. And more than ever, cities are the places where great ideas find the talent and capital they need to become reality and improve lives.

But the growth of Twenty-First century cities also presents challenges. How do we ensure that growing cities provide enough good jobs for an increasing population? How do we make growing cities liveable, clean and safe; and ensure a high quality of life within them? Of critical importance is how we ensure that the cities, which today account for about 70% of the world's greenhouse gas emissions, help us confront the challenges of climate change and not worsen them.

All of these challenges are intertwined – yet smart, strong environmental policies can help us address all of them. The good news is that while national governments often wring their hands about the

serious environmental challenges our world faces, cities are taking real action to reduce emissions and become more resilient – and in doing so, are improving their economic prospects as well.

I'm happy to say that New York City has been a leader in that work. In 2007, our Administration launched *PlaNYC* – a long-term plan to deliver a more sustainable New York. It put into motion the most ambitious environmental agenda in any city, yet one which would also strengthen our economy and prepare the city for a million additional residents. And just as we weren't shy about borrowing the best ideas from around the world in developing *PlaNYC*, the plan's successes now offers valuable lessons in sustainable growth for other cities as well.

First, green is good for growth. At *PlaNYC*'s heart was a goal of reducing the city's greenhouse gas emissions by 30% by 2030 – and in just six years, the city has already advanced more than halfway towards that goal. Along the way we've made the city's air cleaner than it has been in 50 years – in large part by reducing pollution from buildings – which has helped to increase life expectancy by nearly three years since 2001. That is twice the national increase. We planted more than 800,000 new trees around the City, and added more than 870 acres of parks – bringing a half-million more New Yorkers within a ten-minute walk of a park or playground. We took steps to reduce traffic congestion and encourage cleaner transportation options – adding bus rapid transit routes, pedestrian plazas that provided new outdoor places to relax, and nearly 500 miles of bike lanes.

These initiatives made New York a leader in urban sustainability – but they also helped drive economic growth. In neighborhoods around the city, innovative new parks and green spaces – like the High Line and Brooklyn Bridge Park – have brought new life and new development,

unleashed billions of dollars private investment, and created good jobs for New Yorkers. Planting hundreds of thousands of trees not only helped clean our air and made our neighborhoods more attractive but had a compelling economic justification. Studies show that tree-lined streets drive property values about 7% higher. The pedestrian plazas we built in key city thoroughfares not only reduced traffic congestion and air pollution – they also increased the value of storefront businesses and brought customers to stores.

I've often said that capital follows talent, not the other way around. Clean air, beautiful parks, less traffic congestion, and more transportation options attract talented people and private investment – and that's reflected in New York's record-high population and record-high number of private sector jobs. We're not the only example: other cities that have invested in sustainability have had similar success – including London, where traffic-reduction and green streetscape initiatives inspired much of New York's work over the last dozen years.

Second, government doesn't have all the answers. Especially in thriving commercial hubs like New York, public-private partnerships have enormous potential to help cities become more sustainable and resilient. For example, New York City teamed with private partners to provide low-interest loans to building owners for energy-saving retrofits – a win-win arrangement that has enabled thousands of building owners to cover costs they otherwise couldn't and then begin saving money on energy. Power-purchasing agreements with solar utilities brought solar-generating capacity to city-owned property at no upfront capital cost – helping us increase solar generation across the city twenty-fold since 2007 and setting the stage for more solar growth in the future. Public-private partnerships have been a major force behind many of the city's most innovative and popular new parks – and another public-private

partnership, Citi Bike, brought New York the nation's largest bike-sharing program at no cost to taxpayers.

Third, when it comes to environmental policy, government shouldn't just issue mandates – it should lead by example. In New York, we set an ambitious goal of reducing City government's carbon footprint 30% by 2017 – then challenged partners in the private sector to match our commitment. A group of leading corporations, hospitals and universities stepped up to the challenge, and we worked with them to help reach reduction targets. The city provided a platform for sharing best practices and tools for energy management – and is helping those companies save over \$100 million in energy costs every year while adding to our continued reductions in carbon emissions. I'm glad to say that one of those participating is the company I founded, Bloomberg L.P. The company set a goal of reducing its worldwide carbon footprint by 50% – and reached that goal two years ahead of target.

It should be no surprise these private-sector partners were eager to join New York in raising the sustainability bar. Smart environmental policy is good for growth – that's true for both businesses and cities. By sharing the best sustainability ideas, cities around the world are doing a lot to protect the planet we share – and build a future full of opportunity.

*Michael R. Bloomberg is the former Mayor of New York City*

## How to build a stable future

Sub-national governments have a big role to play in creating a stable future where the demands of the economy, people and the environment are balanced and mutually supporting, writes **Arnold Schwarzenegger**

Our economy is unstable because the goal of economic growth alone is too narrow. A one-legged stool will never balance. A four legged stool, by contrast, is strong. So what are these four legs?

The first is jobs, an essential component of any successful society. The second leg is national security. For decades, industrialized democracies have been in the terrible position of having to purchase oil from foreign countries, sending vast amounts of money outside their borders. A more sustainable energy future would end this dependence and give us energy freedom. The third leg is health. Pollution kills – one study by Cornell University concluded that a staggering 40 percent of deaths worldwide are caused by water, air and soil pollution. Yet why is there no uproar at this avoidable loss of life? Because we are failing to communicate the true causes. And the fourth leg is climate change. Here too communication is key. You can have the best project in the world but if you don't promote and market it the right way, no one will buy it.

The Regions20 – [www.r20.org](http://www.r20.org) – was set up to address all four legs of the stool. It is differentiated from other organizations by being a coalition made up of regional governments, finance, business, NGOs,

academia and clean-technology developers to allow integrated planning for more resilient economies around the world. In particular, the R20 helps regions take advantage of new technologies to strengthen local economies, improve public health, create new jobs, lower emissions, and reduce their energy consumption.

Early in my political career, I recognized that real action can and does take place at the state and local level. And California in particular has proved to be a showcase of what is possible on a regional level – particularly on energy efficiency, where the State leads the rest of the US by 40%. I was fortunate as Governor to continue this tradition by implementing several groundbreaking efforts. The Global Warming Solutions Act of 2006 was created to not only put a cap on greenhouse gas emissions but to promote renewable energy development, alternative transportation fuels, and even carbon trading. All of these directly served to boost the economy and create thousands of new jobs. Another major action was the signing of an Executive Order to improve the availability of both hydrogen fuelling stations and products that use hydrogen. The Hydrogen Highway plan was developed by collaborating with more than 200 stakeholders from energy, automotive and technology companies; environmental organizations; and local, state and federal government agencies. The result is a network of hydrogen fuelling stations all over the state and people driving clean, hydrogen-powered cars with no emissions but a little water vapour.

In 2006, I signed the Million Solar Roofs bill into law. This law was implemented to help California achieve the goals of building one million solar installations on rooftops in ten years and of making solar power a mainstream energy resource over the coming decade. And it worked. The response from California residents and businesses meant that the installed cost of rooftop solar panels is now half what it was when we

started. New products and competition among installers led to lower prices as the market took off.

Another action of which I am still proud of is the development of a Low Carbon Fuel Standard. The policy calls for a reduction of at least 10 percent in the carbon intensity of California's transportation fuels by 2020. This approach has now been copied by several other states and President Obama has considered it for the whole country.

Through such initiatives, I was able to see first-hand that by bringing together diverse stakeholders we have the ability to transform our economy and reduce carbon. I saw how states and regions were rolling up their sleeves rather than waiting for action at the national level. Talking to other governors and premiers, the United Nations, clean technology developers, financial institutions and NGOs, it was agreed that a new global organization was needed to accelerate this action.

The resulting R20 organization is not just another NGO or network of regions. It is a coalition of influential forces to show that climate change and green economic development can be tackled at the sub national level. In particular, the R20 introduces regional governments to available low-carbon technologies and connects them to the right companies. We also focus on finance alongside technology, opening a tremendous opportunity for foundations, philanthropists, impact investors and others to join an unprecedented group of partners. In a sense, the R20 is a matchmaker – we bring investment capital or grant funding and connect these institutions to those willing government and technology partners that can successfully implement low-carbon projects. This approach could be the catalyst for real change. The availability of large-scale finance to low carbon projects will improve the

global economy, lower emissions, and provide a lot of new jobs. The government members of the R20 in particular are eager for investment in order to facilitate a variety of projects such as renewable-energy production; boiler efficiency upgrades; waste-to-energy projects; and the replacement of old street lights with efficient LEDs, to name but a few.

I have seen these things happen in California and believe that, aided in part by the R20, they will become increasingly common throughout the world. We hope that through the intermediation of the R20, governments will no longer have to walk away from important projects because they don't have the financing or don't know enough about the technologies. We thereby hope that the R20 will deliver opportunities for investors to make a profound long-term difference to building a more stable future.

*Arnold Schwarzenegger is former Governor of the State of California*

## About the Contributors

### *Section A*

**Roger Scruton** is visiting professor of Philosophy at the University of Oxford and a visiting professor at University of St Andrews. He is also a senior fellow at the Ethics and Public Policy Center in Washington.

**Geoffrey Lean** is Contributing Editor (Environment) at The Daily Telegraph. He is Britain's longest-serving environmental correspondent, having pioneered reporting on the subject almost 40 years ago.

**Michael Gove** is Conservative MP for Surrey Heath and Secretary of State for Education.

**Owen Paterson** is Conservative MP for North Shropshire and Secretary of State for Environment, Food and Rural Affairs.

### *Section B*

**Dr. Richard L. Sandor** Richard L. Sandor is CEO of Environmental Financial Products, a Lecturer in Law and Economics at the University of Chicago Law School, and a Visiting Fellow at the University of Oxford's Smith School. He is recognised as the 'father of financial futures', coined the term 'derivative' and was named by the French government as a Chevalier de La Legion d'Honneur in 2013.

**James Wolfensohn** served as President of the World Bank between 1995 and 2005 and has also served as President of the International Finance Corporation (IFC). He is currently chairman and CEO of Wolfensohn Fund management and Chairman of the International Advisory Board of Citigroup, Inc.

**Kathryn Murdoch** is the former Director of ReSource 2012 and Visiting Fellow at the University of Oxford. She is a trustee of the Environmental Defense Fund and co-chairs its Oceans and Communications Committees.

**Michael Liebreich** is Chief Executive of Bloomberg New Energy Finance, the leading provider of research for decision-makers in the clean energy, water, carbon and power markets. He is also a member of the UN Secretary General's High Level Advisory Group on Sustainable Energy, the World Economic Forum's Global Agenda Council on the New Energy Architecture, and Accenture's Global Energy Board.

**Sir James Dyson** is the founder of Dyson Ltd and the James Dyson Foundation, which aims to encourage the next generation of design engineers. [www.jamesdysonfoundation.co.uk](http://www.jamesdysonfoundation.co.uk)

### *Section C*

**Sir Stuart Rose** was Chief Executive of Marks & Spencer PLC between 2004 and 2010, having previously been CEO of Argos PLC, Arcadia Group PLC and Booker PLC. He is now a non-executive director of Land Securities plc and on the European Advisory Board of Bridgepoint.

**Sir Ian Cheshire** is Group Chief Executive of Kingfisher PLC, Europe's largest home improvement retailer including B&Q, ScrewFix, and Castorama. He is the Senior Independent Director of Whitbread PLC, lead Non-Executive Member on the Department for Work and Pensions Board, and a member of the Corporate Leaders Group on Climate Change.

**Paul Polman** is CEO of Unilever PLC, having previously held senior positions at Proctor & Gamble and Nestle. He is Chairman-elect of the World Business Council for Sustainable Development and a member of the International Business Council of the World Economic Forum.

#### *Section D*

**Michael R. Bloomberg** was the Mayor of the City of New York between 2002 and 2014. He is the founder of Bloomberg LP and Bloomberg Philanthropies, which distributed \$370m in 2012 across its four areas of public health, environment, government innovation, and the arts.

**Arnold Schwarzenegger** was the 38th governor of California between 2003 to 2010. He made California a world leader on renewable energy and combating climate change with the Global Warming Solutions Act of 2006, set a revolutionary political reform agenda, and became the first governor in decades to invest in rebuilding California's critical infrastructure with his Strategic Growth Plan.



# CONSERVATIVE ENVIRONMENT NETWORK

## About the Conservative Environment Network

The Conservative Environment Network unifies political conservatives with a preference for decentralized, market-friendly solutions to environmental and resource challenges. These include waste, energy, water, food production, infrastructure, and nature conservation. By identifying growth-orientated solutions in these areas, the Conservative Environment Network aims to reframe the environmental debate for right-of-centre political parties both in the UK and internationally.

## People

The Steering Committee is chaired by **Ben Goldsmith**, founder of specialist sustainability investor WHEB, and includes two UK government ministers (**Greg Barker MP** and **Nick Hurd MP**), two further British MPs (**Laura Sandys MP** and **Zac Goldsmith MP**). They are joined by **Benet Northcote**, CSR Head at John Lewis Partnership; **Adrian Gahan**, former Conservative Energy Advisor; and **Will Young** of Bloomberg New Energy Finance.

Editorial content is managed by **Toby Guise**, an environmental communications consultant and writer.

[www.cen.uk.com](http://www.cen.uk.com)

With contributors including  
Michael Gove MP, Roger Scruton, James Wolfensohn,  
Kathryn Murdoch, Sir James Dyson, Sir Stuart Rose,  
Sir Ian Cheshire, Paul Polman, Michael R. Bloomberg  
and Arnold Schwarzenegger

---

Edited by Ben Goldsmith and Toby Guise



[www.cen.uk.com](http://www.cen.uk.com)