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Blueprint for a Green Economy

Submission to the Shadow Cabinet

Quality of Life Policy Group
Chairman, Rt Hon John Gummer MP
Vice-Chairman, Zac Goldsmith
September 2007

Contents

Preface		3
About the Quality of Life Policy Group		5
Chapter 1	Introduction: A Confident Society	7
Chapter 2	The Wellbeing of a Nation	39
Chapter 3	The Built Environment	59
Chapter 4	Rural Life; Food and Farming; Fishing and the Marine Environment	135
Chapter 5	Water: The First Essential	215
Chapter 6	Waste: Towards a Zero Waste Economy	253
Chapter 7	Energy: Low Carbon and Credible	271
Chapter 8	Transport: Connectivity	307
Chapter 9	The Imperative of Climate Change	359
Appendices		449
Glossary of Terms and Abbreviations		537
Bibliography		541

Preface

The Quality of Life Policy Group was set up by David Cameron to recommend policies to the Shadow Cabinet. What follows are our recommendations for consideration by the Conservative frontbench, the Conservative Party more widely, and the large number of people outside who are looking for solutions that break away from current political restrictions.

It is not for us to define Conservative policy but what we have proposed here sits firmly in the Tory tradition. Since its inception the Conservative Party has recognised that, if it is to uphold its continuing principles in a changing world, those principles have to be applied in a contemporary way so that they are relevant to a new generation.

The remit of the Group was to consider holistically the issues of the built environment; rural life; food, farming, fishing and the marine environment; transport; energy; waste; and water.

All these are fundamentally affected by two significant concerns: Climate change and social unease. Climate change is the most significant material threat to our future, while the degree to which our society has become dysfunctional, inhibits our ability to succeed as a nation.

We cannot go on as we are, ignoring the effects of the world's misuse of its resources while, at the same time, pretending that we have a society at ease with itself. The Policy Group has become convinced that radical change is essential. More of the same is not an option. What follows provides the basis for that necessary change.

It is only the beginning. There is much more to be done to refine and extend the proposals which we offer. They are fundamentally Conservative proposals, even though we have drawn on the help and expertise of people of all parties and none. They rely on the strength and power of the market even though they reflect values that reach above and beyond it. They recognise the imperative of prosperity but acknowledge that growth is unsustainable without social justice. They concentrate on a programme for Britain but present that programme in the context of Europe and the wider world.

This Report is fundamentally optimistic. In the face of the threat from climate change, we believe that Britain is capable of again rising to the challenge of leadership. We shall not be able to do it alone but, without us, it will be difficult for it to be done at all.

However, our optimism is tempered by a realisation of the size of the task and the shortness of the time. Action and urgency are its recurrent themes. Britain has delayed too long. It deserves a government with the clarity of vision and the strength of purpose to act and to act decisively. We present these proposals for action in the hope and belief that the next Conservative government will provide the leadership and the delivery that our nation has lacked for a decade.

About the Quality of Life Policy Group

The Chairman of the Board of the Policy Group was Rt. Hon John Gummer MP and the Vice-Chairman was Zac Goldsmith. The other members were:

Jules Peck (Director); Tim Eggar; Nick Hurd MP; Ali Miraj; Steven Norris; Benet Northcote; Tom Oliver; David Strong; Kay Twitchen; Kim Wilkie.

Their declaration of interests may be found on our website www.qualityoflifechallenge.com.

Members of the secretariat to the Policy Group were:

Susan Davies; Clare Devereux; Clare Kerr; Michael Lunn; Nat Mason; Tara Singh; Nikki Talbot; Harriet Williams.

Members of the Board chaired a whole series of study groups over nearly two years. They brought together as members, advisers or witnesses, hundreds of people from all over the country, drawn from a wide range of backgrounds and political affiliations.

We would like to thank all the individuals and organisations who generously gave their time to participate in this review, and to extend and enrich our understanding, especially members of the various policy working groups. While these groups were an important part of the consultative process, the final Report is necessarily a synthesis and none of the participants can be held accountable for all, or part, of it. That remains the responsibility of the Chairman and Vice-Chairman. We would like to reiterate that participation in the working groups of the Quality of Life Policy Group does not imply affiliation to the Conservative Party.

A full list of acknowledgments can be found on our website: www.qualityoflifechallenge.com.

Chapter 1. Introduction: A Confident Society

Contents

Section 1.1. A Confident Society 8

Section 1.2. Conservatives – Redefining Progress 15

Section 1.3. The Journey 26

Section 1.1. A Confident Society

'The great Error of our Nature is not to know where to stop; not to be satisfied with any reasonable Acquirement; not to compound with our Condition; but to lose all we have gained by an insatiable Pursuit after more.'

Edmund Burke, 1757

'Modern compassionate Conservatism means recognising that there's more to human life than getting and spending money.'

David Cameron, 2005

1.1.1. The case for change

Two centuries of industrialisation and economic growth have brought humanity huge material progress, from which Britain has benefited enormously. The post-war period, in particular, has been one of unprecedented prosperity. We have better homes, jobs, cars, education, and health care than ever before. We go on holidays to places our grandparents could only dream of. We have more money and more things to buy with it, than ever before in our history.

Yet, despite that material progress, the UK seems to be experiencing a 'social recession.' Social cohesion is under increasing strain. Levels of trust, in each other and in our institutions, are dwindling. Rates of mental illness, drug abuse, 'binge-drinking', family break-up, and other symptoms of an unhappy society are rising inexorably. That is not to say that things were better in the 'good old days' but simply that material prosperity has not made us a contented society.

Meanwhile, the damaging impact of our economic growth on the environment is increasingly obvious. Most urgently, global climate change tells us that our reliance on fossil fuels must be brought swiftly to an end. But climate change is only one symptom of the damage wrought by today's lifestyles. There are others too: on a global level, we are seeing desertification, soil erosion, the destruction of forests and the continued extinction of unique species. At a national and local level we suffer air, noise, and light pollution, thoughtless development and the destruction of valued wildlife sites.

What is going wrong? Standard economic theory tells us that there is a direct link between material wealth and human happiness. The more we have, in material terms, the more content it was thought we would be. The reality, however, seems to be more complex. When a nation is already wealthy, the continued pursuit of a very narrowly defined economic growth can have the effect of degrading the quality of life even while the figures show that it is increasing the standard of living.

In other words: beyond a certain point – a point which the UK reached some time ago – ever-increasing material gain can become not a gift but a burden. As people, it makes us less happy, and the environment upon which all of us, and our economy, depend is increasingly degraded by it.

This paradox poses a key question: can we continue to be an economically successful nation and, at the same time, an environmentally and socially healthy one? By following the current model we clearly can't. Yet, the authors of this Report believe that there is a way through, given leadership and resolve. We need, however, to rethink how we measure our progress as a country. We need vigorously

to tackle climate change and the other symptoms of our misuse of the planet, and we need also to commit ourselves, not just to economic, but to social and environmental growth.

We believe that doing so is entirely consistent with long-standing Conservative principles. We believe, also, that the pursuit of this aim can provide Britain with a new national purpose – true 21st century politics – a regeneration of our society and its values.

1.1.2. Hitting the buffers?

John Maynard Keynes[1] calculated that between 2000 BC and the early eighteenth century, the standards of living in 'civilised countries' doubled. Yet, between those two dates, the material basis of society changed surprisingly little. In 2000 BC we already had fire, language, the wheel, the plough, sail, banks, governments, maths, and religion; in the 18th century, these things still formed the basis of our civilisation.

The industrial revolution and the limited liability company changed all that. Mankind had a powerful source of energy, the means to harness it, and the financial mechanisms to exploit it. At the same time, modern advances in medicine, beginning with the smallpox vaccine, led to ever increasing life expectancy and ever falling infant mortality. The population would begin to increase exponentially.

The industrial revolution, and the stunning economic progress which followed it, were based on one key discovery: the wide availability of coal, oil, and gas – the fossil fuels. In effect, we were mining millions of years of concentrated sunlight and putting it to use to fuel our economies. What we didn't know then was that the mass burning of these fuels would begin to change the climate of the planet. The energy that had made our rapid progress possible was also capable of destroying us.

In those early days of industrialisation such environmental considerations were far from anybody's minds. The services provided to us by our natural environment – raw materials, assimilation of waste, and maintenance of biodiversity, clean air and water and a stable climate –came free and seemed inexhaustible. The overriding concern of capitalist economists was to maximise material welfare, expressed through the ever-increasing production and consumption of goods.

Now, that assessment has been reversed. The world is awash with capital-rich investors but increasingly denuded of natural resources. People are aware of the immense, often irreversible, damage done to our one and only life support machine – planet Earth. Air and water pollution, habitat destruction and species loss became widespread. In the late 20th century, the iconic images of the Earth from space, beamed down from the Apollo moon missions, helped to galvanise a new environmental politics. Through them we recognised the fragility of our natural environment and our dependence upon it. Increasingly, the mass media has brought faraway events such as the deforestation of the Amazon, the melting of the polar ice caps and desertification in sub-Saharan Africa into our living rooms.

At a more considered level, the UN's Millennium Ecosystems Assessment, which reported in 2005, marshals with frightening effect the evidence of human abuse of the rivers, oceans, soil, and forests of this planet. 'Over the past 50 years', it tells us, 'humans have changed ecosystems more rapidly and extensively than in any comparable period of time in human history, largely to meet rapidly growing demands for food, fresh water, timber, fibre and fuel. This has resulted in a substantial and largely irreversible loss in the diversity of life on Earth.'

The report's facts tell their own story:

[1] John Maynard Keynes, Economic Possibilities for Our Grandchildren, London 1987 (1930) – from Bill McBibben Deep Economy, 2007.

- between 10 and 30% of all mammal, bird and amphibian species are currently threatened with extinction;
- 60% of the world's ecosystems have been degraded by humans;
- 20% of the world's corals have been lost in just 20 years;
- 50% of the world's wetland ecosystems have been destroyed in the last five decades;
- more wild land has been converted to agriculture since 1945 than in the 18th and 19th centuries combined;
- the world's fisheries and freshwater resources are already so degraded that they cannot sustain current human populations, let alone projected future increases; and
- up to 70% of the rivers of the world's largest country, China, are dead or dying.

The huge body of expert research behind the Millennium Ecosystems Assessment simply helps to bring home what we have been slowly learning over 300 years: economic growth, like all human activities, operates within environmental limits. The current Archbishop of Canterbury[2] put it well when he reminded us that 'the economy is a wholly owned subsidiary of the environment'. When our demand for resources and environmental services starts to outstrip the planet's capacity to provide them, then the problems we are storing up for ourselves become exceptionally serious. We have reached that point, and moved beyond it.

The underlying cause is a way of life which is out of step with the long-term health of the planet. The solution requires us to dig deep into our reserves of human ingenuity: to challenge our own cultural beliefs, economic assumptions, and policy frameworks. It need not be as difficult as it sounds. But the first step must be to understand the severity of the problem, and act accordingly.

1.1.3. Climate change: The canary in the coalmine

When Newcomen devised his coal burning steam engine in 1712, carbon dioxide (CO2) levels in the atmosphere sat at 275 parts per million (ppm) – much the same as they had for hundreds of thousands of years[3]. Today, they are at 380ppm, and rising fast. Changes in CO2 levels of this magnitude seem to be causing major shifts in the Earth's climate. Climate change is now the 'canary in the coalmine': it is telling us that something is badly wrong.

The most recent findings of the UN's Intergovernmental Panel on Climate Change[4] concluded that its global impacts could include:

- 75-250 million people across Africa facing water shortages by 2020;
- crop yields increasing by 20% in East and Southeast Asia, but decreasing by up to 30% in Central and South Asia;
- the global potential for food production increasing as temperatures rise over a range of between 1 and 3°C, but decreasing above this;
- agriculture fed by rainfall potentially dropping by 50% in some African countries by 2020;
- 20-30% of all plant and animal species at increased risk of extinction if temperatures rise between 1.5ºc and 2.5ºc; and
- glaciers and snow cover declining, reducing water availability in some countries.

Scientifically, a consensus has been reached that any increase of over 2°C in the Earth's overall temperature is likely to have unpredictable and potentially disastrous consequences, including the death of the world's rainforests, a major rise in sea levels and a potential 'tipping point' in global species extinction. To prevent this, climate scientists tell us that we must stabilise atmospheric

[2] A planet on the brink: article for the Independent on Sunday, 17th April 2005.
[3] McKibben 2007ibid.
[4] YUN IPCC, Fourth Assessment Report February 2007.

concentrations of greenhouse gases (CO2 equivalent) at a maximum of 450-500ppm, by the year 2050 at the latest.

Globally, politicians are beginning to respond to these warnings. What we know is that our actions over the next 10 years will determine whether we can hit this crucial target. Atmospheric emissions have a time lag associated with their final effect. We have now just 10 years in which to set in place a trajectory in which our emissions will peak and then decline by 2050. If we fail then we will over-run our ability to keep our climate stable – with potentially disastrous effects. Hitting it will require a transformation of our energy and transport infrastructures – not just because those sectors represent approximately 60 per cent of current global emissions, but because these emissions are set to grow sharply as a result of economic development in the giant emerging nations.

Economists, too, are adding up the costs of inaction. The ground-breaking Stern Review spells out the potential for significant dislocation of the economic system, social disruption, and the destruction of human and animal life on a major scale. Even so, we believe that Stern was actually too complacent, both in terms of the high emissions target he recommended as acceptable and his calculations of the likely cost of climate change impacts. Nevertheless, we accept his fundamental case: that the cost of inaction is likely to be significantly greater than the cost of precautionary action now.

Already there is evidence that parts of the economy are responding to these pressures. In the UK, insurers are reassessing the risk profiles of floodplain and coastal properties. Investment houses are downgrading the credit ratings of inefficient, energy-intensive companies. Business is recognising the opportunities for 'green growth'. Large utility companies have brought renewable power into millions of homes. Consumers are fuelling demand for lower carbon products. Supermarkets are taking the carbon battle to their customers and their suppliers.

But on top of the economics and politics, our response to climate change has a strong moral dimension. It brings humanity face to face with its responsibilities, both to those sharing the planet now, and to the generations to come; recepting such responsibility is entirely in line with Conservative principles. With it, comes the need to ensure that the global response is fair and just, and that those countries most vulnerable to the adverse effects of climate change are helped to pursue a path of sustainable economic development.

Within this context, the first duty of the British government must be to protect its people, present and future, from the risks of climate change. This will of course demand international action. But Britain will have to play a key role in securing an international consensus on emissions reductions targets as well as helping to define delivery mechanisms for them.

It will also be important not to use any lack of international progress as an excuse for a lack of progress at home. The often-quoted fact that the UK contributes 'only 2 per cent' of global carbon emissions is highly misleading, referring only to emissions released directly within UK territories and not taking into account the emissions associated with the overseas production of products and services destined for consumption by UK citizens.

But the precise allocation of emissions responsibility is really beside the point. The issue of climate change is going to intensify, not go away, and the UK needs to respond to it by developing policy that demonstrates leadership and encourages British companies to help build a greener Britain. Committing to a low carbon economy offers many advantages, both economic and social, to governments that are far-sighted enough to seize the opportunities.

Doing so will involve transcending party politics and building a cross-party consensus on a radical but realistic long-term framework for emissions reductions. In the UK, all three main political parties have already committed themselves to cutting emissions by at least 60 per cent by 2050, and a draft Climate

Change Bill, the first of its kind in the world, has cross-party support. As a nation, we are well positioned to meet our moral responsibilities on climate change and build a successful, profitable, low-carbon economy as we do so. All that is needed to make this vision a reality is the encouragement of a far-sighted government.

1.1.4. The problem with growth

No one could sensibly deny that economic growth has brought us enormous benefits. Yet those benefits have come at a great cost to our environment. This cost will continue to rise, as fossil-fuelled growth continues around the world. Over the last 20 years, an extra billion consumers have joined the world's population, and rapidly developing nations like China, India and Brazil will increasingly claim a fairer share of the world resources. We are already perilously close to causing runaway climate change. However we fuel our civilization from now on, we need to recognise that fossil energy was, in the words of writer Bill Mckibben, 'a one-time gift that underwrote a one-time binge of growth.'

In terms of the scale of action required, we have worked on the assumption that developed countries need to be reducing cumulative emissions by at least 80 per cent over the next fifty years. In effect the science is requiring us to ask ourselves: 'what would a low-carbon British economy look like, and how do we get there? It seems a very daunting task but the alternative is even more frightening and the drivers for change are not just associated with global warming.

The social cost of material growth is becoming increasingly clear. Even as the global economy continues to consume beyond its ecological means, the long-assumed link between increased financial wealth and increased social wellbeing is showing signs of stress. Levels of income and consumption have soared over the last three decades in most developed countries. Yet consistently, the people of those same countries report no increase in their sense of contentment or wellbeing. In many cases they report a decline. It seems that in wealthy countries, a continued increase in economic growth, is not increasing wellbeing.

Here in Britain, the signs of this are everywhere. Levels of mental illness, drug abuse and 'binge drinking' are rising even as our economy continues to grow. The Samaritans report that five million people are 'extremely stressed.' Unicef research suggests that British children are the unhappiest in Europe. Crime levels continue to rise. Meanwhile, surveys show that nearly nine out of ten members of the public think British society is 'too materialistic', and that a quarter of 30 to 59 year-olds have voluntarily 'downshifted', accepting less income in exchange for more free time[5].

Yet, according to standard economic and political thinking this ought not to be. Economic growth, measured as an increase in Gross Domestic Product (GDP) should bring a correlating growth in our happiness and wellbeing and any attempt to prioritise environmental social health over economic growth is widely supposed to make people less content.

The truth, though, is beginning to seem more complex. Evidence from many quarters suggests that human wellbeing does not rise indefinitely alongside gains in material wealth. In fact, that once we reach a certain level of income and material wealth, gains beyond that level can actually begin to exacerbate social problems, from 'status anxiety' to a deteriorating work-life balance. These findings challenge the assumption that environmental and social wellbeing parallel economic progress and raise questions over the very nature of economic growth and its role in society.

Our increasing awareness of the need to phase out fossil fuels rapidly is accompanied by an awareness that economic growth based on them is only part of what improves human lives. The real questions

[5] For details on these statistics see our Chapter on Wellbeing.

now are beginning to focus on what defines 'progress', what is 'quality growth' and what determines a 'good life'.

1.1.5. How government has failed us

One of the lessons of the past two decades has been that governments of all stripes have been too slow in recognizing the magnitude of the environmental challenge and in responding to it. Often there seemed good reasons. Governing is a complicated business and easy solutions are very rarely forthcoming. Nevertheless, it is clear that any future Conservative government will have to buck the trend and commit to a step change.

In the last 10 years, New Labour has brought some progress, particularly in the prominence of climate change as an international political issue. Former Prime Minister Tony Blair must be given credit for forcing it up the international agenda. However, the Government at home has pursued contradictory policies. While promoting international action on climate change, it has advocated the building of thousands of miles of new roads and motorways and backed the rapid expansion of aviation: policies which are set potentially to cancel out any emissions reductions made in the UK over the next few decades. It has often seemed that Britain has had two governments – one committed to preventing climate change, and one committed to causing it.

Another governmental problem has been the gap between the setting of policy and its implementation. New Labour has been notorious both for setting targets and for failing to implement them. It has created some innovative policies on the environment, but they have too often been complex and badly implemented. Setting targets for the use of renewable energy, for example, was the right policy. Unfortunately, the implementation of this policy was chaotic. As a result, instead of being a leading innovator in renewable energy, we are now the country with the most expensive wind energy in Europe and the country condemned to building the first new coal-fired power stations for thirty years, despite our commitments to tackle climate change.

Part of the problem has been that too much weight has been placed on the power of central government to drive change almost unaided. There has been insufficient engagement of key partners – local government, the world of business, local communities, and individuals. As a result, people feel disempowered and disconnected even from the Government's good intentions on green issues. There is no doubt the Government needs to pursue a radical green agenda over the next two decades. But there is also no doubt that unless this agenda is carried through not only with the consent, but the active participation of the British public, it is bound to fail. It is an unhappy reflection on the inadequacy of government that one film of Al Gore and the evident commitment of David Cameron have done far more to engage the UK public with the scale and urgency of climate change than ten years of Tony Blair.

In other areas, too, there are serious inconsistencies. If a Government is serious about the risks of climate change, it doesn't build homes in flood zones. If it is genuinely concerned about the growth in emissions from aviation, it doesn't adopt a 'predict and provide' approach to airports. The confused state of environmental policy results in a failure to engage the British people in a vision of a green future. A future Conservative government will need to be resolute in its determination to infuse all its policies, at home and abroad, with clear environmental purpose. Only then will the British people join in with the wholehearted enthusiasm that the task demands.

The ground has been prepared. The public is more concerned about environmental issues than ever before. The danger is that the debate about environmental policy is becoming combative rather than consensual. Suggestions of higher taxes on polluting products and activities are greeted with hostility. Regulation and efforts to provoke behaviour change are derided as the actions of an over-zealous State.

To change this atmosphere, a future Conservative government will need to be open about its objectives and motives and must sustain an honest dialogue about why measures to advance a sustainable future are important for all of us. It will need, for example, to make a clear, transparent commitment to use environmental taxes to reduce taxes elsewhere. It must justify regulation where it is necessary and remove it where it isn't. Above all, it must engage and share with the whole of society so that this becomes a common endeavour and not a state enterprise.

The scale and depth of the change which will be needed will not be easy to achieve. It will require true leadership from government. As the Sustainable Development Commission puts it:

> '…the truth of it is that taking resource productivity seriously (ie, systematically driving down resource and energy consumption across the entire economy) is not as pain-free as it first appears. Decades of perverse subsidies and the licensed externalisation of costs to keep prices low has left a mountain of market failures that people have got used to and resent having taken away from them. The fuel tax protests of 2000 are etched in the memory of civil servants and ministers alike, as an example of what happens when an eco-instrument is deployed insensitively or punitively.'[6]

Sustained and inspirational political leadership is precisely what will be required of a future Conservative government. It will be hard and often very challenging. There is, however, no serious alternative.

[6] Sustainable Development Commission, *Redefining Progess,*

Section 1.2. Conservatives – Redefining Progress

Conservatism and conservation are in fact two aspects of a single long-term policy, which is that of husbanding resources … It is as obvious to a conservative that our reckless pursuit of individual gratification jeopardises the social order as that it jeopardises the planet.'
Roger Scruton, 2006

'I believe passionately in the free enterprise system as a creator of wealth, but markets know no morality. It is our responsibility, as it has been the tradition of our party throughout its long and distinguished history, to bring a balance to the books of life.'
Michael Heseltine, 2006

1.2.1. Summary

It is increasingly clear that the global economy must be retooled in order to ensure that it operates sustainably, within environmental limits. In this urgent task, it will be the world's developed countries which lead the way. Over nearly three centuries we have grown ever richer but we have done so at the expense of the environment upon which our lives depend. We have therefore both the means and the obligation to repair the damage.

Here in Britain, in the last 18 months, one major political party has made the running in debating these issues and seeking to redefine progress, development, and wellbeing for a new era. That it has been the Conservative Party should not have come as a surprise. The notion of treating our natural environment with the same care that we treat our social and institutional structures is an inherently conservative one.

Already, over three decades, the Conservative Party has ensured that the central role of the market is accepted by all sides of the political debate in the United Kingdom. Part of that role is to enable society to move on to a sustainable footing. But its effectiveness is inhibited because GDP, the measurement of progress that we have adopted, is limited and increasingly perverse. It does not adequately measure the health of our environment and society. While it remains crucial as a measurement of economic output and productivity, it is ill designed to rate our progress and wellbeing in the round. A future Conservative government should adopt new measurements of progress, alongside GDP, that measure the other factors which are crucial to human and environmental wellbeing. Economic growth is a vital factor in the equation but so is social wellbeing and environmental wellbeing. We must therefore look to a leaner, cleaner, more efficient economy which respects environmental limits in delivering maximum wellbeing for all. This move to green the economy gives us enormous opportunities. The Low Carbon Revolution is our century's equivalent of the Industrial Revolution. Now, as then, Britain should be in the vanguard.

1.2.2. Green conservatism

In 1990 Chris Patten, in his White Paper *This Common Inheritance*, laid out Britain's first throrough-going vision of sustainability.The year before, Margaret Thatcher had delivered her ground-breaking speech on climate change at the United Nations. Both were working within the same Conservative tradition as Disraeli in his commitment to a clean public water supply and Eden in introducing the Clean Air Act. It was what Ted Heath understood in setting up the Department of Environment and the National Rivers Authority,. Later, Margaret Thatcher would continue that tradition creating the

Environment Agency and English Nature and becoming the first major Prime Minister to commit to the Rio Environment Summit.

Environmental issues have all too often been colonised by the rhetoric of the left . Yet concern for continuity, for preserving the stability and protecting the beauty of the natural environment, is a deeply Conservative approach. As Roger Scruton writes, 'Conservatism, as I understand it, means maintenance of the social ecology. Conservatism and conservation are in fact two aspects of a single long-term policy, which is that of husbanding resources. These resources include the social capital embodied in laws, customs and institutions; they also include the material capital contained in the environment.'

So, in adopting a green agenda, David Cameron is placing himself in the centre ground of the Conservative tradition. What is new is the urgency of his mission. Climate change, pollution, and the bio-degradation of the planet demand action and demand it now.

1.2.3. A Conservative society

Yet, the green agenda cannot be seen as narrowly ecological or merely the necessary response to global warming, important as all that is. It is also a recognition that human worth cannot be measured by material wealth. It is intrinsic to any notion of conservation that greed distorts our values and limits our horizons. Of course, Conservatives have always extolled the social importance of ambition and seeking to better oneself. The drive for improvement is a crucial component of a healthy society. But it is not the only component. Happiness is a much more complex matter than that. The things that motivate individuals – family, friends, faith, and enthusiasms – are often served by economic advancement but they are never defined by it. We recognise in them a value and importance that can't be monetised.

Our vision of a good society therefore goes well beyond what is measured by economic indicators. It will function well and be at ease with itself if there is widespread recognition of the importance of social and economic wellbeing. That's why Tories have always been more concerned with obligations than rights. Individual obligations derive from the recognition of the intrinsic worth of oneself and others. A concentration upon rights can all too often descend into selfish demands which admit no concomitant duties. The recognition of one's obligations, however limited, itself confers worth. Through it, the individual sees that, whatever his personal economic situation, he matters.

Those obligations are both social and environmental. We owe them to each other and to the planet that sustains our life. Together they are a recognition that a healthy and flourishing environment is essential for a healthy and flourishing society and both are preconditions for sustainable economic growth. So, to try to measure wellbeing as if it could be summed up by Gross Domestic Product is to misunderstand the nature of the human condition and to ignore our dependence on each other and our environment.

It is this that David Cameron has recognised so clearly. Quite simply, a flourishing Britain must be a greener Britain in which we all play our part. As he told the audience of his Scarman Lecture in 2006, 'we are all in this together'. Only if all parts of society work together can change be truly effective. Government action is clearly crucial but Government action alone is not enough:

> *'Government can't on its own deliver a sustainable environment. It can set the right frameworks - and I believe that there's far more that government can and should do. But sustainable development also depends on the billions of personal decisions that are taken every day - in businesses, in communities and in individuals' lives.'*

This is a vision in which our values as a society are realigned. We judge our progress, not simply by the economic numbers, but by the strength of our communities, the health of our social relationships, and the health of the natural environment upon which they are based. Rather than an econo-centric vision, it is a socio-centric one. This, we believe, will be the context of British politics in the 21st century.

1.2.4. Society and Conservative principles

Mrs Thatcher's rollback of the State was an essential part of 'rolling forward society'. Until we had established that wellbeing was not a matter of ever more invasive state control, we could not begin to show the reality that, instead, it is best fostered by ever more pervasive individual responsibility. The State has a role – but it is about enabling and not corralling. It needs to deliver frameworks for individuals and groups in which they are encouraged to act for the common good. At its lowest, it means ensuring that it is easier to do the right thing than to act selfishly. At its simplest, it is engaging people and organisations so that they seek voluntarily to promote those things that enhance and protect the environment and our human society.

It is also about our market approach. Instead of wanting the State to intervene and control, Conservatives seek only to ensure that the market framework is capable of delivering the nation's requirements and that people, communities, and organisations, whether for profit or not, are empowered and trusted to play their proper and fullest role.

1.2.4.1. Government and the market

As Jonathon Porritt says, capitalism is the only show in town. No other economic system has been so successful at lifting people out of poverty and no other economic system has harnessed so creatively the individual aspirations and intellects of so many. Just as the Internet would never have developed in the hands of a state planner, so free choice does not exist where state planners decide economic choices. That's why free enterprise has been the harbinger of democracy and continues to be its natural partner.

Yet, although Conservatives understand the vital role of markets, they recognise too that markets are mechanisms not gods. The market is crucial to our vision, but cannot deliver it alone. The strength of the market is its unique ability to meet economic needs. Its weakness is myopia. The market lacks the dimension of time. Unrestrained, it will catch till the last fish is landed, drill till there is no more oil, and pollute till the planet is destroyed. Its efficiency in creating material wealth is both its strength and its weakness. Strength because there is no more efficient way of delivering the goods, weakness because it is nothing like so timely and effective in taking account of the human and environmental resources upon which that delivery depends. If markets are not to master us then Governments have to intervene to ensure that they keep their place and remain our servants. That is a role that Margaret Thatcher understood very clearly. 'Never call me laissez-faire,' she once insisted. 'Government must be strong to do those things which only government can do.'

It is in this spirit that George Osborne has made it clear he intends a future Conservative Treasury to shift taxation policy towards the taxation of pollution and environmental damage. That shift from 'pay as you earn' to 'pay as you burn' can happen only when a government understands that it cannot be neutral in these matters of wellbeing – societal or environmental. It has to build the framework in which the power of the market will more effectively contribute to the wellbeing of the nation and the wider world. Margaret Thatcher saw that when, because of market failure, she recognised the need to play a leading role in the Montreal Protocol. She thus helped to create the first successful global environmental treaty, which led to rapid solutions to the ozone hole problem. The parallel with climate change is exact. As Stern realised, it represents the 'greatest market failure' – a failure to put a value

on natural resources in general, and carbon in particular. Mrs Thatcher was one of the first to understand the threat: it will be her lineal successors who must deliver the solutions.

1.2.4.2. Business and the market

Within the market economy, the role of corporations will need clearly to be defined. Corporations wield significant power, and that power can sometimes be misused. It is government's job to minimise this without stultifying business's ability to create material wealth. It is arguable that financial regulators and the legal structure in the US have failed to strike that essential balance in the fallout from Enron. It is also true that simply blaming corporations for our ills is a convenient way of ignoring the fact that we are all – as consumers and as citizens – responsible for the decisions we make about the impacts of the products and services these companies provide. Nonetheless, in the UK, it is clear that New Labour has often made the opposite mistake and been charmed by the siren song of the least progressive in the CBI. They have yet to learn that being business friendly means encouraging the best not pandering to the worst.

This becomes the more important as we recognise that corporations have a responsibility to reduce their carbon footprint as well as to ensure that their activities do not have other negative social or environmental impacts. Corporations should expect government to set a fair and workable framework for business. In this Report we have suggested ways in which government and business can work together to produce the environment which is most conducive to achieving these ends.

1.2.4.3. The individual and communities

As with Conservatism's enduring interest in a stable environment, this passion for a society that functions fully at all levels, is part of a long held Conservative philosophy. It celebrates community, relationships, culture and tradition and all that is which is conducive to the sustainability of human and environmental wellbeing. As David Cameron said to the National Council of Voluntary Organisations in 2006:

> *'I want my Party to be one that says, loudly and proudly, that there is such a thing as society – it's just not the same thing as the state. That there's a 'we' in our politics as well as a 'me.' I want us to bring to the fore the Conservative insight that we're stronger, more successful and more fulfilled as individuals, families and communities when we do things together, not separately. And so in the years ahead, when developing approaches to the big social, economic and environmental challenges our country and our world faces, my instinct will not just be to say: 'what can government do about this?' But to ask: 'what can we all do together?''*

The Conservative approach therefore emphasises the importance of community and social justice but it also involves a healthy scepticism about the state's ability to deliver these goods. Instead it has an attitude based on trusting people and a belief that relationships between people and within communities are crucial. It is this strand of Conservatism that led Nick Hurd to propose the Sustainable Communities Bill whose principles underlie much of the work of this Report. As a Bill, it is an excellent example of the kind of responsive community politics which the Conservative party needs to promote. It seeks to give local people the power to drive the sustainable, community-based, recreation of Britain.

1.2.4.4. National sovereignty

Conservatives have always viewed national sovereignty as a key principle and will continue to do so. Instinctively, we do not want others to control what we perfectly well can do ourselves. It is clear, however, that many of today's environmental problems transcend national boundaries. Half the air pollution we produce in Britain we export to the rest of Europe while, in turn, half of what we suffer comes from the Continent. Only by having common standards can we hope to tackle the problem successfully, just as clean beaches require a clean North Sea and English Channel – on both sides. In these environmental issues we are in it together and we need to fashion the arrangements so that they give maximum national flexibility while insisting on the necessarily high standards we need from all. Nowhere is this more important than in dealing with climate change where the active policy that Britain has pursued under both Governments has done much to establish the EU as the world leader on these issues. Indeed, without that European co-operation it is difficult to believe that Kyoto would have happened. It is therefore crucial that a future Conservative government should play a key role in working within the EU and other international institutions if we are to create a sustainable future for us all.

David Cameron has made clear that the UK can far more easily confront sustainability challenges if we stand with the EU as part of the world's largest trading bloc enabling us to play on a far bigger stage than we could on our own. He has also highlighted his agenda for the EU which demands that together we focus on three things: 'globalisation, global warming, and global poverty'. In 2006, he proved that this focus could deliver with the support of his Party when Conservative MEPs helped to ensure that environmental safety came before commercial interests in a crucial vote on chemicals regulation. That regulation has since become the benchmark for many Governments and businesses throughout the world, including much of the US.

The UN and G8 also play a key role. The UK has a strong position in this regard: as a nation and as part of the EU we have been a leading player in climate change negotiations at the United Nations. Previous Conservative Governments have helped to drive forward the agenda on sustainable development at the UN and elsewhere. An incoming Conservative government will need to continue this work. In this interconnected world, national sovereignty and international responsibility go hand-in-hand, and governments which recognise this are far more likely to be successful in delivering for their people.

1.2.5. One nation, one planet

In 1997, writing in *Greening the Millennium,* political scientist Neil Carter wrote that the Labour Party 'has an ambivalent attitude to the environment…there is a long-standing suspicion that environmentalism is the preserve of the middle classes who, in Crosland's words, want to "kick the ladder down behind them" by focusing on threats to the countryside while ignoring urban decay and the material needs of the working class'.

There is enough in this perception to underline the absolute need for green policies to be inclusive and expressed in a way that is relevant to the whole population. Environmental and social issues must continue to be part of the same vision not least because environmental damage often affects the more disadvantaged members of society most. In 2005 a major study found that, although local environmental problems are widespread, they are worse in low-income areas and people living there are just as concerned about them as are their better off neighbours.

It is deeply unfair that the rich can largely buy themselves out of the worst of local environmental degradation and the very poor suffer in a way which is simply not appreciated by their more affluent fellows. It is frankly unacceptable that there should still be, in Disraeli's words, 'two nations between whom there is no intercourse and no sympathy; who are as ignorant of each other's habits, thoughts,

and feelings, as if they were dwellers in different zones, or inhabitants of different planets. The rich and the poor.' 'One Nation Conservatism' has always recognised the importance of social justice – delivered by community action and social cohesion, encouraged by the State and not stifled by its urge to direct and control.

One Nation Conservatism should walk hand-in-hand with One Planet Conservatism. The prospects of the poorest members of our society have not improved since 1997; arguably, they have got worse. In David Cameron's words, 'a child from a family in poverty today is less likely to rise to the top of the income scale than a child in 1970. The gap between life expectancy for the richest and poorest in our country is now greater than at any point since the time of Queen Victoria.' A decent quality of life should be the right of everyone in Britain and a Conservative Government should be committed to make environmental poverty history.

It is all part of the same issue. Economic, social, and environmental poverty are inextricably interlinked and the solution to each is a necessary part of the solution to all. For that reason social justice and sustainability – which might be summed up in the phrase 'One Nation, One Planet' – have gone hand in hand throughout the preparation of this Report. In all of our work we have ensured that our policy recommendations – on water, waste, energy, transport, building, food, farming and rural affairs and climate change – are socially progressive. We believe that this is the way forward for a future Conservative government. Only then will we bridge both the environmental and the social divide.

1.2.6. Redefining progress

A new Conservative administration should seek to reaffirm the fundamental purpose of democratic government – that is, to ensure the conditions in which the wellbeing of its people can best be assured and enhanced. Defence of the realm and the rule of law are the first two preconditions but our understanding of the wellbeing of the nation cannot be so narrowly defined. Peace and prosperity and the pursuit of happiness demand a society at ease with itself whose citizens feel empowered to make the best of their lives and free to contribute, as well as to benefit, from the community of which they are part. GDP is thus not an adequate measure of genuine wellbeing. Economic growth is a vital measure of a nation's success but it is neither exclusive nor complete. As the Sustainable Development Commission puts it:

> *'We see [today] a society and a Government whose primary objective is still the achievement of economic growth as conventionally understood and measured, with as much social justice and environmental protection as can be reconciled with that central goal. We envisage a society whose primary goal should be the wellbeing of society itself and of the planetary resources and environment that sustains us all, with economic objectives shaped to support that central goal rather than the other way around.'*

Research shows that at any given level of income, a 20 per cent increase in wealth gives rise to only a 2 per cent improvement in subjective life satisfaction. Indeed *relative* income appears to be more important to us than *absolute* income, as we compare ourselves to others and then actively consume as a way of addressing what philosopher Alain de Botton terms 'status anxiety'. The extra monetary income needed to support increasing levels of consumption is won at the expense of activities more strongly correlated with wellbeing, such as time spent with one's family, community activity, exercise and fulfilling leisure pursuits.

Such questions are not new to Conservatism. In 1757, Burke wrote in *A Vindication of Natural Society* that 'the great Error of our Nature is, not to know where to stop, not to be satisfied with any reasonable Acquirement; not to compound with our Condition; but to lose all we have gained by an

insatiable Pursuit after more.' And in 1845 in *Sybil,* Disraeli observed that 'Power has only one duty: to secure the social welfare of the people.'

David Cameron has signalled the crucial importance of work/life balance to wellbeing, and the need to tilt the balance back from 'economy-friendly families to family-friendly economies'. He points to the irony that whilst modern society damages the environment in its desire continually to speed up and save time, people are often so busy saving time that they don't get round to using it for the important things in life. Emphasising the deep satisfaction that comes from belonging to people and to place, he observes that if 'so much of our modern globalised consumer culture ultimately seems unsatisfying then it is because it fails to satisfy this deep human need.' Thus lifestyles become what Hayek called 'movement for movement's sake'. From the slow food movement to the rise in 'downshifting', there is a growing thirst in society to slow things down, for the sake of our wellbeing.

We believe that growth and progress need to be redefined for a new century. 'Growth' should also encompass growth in the value and richness of society, of tolerance, diversity, and variety and of the strength and empowerment of family and community As a leading American economist, Herman Daly, has argued, economic growth is focused upon quantitative expansion and the notionally 'limitless transformation of natural capital into man-made capital'. Sustainable development, by contrast, is about *qualitative* improvement, promoting increased economic activity only insofar as it does not exceed the capacity of the eco-system.

This is why higher standards of environmental protection should not be thought to entail a lower quality of life. Our central thesis is that quality of life in Britain can be improved for everyone, at the same time as radically reducing our impact on the global environment. Dealing with issues such as forest protection or reducing exposure to climate instability will cost money, but not at the expense of long-term prosperity. It is time to debunk the myth that we must choose between the environment and the economy. In truth there is no either/or between environmental protection, social stability and sustainable economic growth. The three can be achieved simultaneously – indeed, it is imperative that they are.

1.2.7. New measures

The original architect of the concept of Gross National Product, Nobel Laureate Simon Kuznets, never intended it to be used as a measure of overall quality of life. In 1934, he urged the US Congress to remember that 'the welfare of a nation can scarcely be inferred from a measurement of national income.' David Cameron recently quoted Robert Kennedy, who said 'GDP does not allow for the health of our children, the quality of their education, or the joy of their play. It does not include the beauty of our poetry or the strength of our marriages, the intelligence of our public debate or the integrity of our public officials. It measures neither our wit nor our courage, neither our wisdom nor our learning, neither our compassion nor our devotion to our country; it measures everything, in short, except that which makes life worthwhile.'

As well as being inadequate in itself to measure human wellbeing, GDP also, paradoxically, includes many economic activities that actually decrease it. Meeting the costs of cleaning up an oil spill, treating drug addiction or policing a crime wave will all add to a nation's GDP. The Enron fraud in the USA has been calculated to have added upwards of $1bn to US GDP.

A future Conservative government should therefore utilise wider and broader measures of national progress. In this it would not be alone. In recent years, both the World Bank and the UN have begun initiatives to look beyond GDP. A number of countries around the world have begun to experiment with measures which incorporate environmental and human wellbeing issues into their definitions of national progress. Canada is tracking its ecosystem services and human capital by measuring GDP and the Consumer Price Index alongside forest cover, freshwater quality, air quality, greenhouse gas

emissions, extent of wetlands and educational attainment. Countries as varied as Australia, Bhutan, Thailand, and China are using an array of general wellbeing indicators such as the Index of Sustainable Economic Wellbeing (ISEW).

In sustainability circles much is made of the 'three pillars of sustainability' and the fad of the 'triple bottom line' of environment, society, and economy. This is to confuse ends with means, objectives with tools. Environmental wellbeing and human wellbeing are two desirable endpoints. Economic wellbeing is a means to achieve those ends. Some of the things which make life most valuable cannot be expressed in monetary terms. What price clean drinking water, fresh air, access to countryside, tranquillity or a beautiful view? Just as we do not seek to calculate the value of different peoples' lives in determining where to invest in health, so we cannot easily put a financial value on the enjoyment of 29m annual visitors to the Peak District National Park. Some things, clearly, do not have a price. Nevertheless, many of the environmental goods and services of which we take advantage are currently not taken into consideration in conventional economic accounting. This leads to the degradation of the environment and often in a diminution of the welfare of our society as well – the two are intrinsically linked.

A measure of wellbeing that takes such environmental accounting into consideration needs to respect the four interdependent 'securities' of nature – energy security, water security, food security, and climate security. All overlap in complex ways. For example, if we put huge areas of fertile land over for production of biofuels to gain energy security or increase climate security, what will be the effects on food and water security? Failing to understand how these things mesh together ultimately damages us all.

There are currently four broad groups of indicators of wellbeing being used or developed:

- physical quality of life indicator sets (such as the UK's Sustainable Development Indicator set);
- composite quality of life and wellbeing measures (such as the UN's Human Development Index);
- indicators of subjective wellbeing (such as the reported life-satisfaction indices derived from World Survey data); and
- adjusted measures of economic welfare (such as Nordhaus and Tobin's Measure of Economic Welfare).

Here in the UK, the HPI developed by the New Economics Foundation and Friends of the Earth, is an innovative new measure that shows the 'ecological efficiency' with which human wellbeing is delivered. It shows the relative efficiency with which nations convert the planet's natural resources into long and happy lives for their citizens. The nations that score well show that achieving, long, happy lives without over-stretching the planet's resources is possible. The HPI confirms that high levels of resource consumption do not reliably produce high levels of wellbeing, and that by contrast it is possible to produce high levels of wellbeing without excessive consumption of the Earth's resources. The UK comes 108th out of 178 countries in the HPI – way ahead of the US (at 150) but also way behind Switzerland (65th), Italy (66th), Holland (70th) and many supposedly 'less developed' countries.

This Government has made some attempt to move towards a more realistic measure of genuine wellbeing. However, GDP-adjusted wellbeing measures seem to play little role in overall government policy and certainly no role in Treasury thinking. We are proposing that the Conservative Party makes

a simple reality out of what is now a confused side-issue and turn it into a measure of which we all take serious note.

1.2.8. Greening growth

1.2.8.1. Realising the potential

Sustainable economic growth will, of course, continue to be a priority. The key word, though, is sustainable. There does not need to be a trade-off between the economy and the environment, simply the retuning of growth to take account of environmental health. This will best be done by pricing carbon into the equation as the most effective surrogate for environmental cost. The economic benefits of thus reducing the carbon-intensity of production and consumption are not limited to security of energy supply or driving down costs through increased efficiency. The pricing of carbon itself represents a host of exciting opportunities for reinvigorating the economic system and companies within it – for flushing out old power structures, opening space for new entrants and technologies, stimulating job creation and encouraging nimbler, lighter management.

This is being grasped by progressive management throughout the world. As Scott Vitters, Coca-Cola's director of sustainable packaging has recently said, 'Waste of any kind is inefficiency, and inefficiency equals cost.' The carpet-manufacturing company Interface is feted for having shifted its business model radically in this regard. Instead of simply selling carpets, it now rents floor covering to its customers, removing worn parts and replacing them, and re-using or recycling the materials. Wal-Mart has insisted that it suppliers cut 25% out of the packaging they use and, because that improves suppliers' profits, expects to share in the saving.

This potential has not escaped the money-men either, with venture capital funding for environmental technologies having nearly doubled to $1.28 billion in 2006. The development of emissions trading to tackle climate change will drive strong growth in carbon trading markets, whose global aggregated value is expected to be around 23 billion Euro in 2007. According to the Stern Review, carbon markets are already worth $10 billion a year. If all developed countries committed to such markets, this sum would grow by 200 per cent. The OECD's International Energy Agency estimates that the annual market for low-carbon technologies would reach over $500bn per year if we shift our energy demand to low carbon sources and cut emissions by 60% by 2050.

1.2.8.2. A priority for Britain

Britain has some catching up to do; other nations are leading the field in the greening of their economies. Japan leads the way on hybrid car technology. Germany spends more than twice what we spend on research into nanotechnology. The US wants to lead the development of the hydrogen economy. Other countries have already taken the lead in developing renewable energy technology from wind ($18bn market in 2006) and solar photo voltaics ($16bn market in 2006). The UK drags its feet on facilitating clean coal demonstration plants, despite all the evidence of their potential.

Britain under Labour has been dangerously slow to wake up to the fact that the need to transform the world's energy and transport infrastructures represents one of the greatest wealth creation opportunities since the Industrial Revolution. Britain led that process and profited enormously from it. Conservatives should see the same opportunity in the Low Carbon Revolution.

In this we would place particular emphasis on the opportunity for small businesses to profit. Small and medium sized businesses should be the lifeblood of the British economy, but in recent years have been stifled, by complex and unnecessary regulations emanating from government, and often supported by the anti-competitive power of big business. Radical incentives to drive energy efficiency should work

with the grain of growing concern about energy bills among small companies. A simpler approach to regulation, a clearer direction of travel and a genuinely level playing field provided by government should help to redress the balance. So too will the emphasis we place on localism and the diffusion of power. All this should make small businesses better placed to create the radical new innovations that will make our economy genuinely sustainable.

A new Conservative administration must be the catalyst for a step change in business attitudes towards greenhouse gas emissions and natural resources. We must put greater resource productivity at the heart of our value system and become a lot smarter about how we use energy and natural resources. The cleanest and cheapest power plant is the one that is not built because it is not needed.

Given the unacceptable levels of waste in our economic and energy system, we see a big financial upside for Britain in this agenda. Every £ saved on energy, water or waste management is a £ that can be reinvested more productively or returned to shareholders and taxpayers. The more efficient we are in our use of resources, the more competitive our cost base. Reducing our demand for fossil fuels can only improve our energy security as we move towards being an energy importer in the age of 'peak oil'.

A war on waste and a commitment to the protection of our natural resources is consistent with traditional Conservative values. It also reflects an understanding of modern consumer attitudes which are shifting in response to higher energy prices and growing engagement with recycling and the management of waste. We must align ourselves with the progressive voices in business such as the Corporate Leaders Group and 3C. To engage business leaders, we need to engage the three audiences that really matter to them – customers, shareholders and employees. Success will create a virtuous circle where the the best of business will drive the politicians to be more ambitious to get the best for business. We want Britain to prove the principle of Green Growth – to show that we can grow our economy without damaging the environment. In the context of climate change it is not a choice; it is a moral imperative reinforced by economic interest.

1.2.9. Green growth: absolute limits

Even without the threat of climate change, the kinds of things which we are recommending would make the UK economy cleaner, leaner and more efficient. However a greening of economic growth does not just involve a series of green tweaks to the 'business as usual' model. Human activities are ultimately constrained by environmental limits. The problem with relying solely upon 'green growth' is that it deals primarily with mitigating the *relative* impacts of consumption, but fails to respect *absolute* environmental limits. Putting a price on environmental damage is important but it can only take us so far. Other mechanisms must also be used to protect and enhance the environment.

We may, for example, need regulations to set aside crucial areas or vulnerable habitats,. A fixation on the idea that the market can manage all things if 'externalities' are 'internalised' is wrong, firstly because of the scale and urgency of the challenge which means that we simply do not have time for the market to 'adjust over time', and secondly, because we have a far from perfect understanding of the complex interactions between the climate, biosphere, soils and other elements which make up the delicate balance of the Earth. We know too little of the potential implications of the changes in sea p.h., temperature and salinity. We don't fully comprehend how these interact with climate or how climate impacts on sea life and the fish stocks upon which large sections of the global population rely. It is areas of debate such as this that it is clearly not possible to put a value and 'price' on the natural world. Simply to ignore anything of which we are not certain would be irresponsible so we have to protect where we cannot be utterly certain.

If, however, our appetite for material goods continues on its current trajectory, it is unlikely that resource-use efficiency in and of itself will halt or reverse our impacts on the planet, and in particular

its ability to maintain a stable climate. It is also crucial to understand that in some circumstances increasingly efficient or ‘greener’ production processes can lower the costs to business and thus, paradoxically, ultimately lead to higher total rates of production and consumption.

Simply cleaning up existing lifestyles and patterns of economic growth will not take us far enough, not least if we are to achieve equitable global development within the natural limits of the planet. After all, if everyone on Earth equalled the resource consumption of our citizens here in the UK, it would take three planets to support us. If we all aspired to US patterns it would demand five planets.

The issue is not whether but when we recognise that fact. The current economic model, relying on universal cheap energy, is bust. There are sticking plaster solutions but, in the end we have to find an alternative way forward. Sensibly, we should do that before we damage the environment irreversibly. If we are stupid, we’ll fail to act now and then seek the solution in extremis when, even if an answer is still possible, it will be immeasurably more difficult and infinitely more expensive. If society at large can shift its thinking away from ‘what can I buy?’ to ‘what do I want from life?’ or ‘what needs do I have?’ then perhaps we can decouple economic growth from resource input. This is our challenge.

Section 1.3. The Journey

1.3.1. Summary

We have established the need to move beyond an economy focused solely on economic growth to a 'wellbeing economy' – one focused on environmental and social outcomes as well. In order to do this, the key actors in society need to be engaged. The government, the market, individuals and communities should all play their part.

Government's job in this regard is to create the correct economic and political framework; one which rewards responsible behaviour and penalises that which damages the environment or social structures. The means which a Conservative government will need to use to achieve this are fivefold: the market and regulation; individuals and communities; business; public procurement; and national sovereignty. Our proposals in each area include:

Markets and regulation:
Environmental tax reform; price the use of carbon; ensure that the true costs of transport are paid by the user; incentivise the building of green homes; introduce strict rules on the energy-efficiency of everything from consumer technology to power stations; institute a significant moratorium on new road and airport building.

Communities and individuals:
Give more power to local councils, including the power to hold referendums; promote the local food economy; promote local transport solutions, from walking to cycling to local buses; focus on 'mixed-use' neighbourhoods, and working and shopping nearer home.

Business:
Set binding, long-term targets on carbon reductions and climate change to give business a clear, long-term framework for planning; develop national and international standards for carbon measurement and labelling; ally with progressive voices in industry rather than those which promote 'business as usual'; help progressive businesses succeed through the tax and incentive system.

Public procurement:
Use public sector financial and political muscle to entrench sustainable purchasing decisions and favour green companies; set a timetable for spending a growing proportion of public procurement with companies accredited as carbon neutral; adopt clean car procurement policies across all parts of the public sector; set the highest possible energy performance standards in buildings of the public estate; establish supply chains for use of local and low-carbon food.

National sovereignty:
Use Britain's influence to help secure binding, international targets on climate change; set national carbon reduction targets in line with this; work within EU to strengthen and promote EU Emissions Trading Scheme.

The policies we are proposing are consistent and radical and, at the same time, realistic. All that is needed to implement them is sufficient political will and determination – something which we believe a future Conservative administration will possess.

1.3.2. The wellbeing economy

Modern economies are organised specifically to elevate the pursuit of economic growth above all other national goals. Because of this, they have a structural need to promote the values that sustain

consumption growth. This, in turn, weakens the social glue that binds people together in communities. At the same time, the sustained growth in material consumption is having a serious impact on the environment.

We need, instead, to move to economic systems which offer structural stability without being dependent on unsustainable and apparently limitless growth in material consumption. Some of the ways in which we seek to make that change are discussed in Chapter 2.

1.3.3. The toolbox

A fundamental principle of the Conservative Party is that people, communities and businesses can and must be trusted to play their part in the changes required for sustainability, in their own way. Government must, therefore, create an environment within which markets, communities and individuals can work to create that wellbeing economy. This means restructuring so that the playing field is level for all, costs are not externalised onto the environment, and taxes, regulations and incentives work towards the goal of a sustainable society. The government's role is to set the framework for a sustainable society and not to micromanage its creation.

We are proposing the use of a number of tools to repair and prepare each of the key elements in society for their role in creating a sustainable Britain for the 21st century.

1.3.3.1. Government and the market framework

It is the role of government to set the market framework – fiscal signals, incentives, regulations – within which businesses, individuals and communities operate. Such adjustments of the market play an important role in solving or preventing market failures which lead to social and environmental problems.

The term 'market failure' describes a situation in which markets do not efficiently allocate goods and where market forces do not serve the perceived public interest. Externalising the costs of business onto the environment, or not accounting for the true all-round value of natural resources, are key examples. Adjusting markets to respond to such failures will allow the market to respond in a positive way, and encourage the most progressive and responsible companies to survive and flourish. This means:

- **sending the right signals to business** through market-based instruments, trading, fiscal incentives and disincentives (taxation, subsidies etc), product standards, voluntary initiatives and regulatory changes;
- **empowering individuals, communities and businesses** though provision of information, labeling and easier access to sustainable products and services; and
- **public procurement shifts** to help steer markets in the right direction by leveraging public procurement budgets.

Market instruments cannot always deliver, and some things are not easily amenable to operation within the market. That's why we have chosen a different route to protect our National Parks, our ancient monuments, much of our countryside and our historic buildings. Likewise, some things will need to be regulated where fiscal signals cannot function fast enough to alter the trajectory of past mistakes.

In this situation, government's role should be welcomed as a supportive influence. Complaints that environmental taxes or regulation will damage UK competitiveness or force companies to relocate in countries with less stringent pollution laws should be seen in this context. Senior economists have found little truth in either concept. Indeed the World Economic Forum's *Global Competitiveness Review 2003-2004* shows that highly competitive countries such as Denmark, Sweden and Finland are also those with the highest social and environmental regulations. In Scandinavian countries, 'smart

regulation' is seen as the mother of innovation. The same could be true in the UK, given far-sighted government.

Indeed, a July 2007 survey of 151 British firms conducted by consultants PricewaterhouseCoopers, found that taxes are often effective at delivering green improvements and half (49%) of the companies did not think current policy instruments actually encourage significant changes in behaviour. In the report Glyn Barker, managing partner, PricewaterhouseCoopers LLP states "We believe that there is an urgent requirement for a much clearer policy framework to help business respond to the challenge of climate change. While it may be surprising to find businesses appearing to welcome further regulation, corporate leaders recognise that customer and investor pressure is not enough to change their environmental behaviour fast enough, given the urgency and scale of action required. Competitive businesses want a level playing field, and they want it to be green."

1.3.3.1.1. Market-based instruments

For politicians, market-based instruments (MBIs) offer the possibility of reconciling economic growth with environmental protection. For business, MBIs raise the prospect of value-adding innovation and new competitive opportunities. For consumers, they offer a choice of more efficient products and the opportunity to save money while 'doing the right thing'.

Carbon emissions trading is a good example of a MBI: a market-based approach which attaches a price to carbon emissions and ensures that buyers and sellers are exposed to this price, which must be high enough to influence their decisions.

Green taxes and emissions trading need not raise the overall tax burden. The principle of environmental tax reform (ETR) – whereby the revenue base is shifted away from taxes on work towards taxes on carbon and other pollutants – is a logical progression of fiscal policy. Like the market for individual products, the current tax system harks back to a time when environmental costs were not recognised. Attaching a price to environmental damage opens a door to reducing taxes on employment of capital.

In doing so, ETR offers a powerful framework for communicating the costs and benefits of environmental protection to the public. All three major UK political parties have backed ETR in principle. The Conservative Party should demonstrate how it could work in practice, making it clear that MBIs, enacted on environmental grounds, are replacement taxes not 'stealth taxes', socially equitable and environmentally effective.

Public trust could be increased by hypothecating some of the revenues from MBIs to make it easier to choose sustainable alternatives, particularly in the transport sector. There is also a role for subsidies in encouraging eco-friendly behaviour, particularly where markets for such products and services are immature. The message to consumers must be that environmentally responsible choices will save them money.

It is therefore necessary to be much more subtle in the way we design taxes so that they achieve their ends with the least possible pain. It is in that spirit that we have revisited transport taxation, designing means that make cleaner cars more attractive and promote alternatives to the car. Fiscal incentives for environmental improvement can be highly flexible, applied to industry, as in the case of the Landfill Tax, or aimed at directly influencing consumer behaviour, such as the banded system of Vehicle Excise Duty.

1.3.3.1.2. Principles

There are a number of general principles which we have used to guide our proposals for the use of market based instruments:

- **Fiscal neutrality: replacement taxes, not new taxes**

Our policy proposals are fiscally neutral. For example, whilst we recommend levying a high Purchase Tax for the most polluting cars in a class, we argue that all the money received should be returned to tax payers either in the form of a 'feebate' to the greenest cars or in other tax reductions. The Treasury should not attempt to make money out of making people go green. There are strong arguments for shifting the tax base from 'goods' such as employment and capital, to 'bads' like pollution. However, the burden of tax must not increase and any new green taxes should be replacement taxes, not extra taxes.

- **Level playing field**

Our policy proposals are designed to ensure a level playing field. So we seek to remove distortions – for example in aviation where we support bringing tax on aviation fuel into line with other fuel taxation. Similarly with nuclear power, our proposals are designed to ensure that this means of generation is able to compete on fair terms in the market-place to stand or fall on its own merits.

Replacement taxes, not new taxes

There are strong arguments for shifting the tax base from 'goods' such as employment and capital, to 'bads' like pollution. However, the burden of tax must not increase and our aim must be to lower tax overall. Any new green taxes will be replacement taxes, not extra taxes. We do however believe that some measure of hypothecation for especially unpopular green taxes is extremely important.

- **Socially progressive taxation**

We seek to ensure that our policy proposals are socially progressive. So, in supporting water metering, we advocate concomitant tariffs which ensure that the poor are protected and the heavy discretionary users of water pay.

- **Both carrots and sticks**

We want to make it easier for people to live greener lives. That's why we suggest stamp duty rebates and council tax reductions for environmental improvements. We are not about hair shirts and punishment. We need to encourage the good whilst detering the bad.

1.3.3.1.3. Regulation

Where possible, we have sought to find market-based instruments, such as fiscal signals and trading mechanisms, to deliver sustainability improvements. However, sometimes this kind of market mechanism will not send a strong enough signal or simply cannot deal with things which are outside the market's control. Regulation is the first resort of some politicians but Conservatives use it with reluctance. To borrow a construction from Mazzini: 'Regulation, prima facie, demands an apology'.

Nevertheless, there are situations where proportionate and targeted regulation is necessary. Fiscal signals, or 'putting a price' on environmental resources, cannot easily work on occasions where the elasticity of demand does not support substitution by companies or individuals or where behaviour is not sufficiently rational to react quickly enough to price signals unless there were of such magnitude that they would be politically impossible to implement. Many of the dilemmas of transport are of this kind.

In such circumstances, regulatory solutions are needed. Direct controls force polluting industries to improve their performance and can eliminate products or practices deemed particularly hazardous

from the market altogether. Such legislation parallels the banning of lead in toys. It delivers a known environmental outcome and constitutes a powerful way of making companies mitigate their environmental impacts through the threat of fines or other regulatory action.

There is rightly a demand for 'better' regulation. This involves monitoring the outcomes of regulation, and giving more flexibility over the process, reducing the time and cost burden of red tape, and targeting enforcement activities on those deemed to be at greatest risk of default. In drawing up policy recommendations, we have preferred the light touch, seeking market-based solutions to environmental problems wherever possible. In any case, we need to measure outcomes rather than processes, and to ensure that regulation is not repetitive or contradictory but proportionate and well-designed.

1.3.3.1.4. Better regulation

The Environment Agency's 2004 report *Delivering for the Environment – a 21st century approach to regulation* points out the numerous benefits which the UK has experienced as a result of environmental legislation:

- a vast improvement in air quality in the capital. The first Alkali Act was passed in 1863, and London's smogs were eventually beaten by regulation requiring smokeless fuel;
- reductions in industrial emissions of air pollutants. Since 1990, sulphur dioxide emissions have fallen by 75%, and nitrogen oxides by 52%;
- a 65% fall in levels of water pollution in the five years to 2001; and
- a 30% drop in the number of environmental law infractions between 1997 and 2000.

In a speech at the 2006 Conservative Party Conference, Sir Mark Moody-Stuart, Former CEO of Shell and now Chairman of Anglo-American, although a firm believer in the value of markets, explained the importance of such legislation. 'Without regulation to channel their power,' he said, 'markets will not on their own deliver things which are of no immediate benefit to the individual consumer making his or her choice, even though they may be beneficial to consumers collectively – in other words, society. Markets without regulation would not have delivered unleaded gasoline, autocatalysts or seatbelts and airbags, nor would they in isolation have delivered clean air to London after the killer smogs of the 'fifties.'

There are continuing concerns about regulation and we should always approach it with reluctance. Nonetheless many of the arguments used universally are more appropriately applied, not to regulation per se, but to badly targeted rules. Some facts might enlighten the scene if we consider the most widely quoted of concerns:

'The costs are too high'
It is a natural reaction by any business when some new requirement is suggested. Nevertheless the record on cost estimation by business is not encouraging.

- When the EU introduced catalytic converters, the cost of the technology was predicted by the motor sector to be £400-£600 per vehicle, with a fuel consumption penalty on top. The real cost turned out to be around £30-£50 per converter, and technological innovations overcame the penalty fear.
- The US Clean Air Act was predicted to cost the US between $51 and $91 billion per year and result in between 20,000 and 4 million job losses. In fact, annual costs were £22 billion to business, but employment in affected areas increased by 22 percent. The overall benefits arising were shown to be between £120 to £193 billion.

'Regulation prevents competitiveness'
This, more sophisticated argument is an important insight into the dangers of prescriptive regulation. It is a crucial element of our recommendations that they seek to remove prescription in favour of outcome-based rules which are well understood. They identify the ends but leave the means to business. In this way good regulation becomes a spur to innovation not an incubus.

Professor Michael Porter states in the *2001 Global Competitiveness Review* that 'low pollution and efficient energy use are a sign of the highly productive use of resources. Policies that stimulate improvements in environmental quality, then, may foster improvements in competitiveness.'

Porter also states that 'environmental standards can trigger innovations that lower the total cost of a product or improve its value.'

1.3.3.1.4.1. Principles

Nonetheless, if we are to avoid the bad side of regulation, there are a number of necessary general principles:

A. Outcomes-based regulation
Our work is designed to shift from process-based to outcomes-based regulation. An example of this, to be found in our Built Environment Chapter, is a shift from minimum standards which can be reached by using existing approaches and technologies to outcome-specifying regulations, ratcheted up over time to drive innovation and improvements. A similar approach is encouraged in our Chapter on Food and Farming. Speaking to the Oxford Farming Conference in January 2007, David Cameron indicated that he saw the merit of this line of thinking. In the context of the mountain of paperwork under which farmers find themselves buried, he said simply: 'government should be concerned with outcomes rather than process.'

B. Implementation
Implementation and delivery are as important as the policy tool chosen. In many respects, headline government policy today looks sustainable and sounds sustainable but its implementation is often utterly unsustainable. Constant compromises and contradictions have undermined public trust and given the impression that environmental policy is not to be taken seriously. A new government must be brave enough to outline a vision of the positive social change that would accompany environmental protection. It must stick to its declared programme, give fair warning of its intentions, consult effectively with those upon whom the regulation will bear, and not be afraid to admit that some necessary aspects of the policy will be uncomfortable.

C. Market certainty
As with our fiscal signals, it is our intention that the market is given a very clear signal that the regulatory landscape will be a certain way and remain that way. Examples might include signalling that appliance standards which will come into effect at a certain time in the future, thus giving business time to adjust to the change.

1.3.4. Locality

The public is disenchanted with the political process in Britain. The turnout for the 2001 general election hit an all-time low of 59%, with the 2005 general election creeping only slightly higher to 61%. Why? We believe that one reason lies in the remoteness of many political institutions. We believe that decision-making should take place at the lowest level compatible with the task being undertaken At present, local government is increasingly based on remote regional structures that do not fit with what people recognise and relate to. An incoming Conservative government should stand this on its head, replacing regionalism with a system that grows directly from the grassroots. Decision-

making should be built up from community level: giving more power to parish and town councils as well as to local organisations and individuals.

Of course local bodies and individuals alone cannot make the necessary changes. Leadership from government in setting the right frameworks and in shifting markets through public procurement as well as leadership from business will be crucial in supporting and encouraging change. The empowerment of people and communities is, however, a necessary part of the new dynamism we seek.

1.3.4.1. Communities and individuals

Government can ensure that it is as easy as possible for people to make green choices. Most people, when surveyed in opinion polls, express a willingness to try eco-friendly products, and are sometimes willing to pay more for them. But this demand is frustrated by poor information on how to go about it. If we are serious about going green, we need an information revolution.

The use of environmental labelling for energy or carbon is a particularly promising approach, which has already proved effective in transforming markets for many household appliances. An incoming Conservative government should support the EU in using labelling regulation to improve environmental standards associated with products sold across the Union. Energy and water bills, as well as public transport pricing and timetabling, are other areas where better quality information could empower more sustainable consumer choices.

Existing policies can make it difficult or even dangerous to alter behaviour. Current land-use planning practice, for example, makes it hard to connect destinations without a car, while traffic volumes make it risky to cycle. Moreover, a less consumer-orientated lifestyle goes against the grain of modern culture, in which advertising, media and peer group pressure encourage people to accumulate material possessions.

Yet opinion polls and attitude surveys regularly show that the natural environment is of great importance to the British people. Time and again they express strong views on tackling climate change, protecting local landscapes and living sustainably. This suggests that, though behaviour has not yet caught up with attitudes, the willingness that it should do so is there in the minds of most people. Typical recent poll findings include:

- 13% of people cite climate change as a reason to stop flying. Only around 5% of respondents still claim to have never heard of the problem[7];
- 23% consider global warming the ‘most serious threat to Britain’ (behind terrorism);
- 63% agree with the statement, ‘we should have compulsory water meters because people would be more careful with water if they had to pay for what they used’;
- 90% agree that ‘the countryside is important because of its natural beauty and should be protected from development’;
- 71% do not agree that ‘it is more important to build new homes, commercial centres and other infrastructures than it is to protect the “green belt” from development’;
- when prompted with information on aviation’s contribution to climate change, more than three to one favour constraint in the growth of flights[8]; and

[7] MORI poll, *Climate Change: Latest Trends in Public Opinion*, September 2006.
[8] MORI poll, *Climate Change and Taxing Air Travel*, 20th July 2006.

- 67% consider it fair that the government ban any food product that damages the environment *even if* it increases the price of food[9].

Results such as these suggest a well of goodwill which farsighted politicians could build on in their quest to change public attitudes.

1.3.4.1.1. Principles

Three key principles guided our thinking about the role of individuals and communities:

Trust
Individuals are better at making decisions that affect their own lives than the state. This has a direct bearing on quality of life. Research shows that people who have responsibility for the organisation of their day are happier than workers who cannot control their own movements and are beholden to larger, remote institutions. According to Daniel Nettle of Newcastle University, 'Personal control is a much better predictor of happiness than income is'.

What applies to individuals is equally relevant to communities. Just as individuals do not want the state to intrude unnecessarily, so they must accept that not all social ills can be solved by the state. As Edmund Burke wrote in the 18th century, wise politicians know 'what manners alone can regulate'.

Localism
More local participatory democracy working closely with Parliament can bring to life the concept of acting locally and thinking globally. As Oliver Letwin told an audience at the Centre for Social Justice in 2005, the Conservative Party 'is founded on the understanding that the real challenges of real life can be met only when problems are addressed locally, on a human scale, in a truly social setting, by human beings who can see what is happening to other human beings.'

According to sociologists, people tend to be happiest in village-sized communities where it is possible to know their neighbours and feel a valued part of the community. Such communities exist in towns and cities, as well as the countryside. Research shows that being involved in local decision-making makes people feel better about their lot, even when the decision in question goes against them. In Britain, however, as David Cameron said in his 2006 Chamberlain Lecture, 'we are experiencing a crisis of community. Social networks are shrinking. Neighbourhoods are suffering for the simple reason that people don't know each other.' Focusing on localism as a principle can help put people back in touch with each other and with their localities, and begin to restore broken trust.

Sustainability
A local future is a sustainable one. Air-freighting food from thousands of miles away, when it could perfectly well be grown nearby without intensive greenhouses, generates unnecessary carbon emissions which contribute to climate change. Supermarket food which is trundled around the country from central distribution centres may appear to be cheap; it is considerably more expensive when hidden costs (roads, health, climate change) are factored in. Long commutes, particularly by car, are damaging to the atmosphere as well as to mental health and family life.

Our settlements should be organised so that, as far as possible, people can walk or bicycle to work, and so that shops, surgeries and public transport are near at hand. The twentieth century was dominated by the car, which grew to rule us. Thus we have lost much of the local connection, commitment, and control that was once ours. Today's new localism offers a real alternative. The towns and neighbourhoods in Britain that people visit for pleasure and regard as the most beautiful have been

[9] Brook Lyndhurst, *Bad Habits and Hard Choices*, 2004.

built on a human scale. For the sake of the planet, as well as quality of life, more people must be given the opportunity to benefit from localism.

1.3.4.2. Business

Within a framework set by government, companies must exercise corporate social and environmental responsibility. Progressive business is now breaking with the more reactionary lobby groups and arguing for serious government action to lock good corporate behaviour in place. One of the most notable examples of this is the Corporate Leaders Group on Climate Change, which represents the CEOs of 18 leading UK companies, including HSBC, Vodafone, Unilever, BSkyB and Shell. Their view is clear: '*we ought to address the "Catch 22" situation in which governments refrain from introducing new policies to reduce emissions because they fear business resistance, while companies find it difficult to take their investments in low carbon solutions to scale because of the lack of long-term climate policies'.*

In other words, many companies now realise that a lack of necessary legislation or a clear lead from government, can be extremely damaging to business. In 2006, for example, Gordon Brown's ill-considered ditching of companies' obligation for an annual Operating and Financial Review covering environmental and social wellbeing issues came as a huge surprise to many of the best companies. It destroyed the work which had been doing to prepare for this piece of legislation which they supported. They certainly felt that some provision of this kind is necessary even though voluntary approaches to greening business practices are usually the most appropriate, particularly in sectors where there is already a discernible competitive advantage to companies choosing to take this route. The burgeoning markets for 'low impact' versions of everyday products like food, paper, light bulbs, or clothing are good examples. In such cases, businesses may find it is in their interests actively to increase demand for eco-friendly goods and services. But voluntary commitments alone are clearly not adequate to address the scale of the problem.

An incoming Conservative government should help to encourage change in business attitudes towards climate change and natural resources. Some business sectors will continue to resist change, but they should not be allowed to control the speed and direction of travel. Ultimately, Government exists to serve the interests of the people, and should accelerate the transition to sustainability in ways that benefit society at large rather than serving narrowly defined, short-term interests.

1.3.4.3. Public procurement

With an annual spend of around £150 billion on goods and services, the public sector has tremendous purchasing power. We believe that public procurement should be used to pioneer the greening of the economy, through the purchase of environmentally-friendly products, the demonstration of supply chain efficiencies, and the creation of markets for new technologies. More widely, government and its agencies should foster an organisational culture which supports and rewards low-impact choices.

Sustainable procurement strategies could help build public trust in government's environmental credentials. The public sector can also help develop markets for cleaner products and services to a point where they are attractive to private businesses. Governments should be prepared to spend the time, money, and effort necessary to redesign supply chains to minimise environmental impacts. Once governments have a procurement model in place, it is then far easier for private companies to replicate.

We believe that government should be more ambitious in the use of its procurement programme and real estate to reduce its own environmental impacts, promote energy and water efficiency, and drive cleaner technologies. Nearly every purchase that an organisation makes, from printer paper through to a new office building, has hidden costs for the environment. The use of finite sources of water, wood,

and metals; the production of waste which then has to be disposed of; the creation of carbon emissions – they all have an impact.

Intelligent government procurement could lower prices for sustainable goods across the board. In the UK, the public sector spends £125 billion a year procuring goods and services – some 10% of UK GDP. Of this, £40 billion is channelled through local government. Government at all levels can therefore create the economies of scale necessary to make green products affordable, and can push the greening of business by demanding sustainable products. In an attempt to win lucrative government contracts, companies will compete to out-green each other. Governments will not only support best practice: they will incentivise *better* practice, leading business to create products which they might not have done without the incentive of £125 billion of government spend. In this they will only be following the lead of businesses like Wal Mart and Tesco who are taking green procurement seriously as a means of reducing costs as well as satisfying customers.

David Cameron recognised in July 2006 that 'local government has a critical role to play. Think about the impact you have: the planning system; housing; the massive purchasing power of local government procurement and the impact of education in our schools. Local councils have a vital part to play in delivering a low-carbon future.' Likewise, he argued in January 2007 that we need a 'revolution' in food procurement. He held that current policies are 'ignoring British produce and contributing to climate change,' and that 'the Government should be doing everything it can within EU rules to source food for schools, hospitals and other public institutions locally.'

Such comments are welcome given the current lack of government ambition. In March 2007, the Government's Sustainable Development Commission (SDC) reported on procurement on the government estate. Headline findings included the fact that 14 departments are now less energy efficient than in 1999, and that micro-generation accounts for just 0.0004% of the electricity provision across the government Estate. Jonathon Porritt, head of the SDC, argued that, 'overall, government performance is simply not good enough. Against a background of non-stop messages on climate change and corporate social responsibility, the government has failed to get its own house in order. It's absolutely inexcusable that government is lagging so far behind the private sector, when it should be leading the way.'

Despite this, there are some good examples of sustainable procurement across the UK. Local councils such as Kirklees and Trafford are becoming well-known and respected for their approach to solar power, decentralised energy and sustainable homes. There could be much more of this, given genuine government support.

1.3.4.4. National sovereignty and international issues

The most pressing modern-day environmental problems, including climate change, overfishing and deforestation, are international in their causes and impacts, and will ultimately require international solutions. While international consensus should be the top priority, governments in the developed world must be prepared to show leadership through unilateral action where necessary.

1.3.4.4.1. Climate change

We are very clear about the responsibilities of a British government, at the international, regional and national levels. Before everything else, we must set the example at home. Conservatives are proud of nationhood and would echo Tennyson's phrase – *'that man's the best cosmopolite that loves his native country first.'* That means that we, of all people, cannot leave these matters to international and regional groupings as if that excuses our own nation from responsibility. The only way in which we are going to be able to influence the EU and the UN is if we can show we have been doing it here in Britain first.

At a national level, the UK Government should set in place a domestic policy framework that is credible in meeting the country's international commitments and does not compromise the wellbeing of British people or our ability to generate higher quality economic growth now and in the future. We recommend that the Government focuses on three objectives. First, it should set a clear, credible policy framework for emissions reductions and build cross-party consensus behind it. Second, it should correct the market failure to put a price on carbon. Finally, it should give people the information and incentives they need to take action.

In this context we strongly support the Conservative version of the Climate Change Bill with its emphasis on rolling short-term targets set and monitored by a genuinely independent body, with regular accountability to Parliament. We place particular emphasis on the need for a statutory 2020/25 target since this fits with the critical investment cycle for replacement of the UK's energy and transport infrastructure. For this reason, we particularly welcome the unilateral initiative taken by the EU in pressing for a 20 per cent reduction in carbon emissions by 2020 and a willingness to join with others in increasing that to 30%

The government must be willing to engage on all geographic levels, from the local to the international. Some levels of action will encounter resistance, particularly to unilateral measures that increase the cost of carbon or other environmental pollution. It is up to the government to build a mandate for such action among the electorate, to explain the benefits of acting as a leader rather than a laggard, and seize the opportunity for the UK to shape the international response to climate change.

That being said, these are global issues that can only be solved at the global level. First and foremost, this must involve securing an international agreement that provides a credible milestone on the road towards a global stabilisation target. The fast-moving politics of climate change allow Britain to lead, through the EU, a process that complements the UNFCC and which aims to build an urgent 'coalition of the ambitious' among the twenty countries, or states within countries, that currently represent 80 per cent of the world's total carbon emissions.

The objective should be agreement on emission reduction targets to 2020/25 along with delivery mechanisms, plus an understanding of the common but differentiated responsibilities of developing countries and their need to sustain economic development whilst also reducing emissions. The coalition should acknowledge the importance of conserving carbon sinks and agree mechanisms that attach value to the accredited conservation of forests within any international deal.

Another international objective that the UK should meet is its obligation to help vulnerable countries improve their resilience to the impacts of climate change. The priority here must be to honour historic funding commitments We want to see Britain lead the necessary debate about reforming the international financial institutions that act as conduits of financial aid – principally the World Bank and the International Monetary Fund – to place greater emphasis on environmental protection, promote the convergence of traditional development and new 'adaptation' priorities, and establish mechanisms to export much-needed human capacity to help the most vulnerable countries, particularly in the area of water management. Similar reforms should be enacted regarding the Clean Development Mechanism under the Kyoto Protocol, as well as the EU's CAP and structural funds, and the US farm policy and biofuels support policy.

Britain must act as the backbone of the EU in defining a strong, successful future for the current Emissions Trading Scheme. Through the ETS, Europe has the opportunity to put a realistic value on carbon and thus correct some of the market failure giving rise to climate change. If successful, the EU ETS can be the cornerstone of a global trading scheme.

With the US increasingly engaged with the concept of 'cap and trade' as a market mechanism, an incoming Conservative government must recognise the importance of EU Phase III in proving that emissions trading can deliver cost effective CO2 reductions and be a driver of genuine innovation. We also believe that Conservatives should be pressing for the EU to be more ambitious in leveraging the single market to drive down the cost of low-carbon technology and raise global product standards.

National sovereignty demands that we start at home, national interest demands that we work with our partners in the EU and beyond on the global stage to achieve these ends. Climate change is the challenge which will prove if we are worthy to govern Britain in the 21st century. We have made a promising start but the real battle of delivery is to come.

Chapter 2. The Wellbeing of a Nation

Contents

Section 2.1. The Search for Wellbeing 40

Section 2.2. The Institutional Dimension 45

Section 2.3. The Working Week 52

Section 2.4. Measuring the Problem 54

Section 2.5. Conclusion 58

Section 2.1. The Search for Wellbeing

2.1.1. The unease of a nation

Most people would not imagine that politicians have much to do with their quality of life. Instead they would point to family, friends, faith, sport, work, hobbies and enthusiasms as the things that enliven and give meaning to their being. Indeed, it is perhaps a mark of a mature democracy that we don't invest too great an expectation in politics or politicians.

However, it must be acknowledged that part of this popular attitude derives not from contentment but from disappointment. It is not only demagogues who have promised the earth and delivered very little. Democratic politicians, too, although they tend to have a less exalted view of their capabilities, have disappointed many. So it is today that an ever smaller proportion of the electorate is connected to a political party. Increasingly people vote almost on a whim, often without much expectation of it mattering.

If people have such low expectations of the ability of politicians to make worthwhile decisions on political issues, it is not surprising that they have no expectations at all of their elected representatives being able to influence beyond their sphere. Wellbeing certainly comes into that category. Politicians who talk about it are suspected of avoiding real issues and taking refuge from their proper responsibilities.

Yet, the lack of a sense of wellbeing in the community poses a profound problem for politics. Spoken of or not, there is a real malaise which has to be faced even if we have not yet found the right words to discuss it, leave alone the right policies to address it.

2.1.2. Economics and wellbeing

2.1.2.1. The accepted norm

Standard political assumptions hold that economic growth, measured by GDP, will bring about commensurate increases in wellbeing. That, after all, is the promise that lies behind most modern advertising. Acquisition equals happiness. Yet, if this were true, people in the UK should be reporting sharp increases in their life satisfaction – given the rapid increases in income. The sobering reality is that British people have not reported a significant or sustained increase in their personal wellbeing for well over three decades.

Instead, there is convincing evidence that consumption growth is not delivering the wellbeing assumed by conventional economic theory. Indeed, it may actually be causing harms, particularly when the pursuit of material wealth takes away from the quality of personal relationships or a proper balance between work and life.

Although the average individual in Britain has never had so much disposable income, some commentators believe we are a country in a 'social recession'. More than two million Britons are on antidepressants and a million regularly take Class A drugs. Binge drinking, violence, self-harm and vandalism have all reached record levels. Unicef research suggests that British children are the unhappiest in Europe, the most likely to feel lonely and the least likely to sit down for a family meal. Barely 40% of over-11s find their peers "kind and helpful" – the lowest score in the developed world.

The Samaritans report that five million people are "extremely stressed", while the British Attitudes Survey shows time pressures encroaching ever more upon relationships with family and friends.[10]

2.1.2.2. The darker side of wealth

In its typically sober way, the Economist Intelligence Unit has identified negative factors associated with modernisation which offset the benefits of increased monetary wealth. These include the "breakdown of traditional institutions" such as religion, family, and marriage and a "marked rise in various social pathologies", namely crime, drug and alcohol addiction, as well as a "decline in political participation and of trust in public authority".[11]

These trends may be bad for society but they are still counted towards economic growth. As far back as 1968, Robert F Kennedy questioned the wisdom of using GDP as a proxy for wellbeing. He pointed out that it "counts air pollution and cigarette advertising…the destruction of our redwoods and the loss of our natural wonder in chaotic sprawl". He concluded that GDP "measures everything …except that which makes life worthwhile".

2.1.2.3. Status anxiety

Other explanations for the mismatch between wealth and wellbeing refer to materialism's detrimental psychological effects. These make relative status vitally important. We compare ourselves to others and then actively consume as a way of addressing what philosopher Alain de Botton terms 'status anxiety'.[12]

The marketing and advertising industries actively create ever-rising desires and 'needs' in order to drive demand.[13] The public is thus encouraged to acquire positional goods – houses in fashionable areas, ever more exotic holidays, or the most glamorous sports car. In this way, marketing makes today's luxuries tomorrow's necessities as individuals demand an ever-increasing bundle of goods and services to maintain their status.

People push themselves to increase their spending power, even if this is won at the expense of activities more strongly correlated with wellbeing, such as time spent with one's family, community activity, exercise, or leisure pursuits. The term 'affluenza' has been coined to describe a condition whereby too much affluence distracts us from seeking real benefits for ourselves and society.

We spend a lot of time comparing ourselves with others. These forces of adaptation and comparison power a 'hedonistic treadmill', where individuals can never be satisfied but must keep running on the treadmill to meet their ever escalating wants. In the UK, this means that 40% of households earning more than £50,000 per year still felt they could not afford to buy everything they really needed.[14]

There is now substantial empirical evidence that strongly materialist values are detrimental to wellbeing – perhaps because the wish list of material possessions is ever-expanding, meaning that goals can never be met.[15] In a society characterised by the cult of celebrity, the constant flaunting of conspicuous consumption only increases the wish list. We are therefore always discontented with our

[10] National Centre for Social Research, *British Social Attitudes 23rd report: perspectives on a changing society*, London: Sage, January 2007 .
[11] Economist Intelligence Unit, *Economist Intelligence Unit's Quality of Life Index*, London, 2005.
[12] de Botton, A., *Status Anxiety,* London: Penguin, 2004.
[13] See for instance work by Alain de Botton, Clive Hamilton, Juliet Schor, John Kenneth Galbraith
[14] Hamilton, C., *Overconsumption in Britain: a culture of middle-class complaint?,* Australia Institute, September 2003.
[15] New Economics Foundation*, Sustainable development and wellbeing: relationships, challenges and policy implications*, report for DEFRA, 2006.

own performance and it is no wonder that research shows that individuals with these acquisitive values tend to have lower self-esteem, less empathy, and to experience more conflicts in relationships.[16]

So widespread are the effects of this fundamental failure of expectation that it is no longer an issue only for the pulpit. It has to be faced even in the most irreligious of societies and by the most laissez faire of politicians.

The outriders

Many people will be uncomfortable with the suggestion that high levels of material consumption suppress wellbeing, and even more so with any government action seen to interfere with the economic system. After all, large swathes of the population cast their vote for the party that promises the most wealth creation.

Even in our most unselfish moments, when we are affronted by a world where so many have so little, we instinctively measure deprivation by the amount of money on which people survive. 'Below a dollar a day' has long been the measurement of the most grinding poverty. At that level, it is a perfectly good surrogate. Every cent more can bring an improvement in the quality of life. The mistake is to imagine that such an automatic connection between material wealth and wider wellbeing continues no matter how rich you become.

Some individuals and communities are confronting the issue in a way which may yield lessons for policy-makers. Studies reveal that large numbers of people are concerned about the materialism, greed, and selfishness that they believe drives society today and to which they attribute social ills such as rising levels of crime and family breakdown.[17] Some merely bemoan the state of the world but others seek to take personal remedial action.

The trend for downshifting from demanding careers and the emergence of the worldwide 'slow' movement (as in 'slow food') are two proactive responses to a society that in Oscar Wilde's words, 'knows the price of everything and the value of nothing'. Time is a particularly valued but scarce commodity, with 57% of the UK public agreeing that "I never have enough time to get things done," whilst 40% are "willing to spend money to save time."[18]

Downshifting involves people voluntarily accepting a drop in their income in order to rebalance their lives – often in order to regain control over time and to improve their personal relationships. Research suggests that in the UK, 20-35% of adults aged 30-59 have downshifted.[19] The average income for downshifters fell by 40%. Furthermore, not all downshifters are wealthy or middle-aged – in fact they are spread across all age groups and social grades, albeit unsurprisingly with fewer in socio-economic group E.

The 'slow' movement also attempts to reach core values and reclaim quality time. Its best known manifestation is the 'slow food movement' pioneered in Italy, which seeks to counteract the fast food culture and encourage the use of local food. There are already more than 40 slow food groups in the UK, promoting the enjoyment of a more relaxed food culture from the Scottish Highlands to Cornwall.[20] At a mass retail level, the growth of markets for organic, local and fair-trade foods reflect this growing interest in variables other than price.

The Transition Town network is another community-led initiative aimed at reducing energy and resource use. Around 14 towns and cities are now signed up to the initiative, including Bristol, Stroud, Totnes and Lewes.[21]

We are at the early stages of seeing how government policy could support the scaling up of such initiatives, but they do suggest that restoring work-life balance is a priority for significant numbers of people. As David Cameron has said, "So much of the destruction that we wreak on the environment is because of man's desire to find more time… to put it in the language of traditional politics, I'd like us to think not just about how we give people a tax cut, but how we give them a time increase."

[16] Kasser, T., *The High Price of Materialism,* MIT Press, 2002.
[17] Eckersley, R., *Well & Good: Morality, Meaning and Happiness* (2nd edn). Melbourne: Text Publishing, 2005 and Eckersley, R., 'What's wrong with the official future?' In Hassan, G. (ed), *After Blair: Politics After the New Labour Decade*. London: Lawrence and Wishart, 2006.
[18] Henley Centre, *Workshop to Inform the Strategy of Natural England*, 21 July 2005.
[19] Hamilton, C., *Downshifting in Britain – a sea-change in the pursuit of happiness*, Australia Institute, 2003.
[20] http://www.slowfood.com/about_us/eng/condotte_uk.lasso
[21] http://transitiontowns.org/

2.1.2.4. The business of politics?

To establish the causes of these unhappy trends is difficult enough but even harder is establishing where the responsibility lies for doing something about them. There is clearly an erosion of social connectedness and a breakdown in shared values. We have a preoccupation with materialism in all its forms. Yet, efforts to bolster wellbeing through acquisition often end in disappointment. Indeed, the very attempt can reduce wellbeing through stress and time poverty.

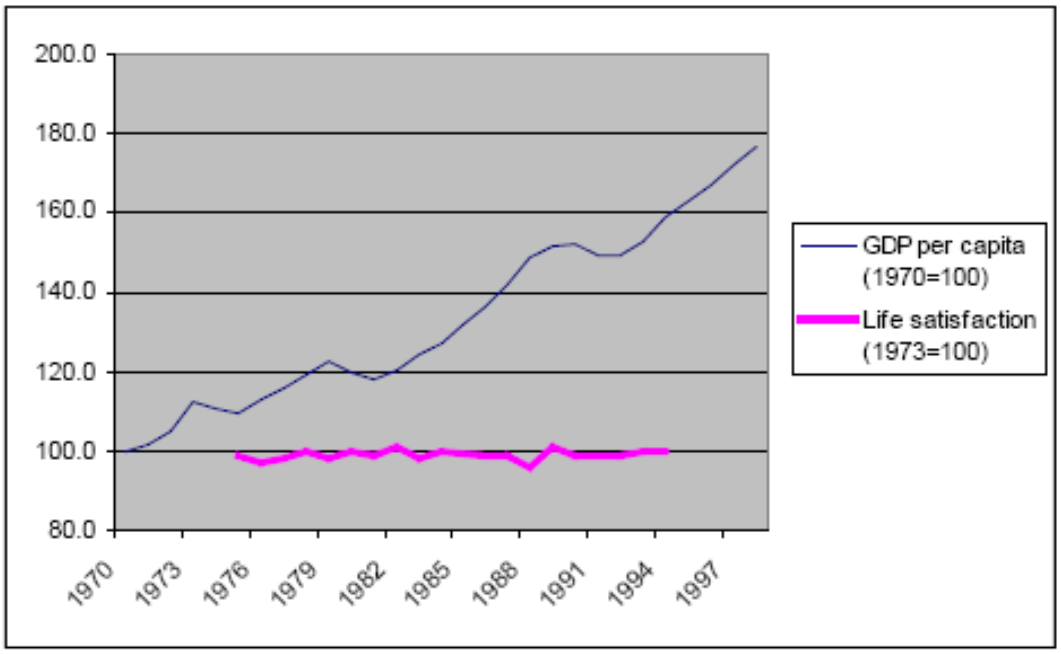
So, whatever else may be true, it won't be possible for politicians to avoid the subject. As the cost to the planet of the excessive use of resources becomes ever clearer, so the spotlight will shine on the issue of consumption. The automatic assumption that we have to grow in the old way in order to make people happier, will no longer be tenable, even though many people will still cling on to it. The question will have to be asked; have we got the right definition of growth?

2.1.2.5. A narrow definition of growth

"The welfare of a nation can scarcely be inferred from a measurement of the national income." So said Simon Kuznets, the Nobel prize-winning economist whose work helped establish GDP as the standard measure for national accounts. Yet GDP has been used as a proxy for wellbeing ever since it was developed over fifty years ago. This, to the extent that many governments have subjugated all other policy goals to the pursuit of this single definition of progress.

Of course, a strong, stable economy is an essential basis for wellbeing. It provides employment, pays for public services, and enables the community to protect itself from attack from without or within. We deny none of that; it is merely an incomplete assertion unless we also accept that the relationship between economic growth and wellbeing is not linear. Figure 2.1. shows that while income has increased rapidly over the last three decades, life satisfaction has barely changed.

Figure 2.1. UK life satisfaction and GDP per capita 1973-1997[22]



[22] Donovan, N. & Halpern, N., *Life Satisfaction: the state of knowledge and its implications for government,* No. 10 Strategy Unit, December 2002.

Similar data from countries at various stages of development suggest that rising incomes strongly increase wellbeing for people earning up to $10,000 per annum. The correlation weakens at slightly higher income levels and beyond $20,000 per year even substantial increases in income are not associated with higher life satisfaction. These results are consistently borne out across different cultures. There seems to be a law of diminishing returns where the importance of income to wellbeing decreases as people get richer.

This poses a simple question – could people increase their wellbeing with less, or a different kind of, growth? Up to now, the sustainable development debate has put a different question. Individuals are asked whether they will change behaviour now for the sake of future generations. The inevitable implication has been that this involves sacrifice today for security tomorrow. What we ask here is whether a different way of living might bring a measurable improvement of wellbeing for this present generation – the people who made the change.

If such a lifestyle change reduced our environmental impact and increased our sense of wellbeing at one and the same time, then that would move the whole discussion of sustainability from the remote into the measurable and immediate. If less materially-intensive lifestyles are shown to benefit the individual as well as the planet, the prospect of wellbeing could become a powerful tool for motivating lighter, less resource-intensive lifestyles.

Not that this is an easy route. It would take political skill and vision to engage the public in a reappraisal of how to increase wellbeing. As David Cameron puts it, “Improving our society’s sense of wellbeing is, I believe, the central political challenge of our times. We have always known that money can’t buy happiness. But politics in Britain has too often sounded as though it was just about economic growth.”

This discussion must not be confused with Puritanism. The point of a politics of wellbeing is not to argue that hair shirts make you happy. It is simply to question whether the pursuit of silk shirts, to the detriment of everything else, is any more likely to make you happy.

Section 2.2. The Institutional Dimension

2.2.1. Why is it worse in Britain?

In order to bring what might otherwise be an abstract debate down to earth, it is worth examining the characteristics of those advanced societies that score well from a wellbeing perspective. Countries which offer strong political freedoms and civil liberties tend to report higher levels of wellbeing.[23] It seems crucially important that citizens have adequate means of expressing these democratic freedoms and, in particular, the opportunity to influence the decision-making that affects their everyday lives.

In the UK, the average citizen is increasingly disengaged from formal democratic politics and trust in politicians and the political process appears to be at an all time low. Only one in five people trust politicians and even fewer trust the truthfulness of government ministers.[24] Turnout in general elections has declined significantly since 1997 and allegiance to political parties has dropped from 44% to 14%.[25]

However, it is not that the British people are apathetic in general. Large numbers are involved in community and charity work, and in single-issue pressure groups. Disengagement from the formal political process seems to be driven most by the fact that people feel a lack of control over their lives and the decisions that affect them directly. There is a perception that, no matter which party you vote for, little changes. This leads to cynicism and disempowerment. At present, the majority of citizens only have a direct influence over the political process once every four or five years, when they are required to choose between political parties with whose views they almost certainly do not agree with in their entirety. The centralised nature of our politics means that local elections are not seen as important in their own right but more often as a reflection of the national standing of the parties. It is widely felt that these polls matter little because power resides elsewhere, in Westminster, Whitehall, and Brussels.

2.2.2. Losing influence

We need therefore urgently to rethink the relationship between people and power, and to develop a model of political citizenship that is appropriate for our times. This is consistent both with David Cameron's determination to give people greater control over their lives and with the findings of the independent Power Commission, which reported on the causes of political disengagement in 2006. Lack of participation, in the Commission's view, is not the result of apathy, widespread economic and political contentment, the supposedly low calibre of politicians or the lack of competitive elections. Rather it is the corollary of citizens not feeling that the processes of formal democracy offer them enough influence over political decisions.

As Pam Giddy of the Commission explained in her evidence to us, people "want direct influence over democracy and they want someone to listen to their views". The Sustainable Communities Bill, championed by Conservatives, is a first opportunity to push this agenda forward as it puts participatory decision-making at its core. Central to this is handing greater control to the community at the lowest possible level. In particular, we would encourage the use of neighbourhood councils which would be given funds by the local authority to spend on improving the area. This approach could have a direct impact on neighbourhood policing teams and environmental improvements programmes, handing greater control to the community.

[23] Qvortrup, M., *The Voting Happiness Index,* Our Say, 2007
[24] Ipsos MORI, *Public trust in doctors still high,* 2006
[25] The Power Commission, *Power to the People: an independent inquiry into Britain's democracy,* 2006.

2.2.3. Making it happen

There is a noble tradition of local government, community and parish councils, and voluntary organisations in Britain. Sadly this has been eroded in recent decades by the centralising tendencies of successive Governments. Conservatives would return to their localist roots by giving power back to the lowest level.

We must relearn the true meaning of subsidiarity. Power should be diffused throughout the community and the wider and more authentic the levels of decision making, the more people become involved and the healthier the society. There are some things that, by their nature, can only effectively be done together with our partners in the EU. Nothing, however, should be done in Brussels that could better be done in Westminster or there that could be done at County Hall, or there that could be done at District level. No District Council should make decisions that could be taken by the parishes, by voluntary groups, churches, clubs, or community organisations.

Of course, we must try to act at every level as effectively as is possible but we must be prepared to sacrifice neatness for variety and true accountability. The diffusion of power will mean that things will differ between places much more. We should be unabashed when commentators denigrate this as a form of so-called post-code lottery. We should celebrate difference and rejoice in diversity. People in different localities will have different priorities and should decide for themselves how their communities will use their resources.

The mechanisms of more direct democracy should be explored in greater depth at the local and national levels. This could include a system of citizens' initiative whereby voters have the right to initiate a referendum by gathering signatures.

It is vital that any new mechanism for giving local people greater ownership of decisions that affect their communities is genuine, and seen to be so. The tendency of politicians to concede the principle of power-sharing while attempting to retain control of decisions in practice has done much to deepen cynicism and disengagement from the political process. We must accept that the popular perception of politicians is "they'll say anything to get elected but do exactly what they want once they win". Inevitably, any reform will initially be viewed with some suspicion which is why it must be real rather than cosmetic, substantive rather than a gimmick.

In Britain today we have a well-informed and educated population with the ability to make decisions relating to aspects of governance. We believe that it is time to place more confidence in people to act responsibly by giving them a greater sense of control over decisions that influence the quality of everyday community life.

There will, no doubt, continue to be serious argument as to how the tax money that comes from central government should be divided up among different local authorities. No formula will suit all. However, the more that what is available is spent as localities want, the more people will feel involved in what matters to them. The fact that tax money is more conveniently raised centrally does not automatically mean that it is all 'owned' centrally. By recognising this, Parliament will cease to usurp that huge part of the political agenda which should be local.

2.2.4. Principles into practice

We will have to admit that, although localism is attractive in concept, it is difficult in practice. It will be hard for ministers and civil servants to give up their habits of micro-management. It will be very hard for politicians to allow others to make mistakes and to defend their right to have different and

even unfashionable priorities. It will be hardest of all for people to recognise that subsidiarity applies to everyone. We are all willing to take from the level above us but very reluctant to pass power down.

For this reason, we need to have a system in which power structures are not fixed but can be changed when people choose. That's why we propose the use of the local referendum. If a Town Council, say Godalming, feels that it could exercise some of the powers now given to Waverley District then, if it could convince its electorate that the proposals were sound, those powers and the finance available for their exercise would pass down to the Town Council. District Officers will have to work to get used to advising parishes that have taken over powers in this way. However, the loss of neatness will be compensated by a significant growth in participation.

And this will only be the beginning. As we recover localism in local government, people will ask why there is so little local participation in their hospital or why their children's school doesn't make its own decisions like an independent school would. There will begin to be proper bottom-up pressure for change. In the meantime government can start by requiring all public bodies to involve citizens in key areas of decision-making and encourage councils to provide for voluntary devolution and joint working at all levels. If we are to involve people to the maximum we must also promote simple, accessible language throughout the political process.

Throughout this Report we have sought ways in which local action can be the mainspring. In the organisation of fisheries, the prevention of flooding, and the direction of planning and in so many other areas, we are looking to pass power to the people who are directly concerned. In every case, we have found resistance from those higher up the command structure who cannot believe that, given the power, the people will make the 'right' choices. But it is their lives, their money, and their future of which we speak. Their involvement will make all the difference in winning the battle against climate change. Yet, in that, climate change is only an example, albeit the most urgent. Whatever its endeavour, government will not succeed unless it has involved all whose support it needs. That is the world in which we live -where people's wellbeing depends in part on their empowerment. They need to feel that what they think and do matters. They must recover a belief that what they as individuals do can really make a difference.

2.2.5. Localism and the environment

Community participation and access to high quality environments are strongly associated with enhanced wellbeing. Providing a framework for a richer, more fulfilling and sustainable community life has been a central theme for the whole Quality of Life Policy Group process. There are positive synergies between environmental sustainability and localism. In particular they are found in land-use planning, food, transport, and energy generation. Strong communities are a powerful source of wellbeing. Furthermore, community engagement not only improves the wellbeing of those involved but also the wellbeing of others.

Building social capital – defined as the "networks, norms and social trust that facilitate coordination and cooperation for mutual benefit"[26] – has a number of positive externalities for society as a whole. The government should seek to support appropriately a wide variety of community engagement. It needs to focus on encouraging active citizenship, especially among younger and excluded groups.

Those who already identify themselves with a particular organisation, club, or campaign are the easiest to reach but our effort must be wider than that. We must reinvigorate the voluntary principle by setting volunteers free. This last decade has seen the progressive bureaucratisation and centralisation of charities. Government, in the name of professionalism, has pressed them to replace enthusiastic,

[26] Robert Putnam quoted in Shah, H., & Marks, N., *A wellbeing manifesto for a flourishing society*, London, New Economics Foundation, 2004.

sometimes quirky, independence with a civil service attitude that makes many voluntary organisations very little different from each other or from the statutory authorities. Government should be prepared to help and encourage charities without feeling obliged to insist that they run themselves according to our textbook.

Sadly the opposite attitude now obtains and the organisations themselves have caught the disease. They are increasingly centralised and directed by the rule-bound. The latest example is the revamp of the St John's Ambulance Society which has decided to downgrade its local structure and enhance its central control. It may make them more able to meet government and Charity Commission norms but it will take much of the heart out of the movement. Before our eyes, we can see local committees being disempowered and losing will and enthusiasm.

That's why the localism agenda applies to the voluntary movement as well as to local and national government. Politicians should avoid interference with the way people get together to operate as a voluntary group. Instead, government should set parameters that encourage the diffusion of power and influence throughout the community, giving meaning to the lives of so many very different people. Insisting upon transparency and protecting against fraud must stop being the excuse for interference in the minutiae of voluntary activity.

A future Conservative government should therefore review much recent legislation with this in mind. From the homogenizing Charities Act to the intrusive regulation of independent schools and the continuance of otiose bodies like the Architects Registration Board, there is much deregulation to be done. That deregulation should be driven, not by dogma, but by a determination to return power to the people, to let voluntary groups, societies, and churches do their own thing, make their own mistakes, and, above all, make their own distinctive contribution. Where government funding for voluntary bodies is deemed appropriate it should not serve as the excuse for interference. When we decide that others are better placed to do things than government itself, then we must learn to let go and let them get on with it. It may mean greater risk. It will certainly mean greater reward.

2.2.6. Localism and participation

One-planet living inevitably involves some form of demand management for environment-damaging goods. Yet demand management is usually portrayed as having a 'win-lose' outcome – good for the environment, but bad for the economy – and, by inference, the consumer. Our Climate Change Chapter illustrates the urgency and scale of the challenges we face. It argues that in coming years we need to squeeze some 80% of the carbon out of our economy. It therefore needs to be recognised that 'slightly more sustainable consumption of slightly more sustainable products' – will not on its own reduce resource use to a level compatible with the Earth's absolute environmental limits. So what will?

Elsewhere in this Report we have offered recommendations which will make a substantial contribution to helping society become more sustainable. These include shifts in the 'rules of the game' by which companies operate, the proper pricing of resources, and changes to corporate investment flows which could all help substantially to green the economy. Without these important changes to frameworks, actions by individuals cannot hope to make the changes needed. But without the participation of hundreds of thousands of people up and down the country we shall not succeed. The localism agenda is essential to the sustainability agenda and vice versa.

Information will play a key part in achieving both. If people understand the facts of climate change and the actions which will make a real difference, they will be more likely to take part. If they feel empowered by the new localism they will have a chance to encourage others to make those choices and to add communal action to individual participation.

Both individual and communal action involves making choices. Those choices will be driven differently but the first choice must be to join in. Making that as universal a choice as possible is a proper aim of government. A nation involved is a nation whose wellbeing is enhanced. Yet, by almost every action, government makes involvement more difficult. From health and safety regulations to the complexity of social security forms, government deters participation. If it is important to simplify the language of participation and sustainability, it is even more important to simplify the process of involvement. That's why throughout this Report we have concentrated on the need to help people do the right thing and to make it easy for them to choose the sustainable answer.

2.2.7. Choice

Empowering people involves giving them choice, but it does not mean that government should opt out of the process thereafter. Choices are not made in a vacuum. There are all kinds of influences at work – some benign, many malevolent. Government has a responsibility to ensure that choices are made within a context that makes it easier to choose well. That is not an easy thing to do and so we usually dictate. It is easier to choose for others than to work with them to choose for themselves. Over and over again we have to remind ourselves how much more valuable is a willing choice than a forced acceptance. And getting it right is vital.

The importance of shifting choice sets was a central conclusion of the research carried out by the Oxford Commission on Sustainable Consumption. Simple and direct information makes such choice possible. We have already seen how the process has been a success with regard to kitchen appliances, including fridges and freezers. Since 1995, these have been labelled with an energy rating from A to G. Regulation then removed all appliances rated less than C in 1999, and two years later the market for efficient cold appliances received a further boost from price incentives. This combination saw the market share of A-rated fridges soar from 3% to over 70%. As the Sustainable Development Commission notes, "A virtuous circle has ensued in which retailers have only wanted to stock higher-rated appliances and manufacturers have responded to demand by raising performance further".[27]

Survey evidence indicates that many consumers would welcome choice editing that removes environmentally damaging products from the shelves, while encouraging choice above a predetermined baseline. By removing the bad and labelling the rest we make effective choice a practical proposition for almost everyone. We must regularly raise the bar so that the market entry level is increased at a pace that industry can meet and according to a timetable that is well understood.

Popular understanding and support for these principles is clearly growing. A notable recent example was the reaction to the threat to fish stocks. According to a MORI poll in 2005,[28] 74% of people agreed that 'if fish like cod are endangered they should not be available to buy'. The better understanding of the challenge of climate change will mean that this attitude will become much more widespread in its application.

However, although consumers support such choice editing, government and business need to lead the process. The Sustainable Development Commission argues that the burden should not fall to a "heroic minority of green shoppers to shop society's way out of unsustainability". Rather, manufacturers, retailers and regulators should take responsibility for bringing low-impact products into the mainstream, and for finding ways of discouraging unnecessary consumption –for example, by designing products that last for much longer. They can also encourage demand for these products and 'norm' them by making them more appealing.

[27] Sustainable Development Commission, *I will if you will: towards sustainable consumption*, London: SDC, 2006.
[28] *Ibid.*

Government has a responsibility to help in the process by giving industry clear and timely warning of the upgrading of standards. That needs to be done on an incremental basis, each new step being advertised when the previous one is reached. Industry can be stretched to do much more than it thinks possible but only if Government troubles to work with the grain, gives proper notice, and sticks to its advertised programme.

2.2.8. Selling the product

2.2.8.1. The changing role of marketing

In the Chapter on Climate Change, we discuss in more detail the role of advertising. One of the most interesting growing areas in the field of corporate responsibility is in responsible and 'green' marketing'. Work carried out by groups such as Forum for the Future and WWF[29] has encouraged many in the media, marketing, and advertising profession to examine their role in shifting consumption to a more sustainable footing. A number of advertising agencies and global brands are now actively working on such issues.

Some might argue that 'turkeys never vote for Christmas' and that companies are not going to stop selling products. That is to miss the point. Shifting to a wellbeing economy does not mean the end of production and consumption. We are always going to need goods and services and they are going to change, adapt, and improve. However, if we are to 'green' those goods and services, companies have to join in the debate and recognise the crucial role they have to play in turning growth into green growth.

In the meantime we have to recognise that marketing plays a big role in creating demand for new product categories and in elevating rank-and-file products to the status of 'positional goods'. In such ways different car brands convey different messages about their owner, even if the performance of the cars is very similar. We have seen that the drive to acquire such positional goods contributes little to the social and environmental wellbeing of the nation. We instinctively understand that but we find it very difficult to change our habits. The pressure is however mounting.

2.2.8.2. Regulation?

Curbs on advertising are becoming more common, particularly in relation to adverts that target children. Sweden has a ban on TV advertising aimed at the under-12s and last year Ofcom announced a total ban on junk food advertising around children's programming in the UK. Stricter advertising controls making compulsory the provision of fuller information or even outright bans on cigarettes have already been effected.

Such moves to ban or curb categories of adverts are regarded by some commentators as shameful meddling by the nanny state – their view is that people should be left to make their own choices. The Quality of Life Policy Group is sympathetic to this view of freedom and does not advocate draconian bans on advertising. It shares the belief that changing people's habits is a battle to be won, not a decision to be forced.

However, there is no doubt that advertisers play a large role in defining the choices available and guiding consumer desires. Our approach would seek to improve the quality and reliability of information in the public domain and to encourage brand managers, marketers and advertising executives to think about their role in promoting sustainability. Ultimately this will be increasingly important in dealing with reputational risk. As society becomes more aware of the problems, so the

[29] Kleanthous, A & Peck, J, *Let Them Eat Cake*, WWF 2006.

businesses that rely on public approbation will avoid marketing that strikes a false note with the customer and encourage that which adds to the standing of their brand.

Brands function at the interface between consumption and production, consumers and producers. It is here that we are at the heart of the capitalist model. A two-way communication process at this interface means that consumers are influenced by a broad ‘brandscape’ but also that brands attempt to tune into societal values to position themselves most favourably with such values. The brand function is therefore a crucial place at which to induce change in production and consumption patterns – albeit within the context of changes to fiscal incentives and regulations.

Media responsibility is also now an important aspect of the corporate responsibility debate and a number of media organisations such as the BBC and BSkyB are actively examining the role they play in determining the way people frame and think about issues. The concept of ‘brainprint’ instead of footprint is now one with which the media are becoming familiar and there is much media companies can do to support societal value shifts on important issues such as engagement with climate change. There is scope for government to tap into these discussions and see what its role might be in facilitating more responsible marketing and sustainable consumption.

Section 2.3. The Working Week

2.3.1. Longer hours

The average British full-time employee spends nearly 45 hours at work – longer than workers anywhere else in Europe. As work is such a large component of everyday life, it goes without saying that job satisfaction is an important determinant of overall wellbeing. Research shows that a happy workplace is one that maximises opportunities for personal control and skill use and offers variety, job security, good pay and supportive management.

However, it seems that long working hours are taking their toll on job satisfaction and other components of wellbeing outside the workplace. Over the last decade, employees' self-reported satisfaction has declined in every facet of their job. The most dramatic decline related to hours worked, which was a concern for everyone from senior managers to those in unskilled manual work. Another study used a survey of recently resigned employees to gauge major sources of dissatisfaction. All categories – men, women, young and old – cited hours worked as their second most important reason for quitting. The most important reason was a lack of job security.[30]

People working long hours report knock-on effects for their life satisfaction in other areas. More than half of managers agree or strongly agree that working overtime has taken its toll on their social life, relationships with partner and children, and health.[31] Interestingly, a large percentage also said long hours damaged their productivity and morale. This finding is borne out by data on productivity across the EU, which shows that long hours go together with low productivity, while short hours appear to drive higher productivity.[32]

Such considerations are often countered by those who say that, compared with the historical norm, working hours, even in Britain, are short. Yet what is changed is our expectation. We expect greater affluence to mean a greater sense of wellbeing. When it doesn't, we correctly identify the fact that affluence has not meant a growth in relationships, in family cohesion, and in social interaction. We have made the money but we simply haven't made the time.

Obviously, there are ways to strip out excessive working hours without holding back economic growth. Indeed, this is the driving force behind much of the technological innovation that has taken place since the Second World War. Given that our lives are now full of labour-saving devices, it is ironic that the iconic workers beloved by advertisers at the start of the post-war boom – the tired housewives and overworked middle managers – have still not put their metaphorical feet up. We claim we want more leisure time, but are convinced that it takes an ever-increasing income to ensure this is 'quality' time. These are examples of the hedonistic treadmill at work.

In producing this Report we have, however, come to the conclusion that a crude policy of regulation of working hours is not desirable. Such legislation would be overly prescriptive and has clearly not worked in many of the countries that have tried it. In any case, we need to reach consensus on measures to enhance wellbeing. We believe that debate, information and incentives are more fertile territory for its cultivation. This is not a conclusion that appeals to those of a nannying disposition. We understand that it is easier to direct but believe that in the end direction is much less likely to be effective. People need to own the changes they make if we are to have a lasting change in attitudes.

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[30] Donovan, N., & Halpern, N., *op. cit*

[31] Worrall, L. & Cooper, G., *The Quality of Working Life: manager's health and wellbeing*, University of Manchester Institute of Technology, 2000.

[32] European Industrial Relations Observatory, *Comparative overview of industrial relations in Europe,* 2005, available online from http://www.eurofound.europa.eu/eiro/. European Commission, *Joint Employment Report 2004/2005,* available online from http://europa.eu/scadplus/leg/en/cha/c11322.htm

2.3.2. Flexible working

An approach which involves thinking "not just about how we give people a tax cut, but how we give them a time increase" might involve workers taking promotions in terms of increased leisure time rather than a pay rise. This would facilitate longer weekends, career breaks and opportunities for other part-time work.

More flexible working patterns should also be strongly encouraged. As discussed in our Chapter on Transport, teleworking, videoconferencing and other information technology innovations are strongly associated with carbon savings. Flexible working also offers a route to healthier work-life balance, offering employees greater control over their time planning and saving time associated with travel.

In a survey of teleconferencing by BT employees worldwide, 46% of users reported their last conference call had saved at least 3 hours travel time.[33] In total, BT saved an estimated £238 million through the use of teleconferencing, through avoided travel, subsistence and opportunity costs. We should therefore consider incentives to encourage flexible working patterns.

2.3.3. Caring in the family

There is also an argument for rewarding the valuable but currently unwaged work within the family that is so important to social cohesion. Care of children or elderly people and the maintenance of the home are activities that have been much undervalued, partly as a result of gender politics. The wellbeing of society demands that we reinstate the value of work in the home, having removed the gender implications and detached it from the connotation of 'women's work'. It would be possible to recognise these services more strongly – for instance, through extending tax credits or facilitating more flexible patterns for paid work.

Society has moved ahead of politicians in these matters, both in its recognition of the seriousness of our loss in denigrating work in the home and in the acceptance that this is a worthwhile occupation for both men and women. The continued maintenance of the stereotypes is now partly the result of institutional structures and government and business need to make it easier for people to work in less formal ways. The new generation of both sexes are ahead of their seniors in this understanding and we would do well to accommodate the wide variety of life and work styles that they seek.

[33] University of Bradford and SustainIT, *Conferencing at BT – Results of a survey on its economic, environmental and social impacts*, 2007.

Section 2.4. Measuring the Problem

If we did not have a measurement of prosperity that is treated as efficient, we would be in less trouble. Once measured, concepts assume a reality and entail action. Despite the warnings, GDP is treated as if it were a sufficient measure of a nation's wealth. It thus ensures that we define wealth in the narrowest of ways. If a wider concept of wealth is to be considered properly, particularly by politicians, we need to pay attention to other measures that will more properly account for it.

2.4.1. Measuring what matters

2.4.1.1. What now exists

GDP has major shortcomings as an indicator of national performance in relation to the three goals of economic, social, and environmental wellbeing. In the last decade, the equation of societal progress with rising GDP has come under increasing scrutiny, as a range of data shows that developed countries are pushing up against environmental limits, and that gains in individual wellbeing have fallen well behind GDP growth.

This has led to a surge of interest in defining and measuring alternative indicators of environmental, social and economic wellbeing. The UK Government, for instance, is now pursuing a "strong, healthy and just society…living within environmental limits" as part of its Sustainable Development Strategy. There is still debate over what such a society looks like and how best to take its pulse through subjective and objective measures of wellbeing. The challenge is to provide a meaningful measure that integrates environmental, social and economic accounting, while still being strong and simple enough to offer a realistic alternative (or supplement) to GDP. It must also offer a basis for comparison between nations and across time.

Other methodologies for measuring wellbeing are founded upon extended indicator sets, measuring a variety of objective physical or socio-economic factors likely to influence wellbeing. Under Labour, the Government has made some attempt to move towards a more realistic measure of genuine wellbeing. There is a currently a cross-departmental Whitehall Wellbeing Working Group and a Wellbeing Indicators Group although these are thought to have very little influence and power. The Government has defined 68 sustainable development indicators, including household energy use, community participation, economic productivity, childhood obesity and fear of crime.[34]

However, the use of such a wide and complex set of indicators has been criticised as lacking in clarity, and GDP-adjusted wellbeing measures seem to play little role in overall Government policy and certainly no role in Treasury thinking. The Sustainable Development Commission has noted that large numbers of indicators do not provide a sufficiently clear or focused basis for measuring 'overall' progress. There are also disagreements over what indicators should be included, and how they should be weighted relative to one another. All these factors increase the danger that sustainability indicators will be sidelined since they do not offer robust alternatives to GDP.

We agree with the SDC's conclusion that a much smaller number of top-level indicators would provide a sturdier basis for policy progress towards maximising the three measures of social and environmental wellbeing alongside economic growth.

[34] HM Government, *Securing the Future: delivering UK sustainable development strategy*, London, 2005.

2.4.1.1.1. Social wellbeing

The first of these three is measurement of social wellbeing. Some of the best-known measures of social wellbeing simply ask people to rank their life satisfaction along a scale of 'not at all satisfied' to 'very satisfied'. The World Database of Happiness compiled in the Netherlands, despite its unhappy title, is the most extensive database of reported life satisfaction, while Bhutan's measure of Gross National Happiness is probably the most famous. All measures of life satisfaction consistently bear out the finding that the relationship between rising income and increasing wellbeing is one of diminishing returns.

Nevertheless, such measures all appear to suffer from some basic problems. Subjective measures of wellbeing seem to beg some important questions - not least whether one individual's 'very happy' is another's 'happy'. It is also difficult to link cause and effect in these matters. However, a report from the Government's former Strategy Unit found that life satisfaction data "show highly consistent and very plausible relationships with a host of other variables" and concluded that "the research is a lot more reliable than first impressions might suggest". It is legitimate, therefore, to look carefully at these subjective measures in any overall indicator of wellbeing or the progress of sustainable development.

2.4.1.1.2. Environmental wellbeing

There are numerous ecological footprint measures, the best known being the WWF Living Planet Index. The LPI attempts to monitor the health of the planet by tracking and aggregating 1,313 species populations and global use of resources such as water and carbon emissions. In time a consensus will build as to which of the various ecological footprint measures is of most use but is has been suggested that currently the simplest measure is to use carbon footprint as a proxy for wider environmental wellbeing.

2.4.1.1.3. Economic wellbeing

The third class of wellbeing measures go by the name of 'adjusted economic indicators' and attempt to modify GDP into a more accurate gauge of economic, social and environmental welfare. The concept of GDP was developed in the 1930s in order to improve national account-keeping, and in some senses has always been a work in progress that was criticised on purely economic grounds even before its shortcomings as a measure of social wellbeing were properly explored.

For our purposes, the most pertinent criticism of GDP is that it fails to take account of the social and environmental costs associated with economic growth. A number of senior economists have set out to correct this by improving GDP as a measure of overall welfare. The most well-known methodology is the Index of Sustainable Economic Welfare (ISEW) developed by Herman Daly and John Cobb.[35]

Unlike GDP, ISEW incorporates a correction for the depreciation of natural assets and the costs of environmental damage – for example, the depletion of fossil fuels, habitat loss or pollution. It takes account of so-called 'defensive' expenditures taken to counter the unwanted side-effects of production, such as the costs of car accidents, pollution clean-up and private health expenditure. It also includes the reduction of welfare associated with income inequality within a country. All of these factors reduce total economic welfare.

Daly and Cobb also identified unpriced factors that increase economic welfare compared to the traditional GDP measure. ISEW includes the value of goods and services produced outside the market-place, such as care of dependants, volunteering and housework.

[35] Daly, H., & Cobb, J., *For The Common Good: redirecting the economy towards community, the environment, and a sustainable future*, Beacon Press, 1991.

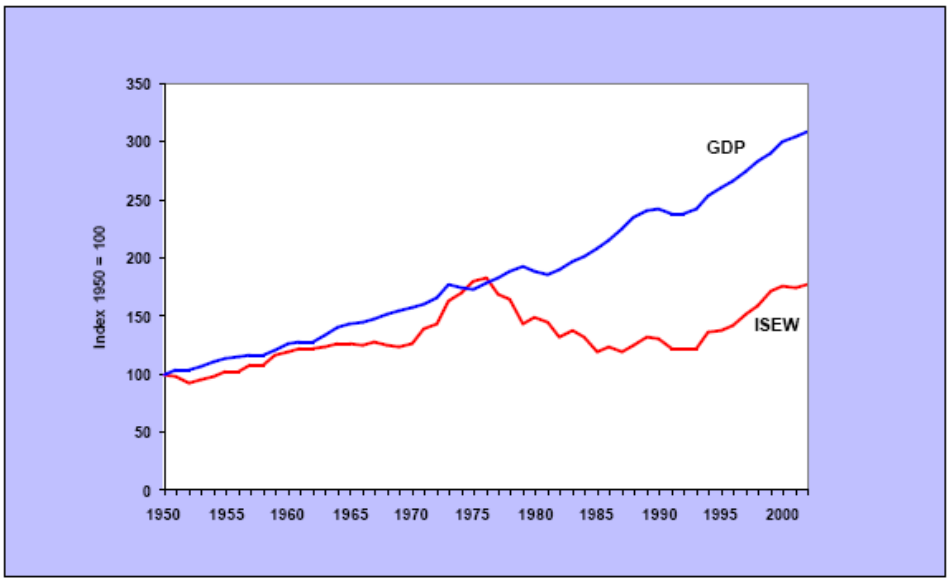
In summary, the adjustments to GDP that comprise the ISEW are captured by the following equation:

Index of Sustainable Economic Welfare = Personal consumer expenditure[36]

- adjustment for income inequality
+ non-defensive public expenditures
+ value of domestic labour
+ economic adjustments
- defensive private expenditures
- costs of environmental degradation
- depreciation of natural capital

Several countries including Australia, Austria, Germany, Italy, Thailand and the US use a version of ISEW to measure progress alongside GDP. The results for the UK are typical of ISEW trends everywhere, and show the decoupling of the index from GDP after the mid-1970s.

Figure 2.2. ISEW and GDP per capita in the UK, 1950-2002



2.4.1.2. A new set of measures

There exists a wealth of data and analysis about measures of social and environmental wellbeing, and we believe now is the time for the UK to agree upon a more reliable indicator of progress than GDP, and to use it as the basis for policy-making. We support the SDC's recommendation for a 'triad' of high-level indicators to measure economic wellbeing, societal wellbeing and environmental wellbeing.[37] Ultimately the economic measure should take the form of an internationally agreed system of GDP adjustments, along the lines of the ISEW.

The environmental measure should be based upon the national ecological footprint as it relates to natural resource use and could use the carbon footprint as a proxy for wider environmental footprint. Such a carbon measure should include domestic and import emissions from products and services. The development of this indicator could be one of the responsibilities of the new Climate Change Committee as described in our Chapter on Climate Change. The social measure is perhaps the hardest

[36] Jackson, T. & McBride, N., Measuring Progress? *A review of adjusted measures of economic welfare in Europe.* European Environment Agency, 2005
[37] Sustainable Development Commission, *Living Well Within Limits*, draft discussion paper, May 2007.

to define, but should relate subjective reports of wellbeing (such as life satisfaction) to objective measures of agreed indicators such as community cohesion, crime, and divorce rates.

2.4.2. A programme for action

Clearly, developed nations are not in a position to replace GDP with alternative indicators just yet – considerable public and political debate will need to precede agreement, as well as the development and testing of methodologies. But this process will not get started without political leadership.

We are now confident enough of the dynamics of life satisfaction to start subjecting many areas of government policy to much more rigorous wellbeing tests. In many cases, policies in favour of greater wellbeing will align with more sustainable development. For instance, dormitory towns and car-based development damage the environment and harm wellbeing through eroding communities or increasing time wasted in traffic jams. The alternative – vibrant, self-reliant local communities – is good for people and planet.

Of course there will not always be easy 'win-wins'. Managing demand for aviation or motoring is strongly justified on environmental grounds, but is assumed to be detrimental to personal wellbeing. This conflict – if indeed there is one – has to be resolved through public information and debate. We would like to see the Conservative Party lead a focused discussion on what it means to lead a happy, satisfied life, and how this can be reconciled with environmental limits. We therefore recommend that the Department of Sustainable Growth advocated in our Report be given the task of taking forward work on defining robust measures of progress to use alongside GDP. The DSG would also have the role of assessing and advising upon wellbeing impacts of policy proposals. Specifically we recommend that:

- an incoming Conservative government commit to developing a 'triad' of economic, environmental and social indicators. These would be an adjusted GDP measure which would depreciate physical and financial assets and include a factor to reflect the welfare impacts of inequality; an environmental wellbeing measure perhaps using carbon footprint as a proxy; and a societal wellbeing index using a balanced objective and subjective measure;
- an incoming Conservative government continue to facilitate public and political debate on the meaning of social, environmental and economic wellbeing. We would raise awareness about the causes of wellbeing. We would also encourage the independent production of a website that allows people to check their lifestyle choices against factors known to enhance or depress wellbeing, in a similar way to sites used to promote healthier lifestyles now;
- an incoming Conservative government convene a group of experts working in the field of responsible marketing and advertising to provide advice on the potential role for Government in facilitating more 'responsible marketing' and sustainable consumption; and
- an incoming Conservative government explore ways to recognise and reward unpaid work such as care for dependents and housework.

Section 2.5. Conclusion

We applaud the steps David Cameron has taken to open up the political discussion of wellbeing. We believe that it is important that the Party consolidates its leadership position on this issue, through honest debate with the public about the policies that are most likely to promote wellbeing.

This doesn't mean that we have to reject the free-enterprise, liberal society for a controlled command economy. Nor is it to undervalue what capitalism can deliver. Capitalism is undoubtedly the most effective way of delivering economic growth. Its ability to eradicate material poverty is unparalleled. It is, however, a mechanism and not an end in itself.

This effective system we call the market must be our servant and not our master. Treating it as a god and doing its bidding does not make men and women happy. The market is only valuable as a tool, it is not an end in itself. It helps to set people free but they must decide for themselves what to do with that freedom. It can banish material poverty but, pursued as an ideology, it induces social poverty. Conservatives have a real vocation to develop a society that can use the mechanisms of capitalism without being consumed by them.

That vocation is forward-looking, not backward-looking. The 'good old days' were thoroughly miserable for very many people. Only the incurably romantic can wish for a return to the past. Rosy views of thatched cottages conceal back-breaking rural poverty. Nostalgia for the age of steam ignores the 'dark satanic mills' upon which its prosperity rested. To recognise the deficiencies of our own age is not therefore to hanker after the past. It is to seek a better age which has a more profound view of wealth and does not restrict the concept to the counting house.

Chapter 3. The Built Environment

Contents

Section 3.1. Buildings – old and new 62

Section 3.2. Land Use and Smart Growth 88

Section 3.3. Planning 98

Section 3.4. Housing the People of a Crowded Island 119

Section 3.5. Financing the Delivery of Smart Growth 128

The impact of the built environment and of the use of spatial planning policy upon the sustainability and wellbeing of society in general, and local communities in particular, is profound. Construction is a major contributor to resource consumption. Energy use within buildings accounts for nearly 50% of carbon emissions. The built environment is also integral to community cohesion and individual health and wellbeing. The design of place and space is an essential determining factor of local, regional, and national infrastructure, services and transport systems, not to mention wealth creation and employment, and property value and investment.[38]

However, over several generations, the design and construction of buildings, combined with planning and land use policies driven by predicted economic growth rather than environmental and social sustainability, have had a damaging impact upon both the environment and social wellbeing. The separation of home from work, shopping and leisure has contributed to the disintegration of communities and families, a greater reliance upon transport and the isolation of vulnerable groups, such as the elderly and the rural poor. The growth of 'out of town' retail centres and the monopolisation of consumer choice by ever more efficient and competitive chains have transformed our high streets and village centres to the extent that commentators have talked in terms of 'clone town Britain' and feared the end of the local High Street. Single use and single tenure developments have divided communities and increased the carbon footprint of individuals who rely upon their cars to get to work, travel longer distances to shop for food, create more waste, and consume more energy and water.

The mounting urgency of action to prevent, limit, and accommodate climate change lends a new importance to many of the issues outlined in this Report. It also raises new questions, for example about development and future flood risk; future water supplies; landscape and habitat change; long-term species migration and landscape-scale conservation; climate and building design; and the overall carbon efficiency of development patterns and cycles. We believe the evidence is compelling that the environmental problems facing us as a nation would already be grave and mounting even without climate change. The implications for quality of life and long-term economic prosperity are serious enough to demand radical action in themselves. Together with the seriousness and urgency of the threats posed by climate change, they make an incontrovertible case for transforming our future planning decisions.

We have undertaken a wide-ranging review of ways in which we can create a new spatial planning and land use regime in order to achieve truly sustainable living and working communities and provide a holistic approach to urban and rural regeneration that reflects, and is responsive to, local needs and desires. This means balancing demand and supply for housing, reassessing existing and planned infrastructure and realigning the model of property investment and development decisions along a new paradigm of **Smart Growth**.

In relation to individual buildings, we have considered a variety of measures to incentivise the significant improvement in the resource efficiency and reduction of carbon emissions required of our existing building stock and to regulate and enforce the highest environmental and social standards for new build, whilst retaining and supporting commercial certainty and viability for the British construction and development industry. In relation to land use and planning policy, we have gone beyond individual buildings to look at how the form of our towns and cities has an impact upon sustainability and quality of life. In particular, we have considered how current land use patterns, property industry and planning practices inherently encourage car dependency and virtually prevent individuals or businesses pursuing their daily lives or businesses on a more sustainable basis.

In reaching conclusions, we have not subscribed to the belief that, in order to secure radical action to do things differently, radical changes are needed to the basic planning structures and processes we

[38] Royal Commission for Environmental Protection 'The Urban Environment March' 2007

already have. Instead, apart from regional planning, we think any effort directed towards such structural reform would be largely wasted, and actually delay the changes in behaviour and decision-making that are so urgently required. Radically better decisions are possible within processes broadly similar to those we have now. Indeed we believe that the planning system has suffered far too much change over the past few years, and that a regime of consistency, adaptation, and refinement will serve the interests of development much better than a policy of radical change. We are therefore not recommending major changes to the spatial system as such. Instead, we propose far-reaching changes to the information it receives and the use it makes of it, the policies it applies, the terms of reference within which it operates and to the wider economic framework that determines an enormous amount of what the planning system finds itself having to deal.

In reviewing policies for both individual building standards and land use as a whole, we have recognised that the building control and planning systems should be more closely integrated as they are in fact two sides of the same coin. The regulatory system should be more holistic – taking into account principles such as accessibility, health impact, community value, as well as the wider carbon footprint – whilst at the same time allowing local planning authorities to be free to aim for higher building standards for new developments than those prescribed nationally, both commercial and non-commercial. In delivering policy that takes as its benchmark, sustainability in offices, homes, public buildings, and neighbourhoods, the planning system will increasingly work with the grain of business. The attractiveness of greener buildings and sustainable land use to property investors and other commercial players is a growing element in business decisions and is being reflected in land and property values.

We recommend the following policies as the means of ensuring that the built environment becomes the foundation of a low-carbon economy and that planners, developers, property investors, landowners, architects and builders are increasingly motivated by long-term sustainable design and operational use and by the quality of life of those who live and work in the environment they build.

Section 3.1. Buildings – old and new

3.1.1. Scoping the issue

3.1.1.1. The key challenge

Any policy-maker with responsibility for buildings and construction must be prepared to confront the twofold challenge of the existing built stock and of new build. There must therefore be a combination of measures – fiscal and regulatory, 'carrots' and 'sticks' – if we are to improve the energy and environmental performance of new and existing residential, public and commercial buildings. At the same time we shall need significantly to increase consumer awareness of the issues and therefore increase market demand.

3.1.1.2. Timing

In Britain, it is the condition of the present stock that presents the greatest problems, not just because it has so much the larger carbon footprint, but because of its likely longevity. We need therefore to take advantage of particular moments of change of ownership or tenancy; occasions when cost-effective energy efficiency improvements might be particularly appropriate; and times when extending or materially changing a property facilitates environmental upgrading.

3.1.1.3. The cost of the solution

On the present Government's own admission, CO2 reductions of between 20-30% in building related emissions (or 7MtC per annum) could be achieved by adopting proven, simple, cost-effective energy efficiency measures. Research carried out at the Buildings Research Establishment has identified that:

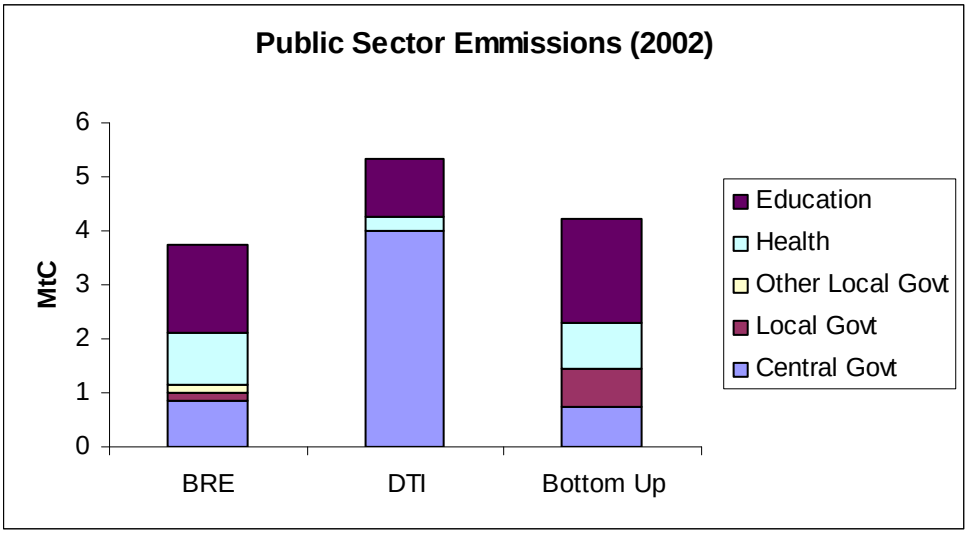
- annual investment, by the private and public sector, of £0.75 billion per year over 40 years would reduce our building-related CO2 emissions by 33% by 2050. That annual expenditure is less than 1% of what we currently spend on construction each year; and
- to reduce carbon dioxide emissions by up to 66% would cost the UK £7.5 billion per year, which is about 8% of what we currently spend on construction.[39]

Despite the relatively small price of achieving significant carbon reductions from buildings[40], there have been, so far, disappointingly few effective incentives which actually encourage or stimulate public demand for energy efficiency measures. Moreover, there has been little progress in removing the policy, regulatory, and market barriers that have been identified as hindering the take-up of resource efficient technologies, such as micro-generation, the development of decentralised energy supply networks, and embedded renewable energy generation.

[39] BRE Indicative values – based on research by C.Pout et.al.

[40] Soon after Angela Merkel became Chancellor of Germany in November 2005, she announced that her country's government would be spending the equivalent of around £1.2 billion a year to ensure that 5% of the homes built before 1978 were refurbished to meet high energy efficiency standards: within 20 years every house in the country will be airtight and well-insulated.

Figure 3.1. Public sector emissions data DTI figures from DUKES form basis of Ecofys analysis



- Baseline data is erratic with 3 to 4 differing data sets, with total emissions ranging from 3.7 MtC to 5.5MtC.
- Some confusion seems to surround LAs and sometimes incorporation of LEAs. This implies uncertainty around the baseline and hence the targets and shows that no central body is monitoring emissions.

3.1.1.4. The means of achievement

The various options currently being researched to deliver significant reductions in CO2 emissions from the existing housing stock by 2050 range from demolition[41] to upgrading. We believe that upgrading and refurbishment offer the highest potential carbon savings. They also avoid the waste of materials and energy associated with mass demolition. Moreover, such a policy has the added benefit to our quality of life of preserving the mix of architecture that makes our urban areas attractive and interesting places in which to live and work. This approach also prevents the unforeseen and potentially catastrophic social costs of large-scale demolition of homes and communities. The priority for refurbishment over demolition and new build should therefore be reflected in favourable fiscal incentives or tax concessions.

Developing the potential of upgrading and retrofitting would require the adoption of basic insulation and draught-sealing, better heating controls and more efficient boilers and lighting, in addition to a significantly higher take-up of emerging small-scale technologies for low-carbon heat/electricity generation at individual and/or community level. It is only by adopting further policy and fiscal mechanisms to stimulate demand and development that the costs of these technologies will be reduced, thus making them more commercially viable. The emphasis should, of course, be upon stimulating the take-up of tried and tested energy efficiency measures (since these will deliver the highest CO2 reduction per £ invested) rather than 'cherry-picking' particular technologies, which may, as yet, be unproven.

Some of our past is simply not worth preserving. However, any demolition should be reserved for buildings of poor quality, chosen on the grounds of lack of architectural merit or the fact that they are hard to treat. Demolition would be supported where the emissions and embedded energy lost by destruction would be outweighed by longer-term energy saving through more sustainable buildings (both in asset and operation rating), more sustainable built footprint and/or regeneration could be

[41] Oxford University's ***40% House Report*** suggests that over 14% of our existing stock should be demolished by 2050 and replaced with new energy efficient homes to meet future carbon emission targets. This implies demolishing about 80,000 to100,000 homes per year from 2015.

demonstrated. This would be particularly likely in areas suitable for new higher quality/higher density mixed use communities, where post-war development is of a poor standard, hard to let, and a wasteful user of land.

3.1.2. The current state of the stock

3.1.2.1. Emissions from buildings

Currently, about 50% of UK CO2 emissions come from energy used in buildings, with a further 10% from the manufacture of construction materials. This figure does not include the transport of materials to site or their incorporation within a building. Emissions from the domestic building stock are responsible for an estimated 27% of the UK's total carbon emissions. Of those domestic emissions it is estimated that in 2005, 53% came from space heating, 20% from water heating, with 6% from lighting, 16% from appliances and 5% from cooking.[42] Moreover, carbon emissions from offices are growing faster than any other sector – including transport. The public estate output is difficult to measure; nevertheless, total emissions are estimated to range from 3.7MtC to 5.5MtC (based upon 2002 data, see Figure 3.1.), whilst the OGC suggests that total emissions may be as high as 8.3MtC. On the assumption that UK emissions are 152MtC[43], the range for public sector building emissions, based on 2003 data, is 2.5-5.5%.

3.1.2.2. Thermal efficiency of the housing stock

In terms of thermal performance, the UK has some of the worst housing stock in Europe. We also have a large (and rightly treasured) stock of old houses. 50% of the current 23 million homes are more than 50 years old and 20% are over 100 years old. Over 80% of the 2025 building stock has already been built. New build, at the present rate of c180,000 homes a year, represents only 1% of the total stock each year.

Thus, most of the existing stock and a significant proportion of homes which will exist in 2050 have been constructed to lower, often much lower, thermal standards than new build today. The social housing stock is on average more energy efficient than private sector housing, partly owing to the type of dwellings of which it is constituted.

3.1.2.3. Existing technology

There are several existing energy improvement technologies that can help to reduce carbon emissions from the domestic housing stock. Higher efficiency involves a combination of:

- improving insulation,
- reducing draughts,
- adopting energy-efficient lighting and appliances, and
- using an efficient, well controlled, heating system.

These should be measured in terms of cost-effectiveness. Defined by simple payback time – the number of years it takes for savings in the energy bill to equal the cost of installation – cavity wall insulation currently offers the largest potential carbon saving. Of the 23 million homes in the UK, 9 million have cavity walls without insulation. Across the whole stock, insulation would give a payback period of about three years. Other measures, such as micro combined heat and power (CHP), solid wall insulation and ground source heat pumps also have the potential to achieve relatively large carbon savings. But their high up-front installation cost means that these have longer payback periods, and

[42] DEFRA: ***UK Climate Change Programme 2006***, March 2006
[43] The 152MtC is from CO2 only and does not account for another c 30MtC equivalent of other Greenhouse Gases.

therefore are not particularly cost-effective for households without additional financial support or incentives.

The potential fuel bill and carbon savings of each measure vary across dwelling types and here, obviously, size is the most relevant factor. Not all can be applied across the whole stock and the reliability and performance of some (microgeneration) technologies remains as yet unproven.

The cost-effectiveness of various measures will also vary depending upon what has already been done to the dwelling. Once the cheapest and easiest have been fitted and there are effective boiler controls, cavity walls and loft insulations, further improvements to the energy performance of the property becomes relatively more expensive. This next stage usually requires some form of low-carbon external energy source – microgeneration or small-scale community energy generation systems. Improving the energy performance of buildings will achieve significant carbon savings in a short space of time if the focus is on upgrading the lowest performing dwellings. However, as we add each additional measure, the improvement in the stock has diminishing marginal returns in terms of the incremental carbon saving.

That puts the hardest to treat properties in context. They are typically those with solid walls and no possible connection to the mains gas network. They may have no loft space or be part of high rise blocks. In these cases, retrofitting to an average energy performance is currently much more costly. It may well require solid wall insulation, the replacement of old and non-gas heating systems, or the installation of small scale generation systems. About 800,000 of these dwellings are solid wall properties off the mains gas network.[44] These properties are likely to have a relatively higher market value and to be privately owned. The longer payback times in these circumstances may well be balanced by the fact that the cost of improvements represents a proportionately lower percentage of the value of the property.

3.1.2.4. What are we doing about it now?

The Energy Efficiency Commitment (EEC) is the existing flagship instrument to improve energy efficiency in the household sector. It works by imposing a statutory obligation on energy suppliers to promote energy efficiency measures directed at householders. The first phase (2002-2005) of EEC contract aimed to deliver 0.4MtC a year of carbon reduction by 2010, stimulating about £600 million investment in energy efficiency, delivering net benefits to householders in excess of £3 billion (for every £1 spent by suppliers householders benefited by about £9), and fitting nearly 800,000 homes with cavity wall insulation. EEC2 (2005-2008) is in progress and should deliver over 0.6MtC a year by 2010. The Government has announced its intention to make EEC3 (2008-2011) 50-100% more ambitious than EEC2. It is expected that the third phase of EEC will speed up the rate of cavity wall insulation by fitting a further 3 million homes between 2008 and 2011.[45]

Although this is a start and is properly targeted at the homes that will yield the largest return, the necessary sense of urgency is still lacking. Reaching the minimum targets required needs a great deal more focus and determination. It also needs full support by the nation as a whole and a vocabulary that is direct, consistent, and comprehensible.

[44] A study of hard to treat homes using the English House Condition Survey, BRE 2006
[45] DCLG ***Review of the Sustainability of Existing Buildings – the Energy Efficiency of Dwellings – Initial Analysis*** November 2006

3.1.3. Getting the language right

3.1.3.1. Public perception

We know that it is never easy to change ingrained habits and, in this issue, it will be impossible without the support of the population as a whole. That puts a premium on transparency. People are rightly suspicious that they will be 'conned' by those who will use climate change as an excuse for imposing their own, quite different, agenda. That is why pretence over 'green' measures is so damaging. We know that many green taxes have been introduced primarily to fix the revenue gap. They were not created to change behaviour or to protect the planet.

Regaining trust will be an uphill battle. The media will not help. It will be all too ready to try and fit hypocrisy even where it doesn't exist. There will be no room for honest mistakes or even misunderstandings. That means we have to get the language right and ensure that there is no confusion about the meaning of words.

3.1.3.2. The importance of definition

Terminology used to describe energy efficiency in buildings is confusing, with varying definitions of commonly used concepts. Terms such as *'microgeneration'*, *'low carbon',* and *'zero carbon'* have not yet gained established, clear, and universally accepted meanings and measurements. Even the concept of *'cost-effective'* in relation to technologies to improve the thermal performance of buildings requires clearer definition, particularly if it is to be applied accurately to properties of every type and age.

The need for precision and accuracy is highlighted by the present Government's commitment to achieving 'net zero carbon' new homes within a decade. If this is to mean anything, a definition must be agreed and retained unaltered. The programme to attain this objective proposes interim improvement targets for 2010 (25%) and 2013 (44%), with a final target for all new homes to be zero carbon by 2016. Zero carbon also equates to Code 6 (highest) of the Code for Sustainable Homes.

3.1.3.3. What is zero carbon?

The Government's definition of 'zero carbon' means that the net carbon emissions from energy use in the home (including cooking, washing and electronic entertainment appliances as well as space heating, cooling, ventilation, lighting and hot water) would be zero. There is no reason why such a definition should not become the standard but, if we are to avoid future arguments and misunderstanding, it needs to be distinguished from other definitions. Right from the beginning we have to establish why this is the definition and not net zero source energy, net site energy, net zero energy cost, or net zero energy emissions. We also must understand why it is that 'net zero' doesn't address the embodied energy in construction materials.

In the debate, people will want to be reassured that Government is not using the phrase to suggest a bigger step than is actually being contemplated. Zero carbon sounds really ambitious. There mustn't be a catch. Discussion may indeed lead to future targets for 'double zero carbon' or some other variant that can take us further on. What it mustn't be allowed to do is to leave the customers confused or offer the opportunity for media mischief.

This is especially important since the 2007 Budget has provided stamp duty exemption on the basis of this definition of zero carbon. It will also be promoted through the Building Regulations and Code for Sustainable Homes and the integration of the planning system as a key driver through a new proposed PPS on climate change.[46] There must be a common understanding that this is the right aim, that it is

[46] DCLG Consultation: ***Building a Greener Future: Towards Zero Carbon Development***, December 2006

tough enough, and that it will be worth straining every muscle to achieve it. Get the definition right, get us all signed up, convince industry that the targets won't change, and we're half way there. Leave room for doubt, over-promise, use weasel words, or, worse still, have a hidden agenda and we'll fail.

Definition of Zero Carbon Homes (based on HM Treasury Budget Notes 2007)

Definition: "Zero carbon emissions from all energy use in home over a year"

Requirements: "Heat Loss parameter of no more than 0.8 W/m^2K with a space heating requirement of no more than 15 kWh/m^2 per annum"

Renewable electricity generation: "Produced either within the area of the building and its grounds, elsewhere in the development, or elsewhere as long as the developer has entered into arrangements to ensure that the renewable generation is additional to existing plans"

Additional renewable generating requirements: "Depends on the floor area of the home, varying from 24.97 kWh/m^2 per year for homes up to 89 m^2 to 16.54 kWh/m^2 per year for homes over $150m^2$"

We share the Government's ambitions but want to ensure that the process is absolutely transparent, and that measures and incentives are put into place to achieve these laudable targets sooner rather than later. We also must see that the enforcement and compliance mechanisms exist to ensure that progress occurs and that achievement of the agreed targets is properly monitored.

3.1.4. How we measure sustainability

3.1.4.1. The Building Regulations and Code for Sustainable Homes

The UK Building Regulations exist, in theory, to ensure that new homes and major refurbishments or extensions are built to deliver minimum standards of environmental, structural, electrical, public health and fire safety. Since 1985, Part L of the Building Regulations, which sets standards relating to the conservation of fuel and power, has been used progressively to raise the energy efficiency standards for new homes. Recently the Sustainable and Secure Buildings Act 2004 has extended the power of the Secretary of State to make Building Regulations for the following purposes: furthering the protection or enhancement of the environment, facilitating sustainable development and furthering the prevention or detection of crime. The Government boasts that the most recent changes to the Building Regulations in April 2006 have achieved a 40% improvement compared to pre-2002 standards, and a 70% improvement compared to pre-1990 standards, in the energy efficiency of new houses.[47]

In addition to the Building Regulations, there are various voluntary standards, codes and checklists that are being used by developers and councils to improve the building of new homes. The most commonly used of these has been developed by the Buildings Research Establishment (BRE). It deals with environmental standards and sustainability. Called EcoHomes, it is the domestic version of the assessment method developed by BRE for commercial buildings (BREEAM). BRE has also carried out work with government departments on sustainability checklists for development, and has worked with the South East of England Development Agency (SEEDA) to produce such a checklist for the South East and other RDAs. In addition, the Energy Savings Trust has a Best Practice Standard which helps developers to produce homes that are superior in energy performance to existing Building Regulations by 20%.

[47] Ibid p10

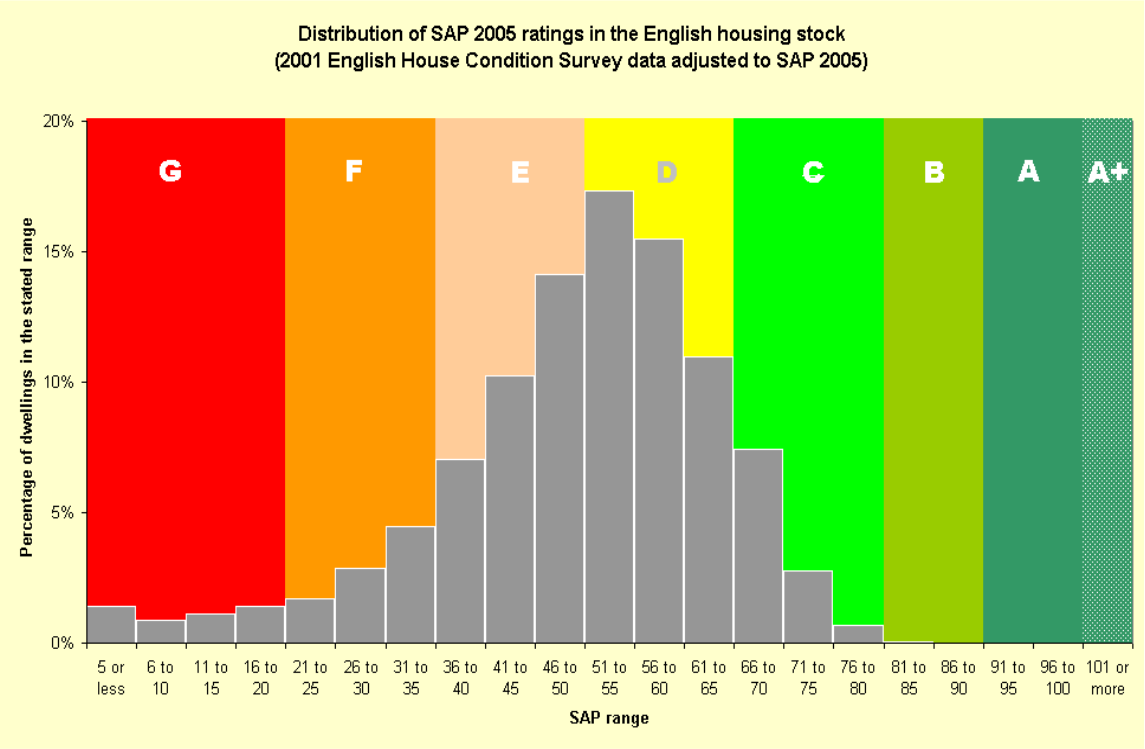
Most recently has come the Government's Code for Sustainable Homes (CSH), the final version of which was published in December 2006. It rates the sustainability of new housing and is designed to set more exacting standards. There are six levels of the Code; at each level there are minimum energy efficiency/carbon emissions and water standards. The minimum energy/carbon standards for Code Level 1 are only just 10% higher than those found in the minimum mandatory standards set in the Building Regulations. Code 6 is defined as zero carbon, as per the Government definition discussed above – that is, that over the year, the net carbon emissions from energy use in the home (including cooking, washing and electronic entertainment appliances as well as space heating, cooling, ventilation, lighting and hot water) would be zero. This is currently impossible to achieve using only cost-effective technology. The Code also includes the wider ecological impact beyond the four walls of the home, including construction materials and waste recycling. Nevertheless, the Code has been criticised for not going far enough to include locational impact, and, not least, for being only a voluntary assessment for the private sector, although the door has been left open for mandatory assessment of all new homes in the future.

The CSH could be very valuable as it addresses a much broader range of environmental outcomes and the assessment will be undertaken by individuals operating within a quality assurance framework. However, it is essential that the Code becomes mandatory with a clear timetable for achieving higher levels, to allow industry to plan ahead, that it is properly monitored, and that the principles of the Code are extended to cover all non-residential buildings. An annual review should be undertaken by the National Audit Office to assess progress towards delivering the Code.

3.1.4.2. Measuring energy efficiency

The Standard Assessment Procedure (SAP) is the method used to determine the energy performance and thermal efficiency of dwellings. SAP 2005 uses a scale of 1-100, with the current stock having an average SAP of 52 (2004 figures). A carbon neutral home gives a SAP rating of 100 and current Part L compliance results in a SAP of about 80 (depending on the house type and fuel mix). SAP target ratings can be met by improving the fabric of the building, for example through better insulation and sealing of the fabric, draught-proofing of windows and doors; improving the efficiency of heating and lighting; and through the use of lower carbon fuels and heating appliances. For instance, insulating cavity walls in a typical property will raise the SAP rating by about 10 points.

Figure 3.2. Distribution of SAP 2005 ratings in the English housing stock



3.1.5. Enforcing building standards

3.1.5.1. The Building Control System

Independent research shows that the Building Regulations, in particular those associated with thermal/environmental performance, are more often breached than observed. Yet, there is a nationwide system in which over 4,000 inspectors work for the local authorities who are the relevant enforcement agencies. These Building Control officers advise on whether proposed building projects comply with the current Building Regulations. Their role is now supplemented by 'approved inspectors' who provide a private sector alternative.

In either case, there is no requirement for anyone to take responsibility on a building site for compliance with the Regulations or to liaise in an official capacity with the Building Control official. In the case of construction sites, work is frequently contracted and sub-contracted, leading to a lack of clarity as to lines of responsibility. It is clear from research and anecdote that large numbers of homes do not comply with existing Building Regulations. In particular, research findings confirm poor levels of monitoring, compliance verification and enforcement associated with Part L.

Despite major concerns regarding consumer protection and the pressing need to reduce the environmental impact of buildings, most Building Control Officers (BCOs) and Approved Inspectors (AIs), suffering from a lack of adequate resources and training, view the Part L requirements aimed at procuring sustainable construction as far less important and worthy of their time than those for health and fire safety.

The current shortcomings of the Building Control System

- Minimal training and qualification requirements for BCOs and AIs;
- No minimum quality assurance standards for organisations (or individuals);
- No independent random checking of the quality of work undertaken by BCOs or AIs;
- No complaints procedures;
- Legal liability for failure to undertake the Building Control function effectively is muddled and unclear;
- Major problems regarding recruitment and retention by BCOs of suitably qualified staff;
- The complexity and frequent changes to Building Regulation requirements make it extremely difficult for minimally trained BCOs to be fully conversant with requirements;
- Public concern that a certificate of compliance with Building Regulations provides no real assurance to a purchaser.

3.1.5.2. The gaps in the system

Despite the national coverage of new build, the system does not provide a proper means of controlling standards because too much is excluded from the basic requirements. The Government consulted on proposals to change this and received very widespread support. Nonetheless, it refused to act. As a result – although some local authorities make thermal improvement a condition of planning consent – a building can still be extended, refurbished, or undergo a complete change of use and the consequential increase in its carbon footprint does not entail or necessitate any improvement in the thermal performance of the existing structure. Conservatories of up to $30m^2$ are also exempt from Part L requirements. This contributes to the substantial increase in the energy used for space heating in the winter and air conditioning in the summer. It means that there is very little incentive on manufacturers or builders to take even the simplest steps to improve energy efficiency.

All this represents a major missed opportunity to reduce the overall carbon footprint of the building as a condition of planning consent. Proposals to extend or refurbish or to change the use of a building are precisely the occasions that should be used to enhance the efficiency of the existing stock which, as we have seen, is by far the biggest problem.

3.1.6. A new start

3.1.6.1. Unfit for purpose

For the past three decades, Governments have looked to the Building Control system to deliver an increasingly complex agenda. With no standard qualification, no enforced in-service training, no professional monitoring and oversight, and little liability should mistakes occur, the system has long been overloaded. Now that the built environment is so crucial in the battle against climate change, Building Control is simply unfit for purpose.

Nor can it be adapted to make it a suitable vehicle for ensuring higher standards. It is based upon an outdated premise. By prescriptive regulation and complex guidance, it measures inputs and not outputs. It tells builders and architects, surveyors and designers *how* to do things, not what to achieve. The inadequately trained inspector is expected to argue his interpretation of bureaucratic rules with professionals and experts. As a result, nearly half the houses built fail to meet the standards and the process is so intrusive that it stifles innovation and impedes necessary change.

3.1.6.2. A fresh approach

We consider it a policy priority to engage local government, utilities companies, builders, developers, investors, and planners in achieving much higher levels of compliance and progressively higher

standards. We should therefore extend the approach adopted by the Code for Sustainable Homes, abolishing all the current Building Regulations Approved Documents and replacing them with **National Building Standards (NBS)**. These will be the necessary minimum outcome requirements. Outcome specific standards will be based on such criteria as carbon emissions not exceeding **x** $kgCO_2/m^2$/year, air tightness **y** $m^3/h/m^2$, and internal temperatures caused by summertime overheating 28°C for **z** hours/year (without air conditioning).

This approach would shift from the complex and prescriptive requirements of the current Building Regulations to a simple but rigorously monitored series of specified outcomes. It would also enable us to treat buildings holistically and recognise their importance to human health and wellbeing. In addition to carbon impact, the NBS would also include standards to provide for such requirements as minimum daylight, ventilation, and maximum levels of volatile organic components. They could also be expanded to include water efficiency and sustainable waste management standards. The way in which architects, designers, and builders delivered the standards would be entirely for them and innovation and creative design would be at a premium. The measurements would be an objective monitor of their outputs.

The NBS would apply to new build and to the refurbishment or extension of existing buildings.

3.1.6.3. The new system

A detailed model of the new system will be found in Appendix 3.1. but its principles are clear. A relatively limited number of objective measurements of outputs would replace the complex and detailed prescriptions of the Building Regulations. Planning permissions would automatically be subject to meeting the National Building Standards (NBS). There would no longer be any need for local authority building control departments. This significant reduction in bureaucracy would also encourage innovation because it would be the outputs that mattered. There would be an enormous impetus to finding new and more cost effective means to deliver those outputs.

This much leaner system would be overseen by the Building Standards Agency (BSA) which would set the standards and ensure that the qualifications of those who will certify that the standards have been met. A system of self-certification for major construction companies and house builders, linked with severe penalites for evasion, would ensure the most cost-effective compliance.

3.1.6.4. Integration of planning and buildings control

The new building standards regime would therefore be combined with planning consent arrangements. This will secure greater co-ordination and compatibility between the two – the lack of this at present is a significant cause of disjointed policy-making and enforcement. There should, in future, be one local authority department that would grant planning permission subject to meeting the building standards. As part of the design stage, the developer would have to produce a certificate of compliance with the NBS and such a certificate would be a necessary condition of planning consent. Upon completion of the building, a further certificate of completion would then be issued. These certificates would be a part of the services provided by a range of building professionals whose appropriate competence would be attested by the BSA.

3.1.6.5. Protecting the Public

Under these arrangements the public would know that any new house or office they purchase or lease will be built according to objective, sustainable standards. Instead of an under-resourced, patchily trained, corps of officials struggling with ever changing prescriptive building regulations, purchasers would be able to rely on objective measurement by competent professionals. By ensuring that the certification work is simply part of the construction process, the costs of the new system would be kept

to a minimum and the escalating costs of the old system would be eliminated. There will now be an individual, a company, or a professional partnership who would have to stand behind the objective assessment made and provide the assurance that most people think they get with the present regime but in fact do not.

At present, the building inspector's work is no guarantee of a building's quality and his certification is not usually justiciable. The new system will remedy that but we believe that there is a need for further effective consumer protection in the provision of housing – the largest investment most people make. For this reason, we propose that one of the requirements in the new system would be that appropriate insurance for new build should be put in place, and that an incoming Conservative government should legislate to introduce the equivalent of compulsory motor insurance.

New build whether entirely new or significant extensions or redevelopments would thereby have to carry a 20 year insurance with a similar coverage now provided by the NHBC over 10 years with the addition of insuring that the building met the requirements of the planning consent, the building standards, and the Energy Performance Certificate. The expectation would be that the better the construction company, the lower the insurance cost and competition in the market should deliver sensible premium rates.

3.1.6.6. Home Information Packs

Ill-conceived from the first, the HIPs regime ought to be consigned to history. Our proposed National Building Standards and the insurance provisions would ensure that houses built or extensively refurbished from the date of their implementation would have to hand the essential details needed by prospective purchasers. Our proposals to carry through the EU provisions on Energy Performance Standards, without the gold-plating admitted by Yvette Cooper, would make HIPs entirely otiose. We propose that an incoming Conservative government should abolish them. The resulting savings in costs to the consumer, together with the abolition of building controls, ought to produce a system significantly more cost-effective than the present. It would also be one in which all the pressures are for continued improvement in efficiency and not the increase of bureaucracy.

3.1.6.7. An inclusive policy[48]

By producing an effective means of ensuring that buildings reach the required standard, we can include extensions, conservatories, and major refurbishment within the NBS system without fear of overload. Therefore, contrary to the current exemption from Part L, conservatories would be brought within the scope of the NBS, with specific compliance requirements being established to minimise heating and cooling demands.

Similarly, when a building's carbon footprint is being increased – as a result of major refurbishments, a household extension, conservatory, loft conversion etc – there should be a mandatory requirement to make cost-effective energy efficiency improvements to the existing structure (as identified in the Energy Performance Certificate). Where planning permission is required, this would be enforced as a part of the approval process. Where the proposed simpler 'deemed consent' applies, plans would have to contain details and the BSA would be responsible for enforcement.

[48] The policies recommended below are specifically supported by the recent Sustainable Development Commission's review of Government progress on delivering Sustainable Communities; ***Building Houses or Creating Communities?*** May 2007, p15

3.1.6.8. Avoiding new excesses

The NBS will have to confront the real issues of sustainable construction. We have allowed ourselves to become wasteful in heating our buildings. Climate change may well reduce our appetite for that but it will increase the pressure for cooling. The NBS will have to ensure that its standards cover energy used for cooling as much as energy used for heating.

3.1.6.9. Advice and information

Sir Terry Leahy, in speaking about climate change in January 2007, said that only by being informed could the customer exercise his power of choice. For Conservatives, choice is an essential element of a free society. If we are going to tackle the common problems of global warming we can only do so if people are properly informed. That is why it is essential that more coherent and accessible information about energy efficiency should be available to everyone. There is therefore a real need for a 'one-stop-shop' providing details of the comparative cost-effectiveness of various retrofitting measures according to the type of property. This should be available to all consumers – commercial and residential – and build on the work already done by the EST and the Carbon Trust. Our Chapter on Climate Change addresses this need with the proposal to create the ' One Planet Trust' as the authoritative source of reliable information for people seeking to reduce their environmental impact .

Such information could be available as a comprehensive checklist of efficiency measures in ascending order of cost-effectiveness: e.g. loft insulation, cavity wall insulation, double glazing, draft proofing, energy saving light bulbs and appliances, more efficient boilers, more efficient controls – right through to solar hot water, PV cells, and ground source heat pumps. This will mean that anyone applying to extend or significantly refurbish a dwelling could easily assess the current performance of their home by reference to the checklist. In most cases it would then be relatively easy to decide upon and demonstrate what improvements they would be making to upgrade the energy efficiency of the whole house. These services would, of course, also be available to anybody interested in improving energy efficiency.

Our proposals for the replacement of HIPS will mean that estate agents and others engaged in selling houses will need to support local agencies with local knowledge of installers and products to provide advice on energy efficiency measures and appliances. These services will be designed to assist the householder or landlord in meeting the requirements of the Energy Performance Certificate (see below) and choosing the measures identified as most cost-effective for his particular premises.

3.1.6.10. Keeping costs down

Most of us are unaware of the details of our own personal use of energy. In addition, most homes are ill-designed for easy access to meters and even the central heating controls are often placed inconveniently far from the main entry door. It is in the interests of consumers to be made more aware of their energy usage on a continuous basis. That is valuable, not only as an aid to energy saving, but also to enable much wider use of off-peak electricity and thus contribute to the more efficient use of generating capacity. We therefore propose that energy suppliers should be obliged to install, over ten years, smart meters. These would include display devices to enable householders to monitor their consumption readily; to see how different appliances are using electricity and gas; and to identify their levels of energy use at any one time.

This information will not only enable individuals and families to control their own energy use but also enable them to check on the efficacy of energy saving devices. Under these provisions, utility providers would be required to provide fuel and water bills which would detail energy use and consumption and compute the carbon emissions generated.

3.1.7. Implementing the Energy Performance of Buildings Directive

3.1.7.1. The present situation

The Energy Performance of Buildings Directive (EPBD) requires all EU commercial buildings over 1,000m² to have an Energy Performance Certificate (EPC) valid for 10 years when they are bought, sold or let. It empowers potential buyers and tenants by giving them information on the current performance of a building and setting out the cost-effective measures for energy saving relevant to the property. The EPC will be issued after an audit by a certified inspector and will provide energy efficiency and carbon dioxide emissions ratings on a scale of A to G, rather like those used for white goods. The EPC will summarise how different elements perform in terms of insulation, space and water heating and lighting efficiency. In addition to the EPC, there is also a requirement for an accompanying report, prepared by an independent expert, which provides details of the cost-effective improvements which could be undertaken to improve the energy performance of the building.

The introduction of EPCs therefore facilitates a welcome form of building energy performance labelling and carbon footprint measurement and provides a number of opportunities for introducing new fiscal and policy measures to encourage vendors, purchasers and/or landlords to invest in cost-effective energy efficiency measures. This measure could be linked to other financial incentives such as green mortgages. Article 7.3 for the display of EPCs in "public buildings and institutions providing public services" could provide a major opportunity for public building owners and operators to provide leadership by implementing cost-effective energy efficiency measures.

3.1.7.2. The UK

In the UK, various elements of the Directive have been implemented, largely by adaptation of Part L of the Buildings Regulations in April 2006, which made energy efficiency requirements in new and refurbished commercial buildings of 1000m² 28% more stringent than the previous regulations.[49] In addition, developers refurbishing a property of over 1000m² will be required to ensure that the whole building complies with the new Part L unless "it is not technically, functionally and economically feasible". In this instance, economic feasibility is thought to mean spending up to 10% of the principal cost of the works.

A UK Government announcement in June 2006 suggested that the public display of energy certificates will only be for buildings over 1,000m² that are *"occupied by public authorities and by institutions providing publicly funded services to large numbers of persons ... We are committed to widening the display requirements to all public and private sector buildings where it can be demonstrated this is cost-effective to do so."*

Since the measures to be taken are deemed to be 'cost effective', there should be a mandatory obligation placed on any public sector building owner or operator to install the recommended measures for improvement. By definition, they will deliver Treasury requirements for cost effective investment within the public estate. The government should take the lead in its own estates and procurement policies (see below) and ensure that energy certificates are publicly displayed on all public buildings to inspire confidence and inform.

As the definition of these improvements is such that they must be cost-effective and as they are only triggered on change of ownership or tenancy, we believe that the definition and scope of Article 7.3 as applied in the UK should be extended to include all large commercial buildings with public access,

[49] It is noteworthy that in France, from 1 September 2006, new buildings must comply with new legislation and save 15% more energy with the aim of improving it every year, reaching a 40% saving by 2020.

including supermarkets, retail centres and hotels. Operational ratings should also be included in the format of EPCs required of commercial buildings under the EPBD.

3.1.7.3. Using EPCs to transform the market

Properly used, the EPC may come to have a disproportionately positive impact upon the valuation of properties. It will also create an incentive for property owners and landlords to make energy efficiency improvements in order to attract buyers, tenants and property investors interested in a more environmentally attractive property portfolio. Energy efficiency labelling of white goods has led to a significant increase in consumer awareness of more energy efficient products. With the growing concern about fuel prices, occupation costs are increasingly important and the eco-labelling of buildings will reflect that concern.

We need the immediate announcement of a timetable for the full implementation of the EPBD to commercially rented homes. It should only be delayed as long as is necessary for arrangements to be properly made and the regulations sensibly drawn with the help of the industry. We should also use the improvement recommendations contained within the energy assessments to target grants, tax breaks and other incentives. Landlords should be required to make the improvements recommended by the EPC upon change of tenancy. It must be likely that they will be able to recoup the capital expenditure through higher rents based upon the lower occupancy costs that their improvements have made possible. In any case, our proposals to review recent legislation on rented accommodation would remove unnecessary costs without compromising safety. The rented sector should see this as a sensible replacement of unnecessary regulation by obviously necessary standards.

Consideration should be given to a differential business tax structure that would penalise low rated buildings where cost effective improvements have not been made and favour those who have met the energy efficiency measures recommended on the Energy Performance Certificate.

We recognise the difficulties and limitations for tenants to take the initiative in improving the thermal performance of their homes and offices. This is particularly so when their premises form part of a larger building whose energy performance and indeed choice of energy supplier is independently controlled by the freeholder. We recommend measures to achieve greater flexibility for private residential tenants to be able to undertake resource use (energy or water) improvements. Tenants should be statutorily entitled to inspect EPCs before signing a tenancy or leasehold contract and, subsequently, to undertake energy/carbon/water efficiency improvements of their own volition. The landlord's permission could not unreasonably be withheld. Local authorities could encourage, by council tax concessions, landlords and tenants to carry through cost-effective changes when not obliged to do so by a change of tenancy.

3.1.8. Fiscal Instruments and legislation

The Environmental Audit Committee said, in March 2006; *"a vicious circle currently operates in the property market. Not only are there currently no incentives for home buyers to want to buy properties built to high environmental standards, but there are also no incentives to encourage developers to build them. Trying to address this problem through voluntary codes or publicity campaigns alone is simply not enough. Fiscal measures which offer either real savings or significant penalties have to be introduced."*[50] The Committee went on to recommend that HM Treasury should consider reducing both stamp duty and council tax for those homes built to high environmental standards and called for a *"much needed change of attitude"* on the part of the Treasury.[51]

[50] Environmental Audit Committee, Fifth Report of Session 2005-06, ***Sustainable Housing; A Follow-up Report***, 21 March 2006, para 55
[51] Ibid para 67

3.1.8.1. Stamp Duty

The Chancellor announced in his Budget 2007 that, from 1 October 2007, all new homes meeting the zero carbon standard which cost up to £500,000 will be exempt from stamp duty and houses over £500,000 which meet the standard will pay stamp duty of £15,000. This measure is useful. However, it does not begin to address the real issue which is the existing stock. With new homes representing only 1-2% of the current housing stock and the confusion over the definition of a zero carbon home still not fully resolved, the percentage of homes that could actually benefit from the exemption will be extremely limited.

We believe that an incoming Conservative government should in the medium-term introduce a partial rebate of stamp duty if all cost effective energy efficiency improvements are adopted at the time of sale or within a reasonable time from completion of the purchase. This should be combined with a zero stamp duty for very low carbon homes without a limit on their purchase price. It should apply to new and existing homes and both residential and commercial properties – freehold and leasehold.[52] The SDLT rebate would be based upon the adoption of all the cost effective energy efficiency improvements which are identified in the report accompanying the EPC. It must again be emphasised that the improvements identified in the EPC report are cost-effective not gold plated and therefore comprise actions that any sensible owner ought to take. Our Chapter on Energy makes proposals for piloting this approach in specific Low Carbon Zones.

3.1.8.2. Council Tax

We also put forward, in our Chapter on Energy, proposals to allow local authorities to pilot discounts in council tax in Low Carbon Zones for homes which have adopted cost effective energy efficiency improvements recommended on the EPC. The effect of this proposal would be to provide an incentive to carry through the improvements proposed on the EPC. Registering the completion of those improvements would also be incentivised by this reduction and therefore the cost and need for enforcement would be reduced. The availability of a discount in council tax would act as an incentive to get an EPC (even if the house was not changing ownership or tenancy) and carry out the cost-effective improvements and then claim the rebate. People will do much more to avoid a tax than they will to claim a grant.

3.1.8.3. VAT Incentives

The most cost-effective way of increasing the energy efficiency of buildings is when they undergo major renovation. It is utterly incoherent therefore to tax building renovation activities but not to tax energy consumption. The October 1999 European Directive on a reduced VAT rate (Directive 1999/85/EC) was aimed at enabling Member States to apply a reduced VAT rate to a certain number of 'labour-intensive' services, including renovation and maintenance works. Six other Member States did just that and applied it to 'renovation and maintenance works' (Belgium, France, Italy, Netherlands, Portugal and Spain). The UK decided to apply the Directive only to the Isle of Man. According to a study carried out by the European Construction Industry Federation (FIEC) in the light of experience observed in the countries concerned, the reduced VAT rates contributed to the creation of almost 170,000 additional permanent jobs between 1999 and 2004.

The system was due to expire on 31 December 2005, but agreement was finally reached at the ECOFIN Council on 24 January 2006 to extend the validity of this directive until 31 December 2010; to open the possibility to all Member States which wish to apply the reduced rate to these services

[52] This has already been attempted for regeneration schemes where the sale of commercial buildings had SDLT reduced from 4% to 0%. It was found that the property values increased by 2%. The vendor and purchaser 'split the difference'.

according to the Treaty principles of equality of treatment and non-discrimination; and to carry out a study on the effectiveness of the measure. This was confirmed by Council Directive 2006/18/EC of 14 February 2006, to be applicable from 1 January 2006. However, the Directive also stipulated that any Member State wishing to apply for the first time after 31 December 2005 the reduced rate to one or more of the applicable services needed to inform the Commission before 31 March 2006.

The British Government failed to apply within this deadline so, until 31 December 2010, it will only be allowed to continue to apply a reduced VAT rate on renovation and maintenance works on the Isle of Man. Lobbying at European level continues to concentrate on achieving the adoption of the provisions of this Directive within a permanent and definitive VAT regime and the UK should take a clear stance on the matter now so that it could encourage energy improvements to buildings. We should then be able to lower the VAT rate at the very least on improvements made in accordance with the EPC. A better step would be to expand this concession to encourage some of the changes, like the introduction of heat pumps, which have a long payback period. Such encouragement would serve as a stimulus to the industry and the increase in units sold would begin to bring the price down.

In the UK, the rates of VAT are heavily weighted in favour of demolition and new build as opposed to refurbishment – 0% VAT on new homes but 17.5% VAT on the renovation and repair of existing homes (except on the Isle of Man where it is 5%). In the long run this is, in any case, a damaging distortion in terms of retrofitting and improving rather than demolishing the stock. We believe that we should seek ways to move away from the present situation to one which is more balanced. There should be, as soon as possible, a reduction in the rate for renovation to 5%.

Of course, even in the case of this wider concession, renovation and maintenance work would have to be done to meet the highest cost-effective energy and water saving standards. Through wider European agreement, VAT incentives should also be used to stimulate the market for highly energy-efficient products and penalise inefficient products with higher rates.

3.1.8.4. Financial Services

The involvement of the financial services sector in the development of the green economy is crucial. There has been a good deal of publicity about green investment funds and Socially Responsible Investment (SRI) and there are certainly now very large sums available for investment in companies which feature in F4Good, the Dow Jones Sustainability Index, and other similar rating lists. However, as a direct driver for change, the financial services industry could do a great deal more. Innovation is not just a matter of new or improved products; it is also about services that can meet the needs of a world struggling with climate change. The provision of attractive financial products to enable householders to take action to improve the water and energy efficiency of their homes, marketed with intelligence and determination would make a major contribution to change. So, too, would the provision of mortgages tied to green actions which would reduce domestic overheads and thus make repayments easier. The EPCs will provide the basis for much of this and we look to the City to take a much more innovative and creative leadership role. This should be encouraged by government and the Treasury itself will need to be much more flexible in seeking to advocate financial instruments to forward the green agenda.

A green mortgage (home loan or further advance) offers a financial incentive which encourages consumers to buy, or to work towards, a high energy performing home. A green mortgage may also offer incentives for other positive environmental features of a new or existing home – such as waste recycling or water efficiency improvements. Green mortgages could be particularly useful as part of a wider package of energy efficiency improvements with more expensive technologies, which are difficult to pay for over the short term but which would be possible under a 20- or 25- year repayment term.

Qualifying criteria might include either the fact that a home already has an energy performance better than a middle rating on its EPC or Code for Sustainable Homes; or that a home owner commits to undertake action either from the list of recommended measures in their EPC, or from a general list of suitable measures in a remortgage situation. Action taken might include any or all of cavity wall insulation, interior or exterior cladding, roof insulation, boiler replacement, installation of approved micro-renewables/low carbon technologies (eg. microCHP, solar photovoltaic panels, solar hot water heating, ground source heat pumps).

3.1.9. Measures to relieve fuel poverty

3.1.9.1. Overview of current measures

Fuel poverty remains a difficult issue for policy-makers and a tragic drain upon society, the environment and the economy. Fuel poverty is defined as the need to spend more than 10% of household income on all fuel use in order to maintain an adequate standard of warmth. The causes of fuel poverty are complex, and can reflect several related factors including low income, poor levels of thermal insulation, inefficient heating systems, the size of the property (particularly if under-occupied), the price of fuel or the inability to access cheaper fuel. According to Help the Aged, each winter for the last 5 years, between 21,000 and 50,000 people aged 65 and over have suffered avoidable winter deaths. Treating cold-related illnesses and respiratory diseases associated with fuel poverty is estimated to cost the NHS £1billion per year. Figures published in the Fourth Annual Progress Report on the UK Fuel Poverty Strategy[53] showed that, in 2004, England had 1.2m households in fuel poverty, with the number of vulnerable households remaining at 1m. Latest analysis shows that the number of households in fuel poverty is around 3.1 million (research by Dr Richard Moore using most recent data on energy prices). DBERR estimates that for every one per cent increase in the price of fuel, 50,000 households will be put in fuel poverty.

The Warm Homes and Energy Conservation Act 2000 required the Government to publish and implement a strategy setting out policies to ensure that "as far as reasonably practicable" persons do not live in fuel poverty. The strategy was published in November 2001 giving a target date for the eradication of fuel poverty in England of 2016. The Government also committed itself to end fuel poverty for vulnerable households by 2010 with all social housing complying with the thermal comfort criterion of the Decent Homes Standards by 2010. Vulnerable households are defined as households containing families with children, elderly householders or those who are long-term sick or disabled.

Currently, Government policy to tackle fuel poverty includes a number of different programmes:

- The **Decent Homes** programme aims to make all council and housing association housing decent by 2010 and costs around £100 million a year. It is not intended specifically to improve energy efficiency but by including a thermal comfort criterion, it was expected to have a significant effect on the energy performance of those homes. However, local authorities find the system inflexible. For example, they cannot use the funds to provide or renovate district heating systems nor will the Government allow the money to go on innovative ways of reducing energy use and keeping people warm. Most of the carbon savings from the programme are attributed to the Energy Efficiency Commitment (EEC), and to a lesser extent to Building Regulations, with additional activity estimated at 0.02MtC savings a year. It is unlikely that the Decent Homes programme will deliver its targets by 2010 (DCLG predicts 95% success) and some recent analysis estimated that approximately 43% of fuel-poor households will be in the social rented sector at that date. The thermal efficiency standard is

[53] *Defra Press Release, 2 June 2006, Ref: 248/06*

considered to be too low which means that 54% of social sector tenants who are in fuel poverty live in properties that meet the Decent Homes Standard.

- **EEC** includes a requirement of suppliers to deliver 50% of their savings from 'disadvantaged' priority or vulnerable groups, which is intended to focus efforts upon the fuel poor. However, its main objective is carbon reduction rather than energy efficiency.
- **Warm Front** is the Government's main grant-funded programme for tackling fuel poverty, launched in June 2000, with a new phase beginning in June 2005. The scheme provides packages of measures including insulation and heating systems. Grants of up to £2,700 are offered to families and the disabled, and of £4,000 where the work approved is the installation of an oil-fired central heating system. Carbon emission reductions under Warm Front and other fuel poverty programmes are expected to be 0.4MtC a year by 2010. The Government boasts that from the introduction of the scheme in June 2000 to the end of December 2005, over 1.1 million households received assistance, but that success is measured purely in terms of the number of households receiving grants, no matter how minimal the assistance and what degree of improvement in energy performance has been attained. The 2005 Pre-Budget Report announced that an additional £300 million would be made available to tackle fuel poverty across the UK. In England this means that funding for the Warm Front Scheme will exceed £300 million in 2006/07, and puts total funding for the Scheme over the 2005-08 period in excess of £800 million.[54]

Analysis has been done by the Fuel Poverty Advisory Group on the funding provided for the various programmes. In 2006 it estimated that with energy prices at 2004 levels, the Government would need to find an additional £150m a year for 10 years to meet the 2016 fuel poverty target. This assumed the level of grant aid for Warm Front would remain at £340m a year, that the EEC 3 scheme would double and 50% of savings would be in the priority group.

National Energy Action has expressed a commonly held view that EEC is beset by problems that are the consequence of attempting to use a competitive market to deliver social and environmental objectives, including suspicion and scepticism amongst consumers about the motivation of fuel suppliers. EEC schemes run by fuel supply companies can open and close or switch geographical location at short notice. They also rely on intensive and expensive marketing via installers or third party referral agents. Some fuel suppliers have scaled back or temporarily suspended current activities because they have already met the targets ascribed to them. In any case, the cost of delivering EEC is recouped via the prices charged to consumers by suppliers – commonly expressed as an average £18 per year, the disproportionate share of which falls on those living in older, less well insulated properties (often with solid walls) with older, less efficient heating systems, predominantly the poorer sections of the community.

Moreover, the above programmes have come under severe criticism for failing to tackle the most difficult housing stock. The measures currently available via domestic sector schemes provide substantial benefits to those households living in homes with cavity walls, accessible lofts and gas-fired central heating. Those living in older, less energy efficient properties, without access to gas are disproportionately the poorest individuals and families, and least advantaged by the conventional approach. Almost half of those in fuel poverty in England live in homes without cavity walls; 36% have no gas boiler to upgrade and almost 20% have central heating at all.[55] It is estimated that 1 million fuel-poor households remain ineligible for current programmes. It is unlikely that the fiscal measures recommended above (stamp duty or council tax rebates) would impact significantly upon the

[54] Defra Fuel Poverty Strategy, 4th Annual Progress Report, June 2006 p35
[55] NEA Evidence to the Environment, Food and Rural Affairs Select Committee, August 2006

fuel poor and other measures would be required. Furthermore, we consider the current system of grants to be a complex labyrinth that is far too complicated and is merely sustaining consumer inertia.[56]

As the Environmental Audit Committee has emphasised repeatedly, the Treasury must ensure that its policies on alleviating fuel poverty and on improving household energy efficiency are bound together. Where grant moneys are distributed to subsidise heating bills or to subsidise the installation of central heating, this must be complemented in all cases by programmes to make energy efficiency improvements to the same properties. This year's Pre-Budget Report 2006 contained an announcement of "£7.5 million to improve the coordination between, and effectiveness of, Warm Front and the Energy Efficiency Commitment". However, the Treasury has failed to commit itself to ensure that all households which receive warm front grants will have energy efficiency measures fitted as well. To quote the Environmental Audit Committee; "It seems clear to us that the Treasury, for reasons not just of reducing carbon emissions but of social equity and simple value for money, should do more to ensure that grants to subsidise central heating are always paired with energy efficiency improvements. Otherwise, public money will be leaking through doors and rooftops as surely as warm air."[57]

We need to abolish the complex array of bodies, schemes, and headline-grabbing initiatives and replace them with a single national energy efficiency programme that identifies and replicates best practice from existing schemes across the UK. It should incorporate the full range of heating and insulation measures currently offered but with additional capacity to cater for insulation of properties with solid walls. Full grants for the cost of these works should be available to those in receipt of qualifying welfare benefits with a sliding scale of financial assistance for others according to income, constructed on the same principles as apply in the case of House Renovation Grants.

The objective of the programme should be to make homes as energy efficient as possible using technically feasible and cost-effective measures and setting target energy ratings. The programme would also include the installation of proven microgeneration technologies where appropriate. Such universal entitlement is likely to maximise take-up and avoid some of the difficulties inherent in designing marketing programmes exclusively for households in receipt of welfare benefits. All householders regardless of tenure or income would get ready access to approved contractors working to industry standards of best practice and subject to independent monitoring and inspection – a situation which currently applies in the case of the Warm Front scheme. Economies of scale, could and should, be exploited in the social rented sector by devolving responsibility to housing associations and other landlords.

We propose, in our Energy Chapter, measures to pilot these ideas in specified Low Carbon Zones. A medium-term national programme could be funded by combining the resources from existing programmes, although some additional funds may have to be allocated to meet more challenging targets for tackling fuel poverty in the light of recent price increases and CO2 reduction.

It is important to give help to vulnerable people not now covered by the winter fuel payments scheme but it should be connected with energy saving measures rather than merely being an income payment.

[56]It is interesting to note that the Home Insulation Scheme in the 1980s, which offered grants for loft insulation to all householders (90% for pensioners and those on low incomes; 66% for others) was taken up by more than £300,000 households every year, despite an overall expenditure cap, for most of the decade, largely because it was simple and easy to understand.

[57]Environmental Audit Committee ***Fourth Report Pre-Budget 2006 and the Stern Review,*** 19 March 2007, para 92

3.1.10. Public buildings and procurement

3.1.10.1. Overview

Current regulation, funding, and incentives are not aligned to procuring or operating low carbon buildings. The public sector is in a position to lead carbon emissions reduction, not only by setting a behavioural and strategic example to the private sector, but through its very significant purchasing power. In 2004, the sector accounted for 34% of new non-domestic building construction and 37% of non-domestic refurbishment and maintenance work – totalling 1.45% of UK GDP[58]. By driving the highest standards of energy efficiency and carbon emissions reduction, the public sector's impact on the construction industry will have a very strong effect on the private sector too. A concerted effort by government to set appropriate standards would have a significant effect on developers, architects, engineers, construction companies and facilities managers, and drive the skills and attitudes necessary to deliver and operate low-carbon buildings across both public and private sectors.

Public procurement is also crucial to changing the nature of the commercial leasing market. Public sector organisations are seen as good and secure tenants and so are welcomed by property managers. However, there is also a view that they will accept the lowest standard of accommodation and their demands therefore set minimum standards for investment. A concerted push from the public sector for energy-efficient leased space would greatly assist market transformation.

The Sustainable Development Framework for the Government Estate (published 2002-2004) has a target of reducing carbon emissions across the public sector by 12.5% between 2000 and 2010, and improving energy efficiency by 15%. The Government has also committed itself to a carbon neutral estate by 2012, but this does not include rented buildings.

However, these targets are of limited value since no-one has overall responsibility or even direct accountability within individual departments for tracking or policing performance. There is uncertainty over the baseline[59] and hence it is not possible to quantify a 12.5% reduction. Targets are not currently enforced and there is little transparency, no identifiable departmental accountability, incomplete measurement, and no sanction for failure to meet targets.

Just as serious is the inadequacy of expertise in the public sector in building and energy management. This prevents buildings being operated or changed in the manner best suited to reducing emissions. Nor do present financial incentives encourage energy efficiency. Funds cannot be ring-fenced or carried forward from one fiscal year to the next to achieve energy-efficient results, preventing the necessary investment. Savings generated by reduced energy bills merely lead to reduced budgets for next year. Furthermore, procurement systems are not well-designed to support energy efficiency. For example, although there was a commitment to procuring 'top quartile' energy performance buildings in the Government's Energy Action Plan[60] of April 2004, the quartiles have not been defined and aprt from Building Regulations, no 'enforceable' energy efficiency standard exists.

3.1.10.2. Public procurement – the way forward

The Government must take the lead in setting the highest possible standard of energy performance in the buildings of the public estate. Its procurement policies in construction and refurbishment must be the drivers of excellence. It must commit itself to a low carbon footprint in rented buildings and new

[58] BSRIA Statistics Bulletin, June 2005

[59] ***The UK Climate Change Programme: Potential evolution for business and the public sector*** The Carbon Trust, November 2005. Emissions for the public sector differed from 3.7-5.5 MTC for 2002, depending on the source (see Figure 1 above)

[60] Paragraph 136

build, both in construction and maintenance, and to the use of sustainable building materials. In choosing the latter it must take into account the carbon cost of importation and transportation and, therefore, use local building materials wherever possible.

Government bodies must also report on their carbon footprint to provide effective comparison with the private sector. Public buildings, like schools and hospitals, should become pioneering examples of energy efficiency, microgeneration, and community scale technologies, with publicly displayed and detailed EPCs outlining the whole carbon footprint of a building in terms of energy use, waste minimisation, and water efficiency. Publicly funded regeneration programmes must be built to highest possible standards, with good practice refurbishment case studies showcased more widely to help raise sustainability standards for all HMR work.

We cannot expect the whole nation to feel involved in our common battle against climate change unless the public sector is seen to be leading the charge.

The public sector needs rules and guidelines that are stringently and transparently enforced. This demands:

i) improved governance;
ii) increased expertise;
iii) secured funding; and
iv) improved procurement guidance.

3.1.10.2.i. Governance

New and differentiated approaches to target-setting and compliance are required. Proper baselines must be laid and transparent annual targets, metrics, and reporting put in place.

- Local authorities (LAs) contribute 17% of public sector emissions.[61] The prime driver of improvement is transparency. Making energy efficiency or emissions part of the audit report for local authorities would force transparent measurement and reporting.
- Central government contributes 18% of public sector emissions overall. Departmental reduction targets must be made transparent; their reporting highly visible; and individuals must be held accountable for progress towards reaching targets.

3.1.10.2.ii. Expertise

Research supports the view that the appointment of expert energy managers in the public sector could reduce energy consumption by as much as 5%[62]. The associated gross cost of this approach is estimated at £200m per year[63], but savings of nearly £280m and 200ktC per year would make this a good investment for the public sector. Energy managers should therefore be appointed for all public entities whose energy expenditure exceeds £2million to give focus and knowledge within these organisations.

3.1.10.2.iii. Funding

SALIX is a revolving, interest-free loan fund, used to pay for minor capital expenditure on emissions reduction. The loans are repaid with savings from reduced energy bills within three years. The repaid

[61] The LA data appears to be captured under a combination of the headings of Government Estate and Public Offices and Other Government. For an indication of the difficulties in precise measurement of public sector emissions, see ***The UK Climate Change Programme: Potential evolution for business and the public sector*** The Carbon Trust, 2005 available at: http://www.thecarbontrust.co.uk/carbontrust/about/publications/CTC518_CCPR2.pdf
[62] Based on Carbon Trust Carbon Management behavioural measures
[63] Calculation assumes 2,800 managers needed at a fully loaded cost of £70k pa, saving £100k of energy pa.

funds are then lent out on a revolving basis. These funds should empower the energy managers to save an additional 10%. That means £415m of total funds to save 390 ktC pa and £124m of energy per year, based on existing SALIX performance64. This would take the form of a 'working capital float' of £210m recycled every three years and eventually recovered. It would make sense to establish a fund equivalent to SALIX across the public sector.

3.1.10.2.iv. Procurement guidance

The public sector accounts for one third of UK construction and refurbishment. This purchasing power gives it the opportunity to lead the buildings market into carbon reduction with real effect on the private sector as well. Based on 2003 construction data[65], 4.3 million m^2 of new public sector buildings are put up every year, creating 116ktC or a total of 700ktC pa by 2010. This does not factor in any increase in intensity. It is imperative that these new buildings are built to the most efficient standards. Compliance with Building Regulations Part L2A would reduce emissions by 25% or 29ktC per year. However, further savings could be achieved by setting standards of 'top quartile procurement' higher than Part L2A. In particular, a strict 'Code for Sustainable Buildings' applied across the public sector, would set a clear standard of leadership in comparison to the private sector. In any case, no building below asset energy performance certificate rating of A should be procured.

For refurbishment, the public sector should ensure rules are in place to meet the 2006 Building Regulations Part L2B. This should reduce carbon emissions by 15% on refurbished buildings. Based on 2003 construction rates[66], Part L2B would save 10ktC on refurbishments annually.

3.1.11. Commercial buildings and Corporate Responsibility (CR)

3.1.11.1. Overview

Within the commercial sector, offices, warehouses, and retail premises, are significant users of energy and producers of carbon emissions. Their energy demand is rising. A report by the Carbon Trust and the Association for the Conservation of Energy in 2003 identified those buildings as offering the greatest potential for significant savings. It said *"the range of technical solutions is not too large as the nature of energy service demands in offices is relatively homogeneous; a significant, highly cost-effective technical potential for savings can be identified; there is scope for a range of solutions tackling the problem from a number of angles if a range of the significant stakeholder groups can be engaged, and action by a small group of large stakeholders could change the market significantly."*[67]

A recent study by RICS has identified some environmental improvements to existing buildings that can be achieved through relatively simple measures that are applicable across a range of building types.[68] For example, upgrading from single glazing to double low-e glass can generate a 70% improvement in the thermal performance of the glazed surfaces. Likewise, the installation of energy-efficient lighting is a cost-effective solution that results in little or no disruption to the building's normal functioning. In offices and hotels, lighting typically accounts for 8-16% of energy use; therefore installation of energy-efficient lighting reduces overall energy use by between 4 and 10%. Heating, which can represent the largest energy use in commercial buildings, can potentially provide

[64] £210m would allow two iterations of the fund over six years. Salix Finance Ltd, Biannual Report No.2, 2005. Capex lifecycle cost per tC is £89 (over 12 years or £1,063 up front). A 10% reduction of 3.9MtC is 390ktC costing £415million. In ***The UK Climate Change Programme: Potential evolution for business and the public sector*** Carbon Trust, November 2005, it was suggested that £447m total would be necessary to save 420ktC.
[65] BSRIA Statistics Bulletin, June 2005
[66] ***Estimating the Delivery of Building Regs and EPBD*** Ecofys and BRE, May 2005
[67] Carbon Trust and Association for Conservation of Energy: ***Energy Efficiency in Offices; Motivating Action***, April 2003
[68] RICS ***Transforming Existing Buildings: the Green Challenge*** March 2007

the greatest cost saving benefits by simply improving the heat retention capacity of glazed areas, walls, floors and roofs.

It is clear that more businesses are realising that action to reduce their contributions to climate change and carbon emissions are not only necessary but can also be profitable. The increasing concern with, and desire to promote, a company's corporate social and environmental responsibility (CR) image and strategy is having a discernible impact upon property and rental values. For instance, the occupiers of commercial space are starting to demand environmentally efficient space, even to the extent of being prepared to pay 10% more rent for more efficiently designed and constructed buildings.[69]

The large proportion of UK commercial sector stock owned by large institutional investors and leased to tenants is often cited as a major obstacle to increasing energy efficiency. This is because the direct benefits of lower fuel bills do not accrue to the party most easily in a position to invest in the necessary energy efficiency measures. Current trends in commercial leasing may also inhibit design for lower energy use and limit the scope and desire for improvement of operation consumption throughout the lifetime of the lease. Although most leases are full repair and refurbish, allowing the tenants to make such changes as they think fit, there is an increasing tendency for office blocks, especially multi-tenanted ones, to be let as 'shell & core' – that is, the use of the office shell and provision by the landlord of core facilities such as a reception area, lifts, utilities etc. This leaves the internal design of the office to the tenant, who has to 'work around' the heating and ventilation provided within the office fabric.

In addition, theoretically cost-effective options may not be considered good investments when flexible leases operate, as the time a tenant company may remain resident in a property is less easy to predict. Managing energy in a multi-tenanted block can be difficult not only on account of the issue of allocating costs of energy use but also of making improvements to the fabric of the building. Whilst lease breaks or changes in tenancies are opportune times for taking action, few multi-tenanted offices have common break points, so the problem continues. Conversely however, increasing flexibility in terms of lease break points and review clauses may provide opportunities for, rather than barriers to, achieving greener office space.

[69] Gensler's 2006 report ***Faulty Towers: Is the British Office Sustainable?***

3.1.11.2. Recommendations

The first step in improving this situation is transparent measurement. The requirement for an EPC on first and subsequent lettings should be extended by including the information within the company's annual report, together with details of improvements undertaken. Such carbon footprinting will be, in any case, an increasingly important measure of a company's built environment impact and resource use, and will be seen more and more as an essential benchmark for CSR achievement. Again, information that can be properly compared is the key to improvement. Therefore we propose that this specific EPC-based information should form part of a wider statement on energy use that would be made in the annual report by all public limited corporations. The report would state energy consumption per square metre by standard category of building – office, warehousing, retail, etc. in the past year. This recommendation is consistent with the proposal in our Chapter on Climate Change for mandatory disclosure of carbon emissions by large companies.

Under the Conservative Government's Home Energy Conservation Act 1995, local authorities were charged with a statutory duty to make a 30% improvement in energy efficiency in homes by 2010. The 1995 Act should be amended to extend the duties of councils as Home Energy Conservation Authorities (HECA) to include all commercial premises within their area. Normalised performance indicators could be used to collect information, and publish comparative ratings. Improvement targets could be set as per HECA and overseen by the authorities.

Improvements in energy efficiency could subsequently be reflected in a differential scheme for business rates. This would reflect the EPC rating of commercial premises. Space that meets efficiency standards in excess of the minimum required would attract a discount with space that was energy inefficient paying a premium. In this way the system would be tax-neutral. Such a mechanism would assist property owners and managers to 'sell' energy-efficient offices as having a direct and measurable impact on the wider running costs of the building. The rates chargeable would have to be made clear as part of the marketing particulars. Again, this would contribute to the aim of ensuring that people are able to make informed choices.

3.1.12. Products and construction materials/methods

3.1.12.1. Overview

Building material extraction, production, construction and demolition account for about 35% of all UK waste: construction alone for 20%. About 25% of UK industry energy consumption is attributed to the production and transportation of construction products and materials. Every year the construction industry uses 400 million tonnes of resources and produces 150 million tonnes of waste, while 20% of new building materials on the average building site are simply thrown away at the end of the job - that is, 13 million tonnes of new or unused material. A cause of further concern is the UK's record on using unsustainable timber; we import 3.2 million cubic metres of illegal timber each year of which 65% goes into the construction sector. That total affects 4266km2 per year of forest – equivalent to an area that is seven times the size of Greater London.

Many of these problems come from the poor enforcement of existing legislation. There is, of course, considerable variation in performance across construction clients even though significant numbers of businesses have procurement policies and design standards well in advance of legal obligations. The recent formation of the UK Green Building Council is indicative of big business interest in green issues. However there are all too many who seem incapable of adhering even to the basic legal minima or carrying out work in anything but the most disorganised fashion. Large organisations, SMEs, and individuals can suffer from this problem.

3.1.12.2. Recommendations

The UK has a tradition of ensuring that standards first formed here are adopted throughout the EU. The international quality management standard ISO 9000 was first developed in the UK as BS5750 and then adopted in Europe and subsequently in the rest of the world. The same is happening with the environmental standard ISO 14000. Clearly it is important that these standards are Europe-wide because the construction products industry operates across the 27 member states and needs to avoid conflicting requirements. This is a prime example of the value of the single market.

It is here too that we can ensure that we are not trapped into the agenda of single-issue groups whose focused concerns do not recognise the multifaceted reality of sustainability. Many are concerned with inputs rather than outputs and will, for example, demand legislation for higher levels of recycling rather than insisting on the reduction of waste to landfill. Whole-life cycle analysis of products, buildings and processes is the only way to assess the options properly. The output measurement is the reduction of landfill; it is for industry to decide whether recycling, reuse, minimisation or biodegradability will provide the most cost-efficient answer to the challenge of limiting landfill.

Fortunately, the EU has already asked CEN (the body responsible for developing European standards) to develop a set of standards for the "integrated environmental performance of buildings" and these standards will start to be available in the next couple of years. They are based on whole life cycle analysis of materials and cover buildings from design to demolition. Once this work is complete, we want to see the UK adopt legislation based upon the whole life cycle impact of buildings and their components, at the earliest opportunity. There will, of course, be a need to ensure that suitable design tools and guidance are developed in time.

Overall, the issues are ensuring better uptake of existing good practice and higher levels of compliance with existing legislation. The emphasis should therefore be on ensuring sufficient efficiency on the part of the enforcement authorities, clarifying and simplifying the details of legislation where appropriate. This area is one where radical changes would be less effective than incremental policy changes based upon sound and well-researched science and standards.

As European and international standards on the whole life cost of building materials are developed, so our proposed Building Standards should reflect those criteria. We could then require sustainable building materials to be sourced locally wherever possible and, in any case, sourced from legally produced timber. The current lack of statutory requirement for the sustainability of materials used in construction must be urgently addressed in a sensible measured manner rather than the current, rather indiscriminate, habit of calling for the phasing out of particular products that are deemed to be "un-green".

3.1.13. Architectural design – quality and innovation

The promotion of design quality in architecture and urban design will continue to be a high priority. Design plays a critical role in adding both financial and wider quality of life value in development. This was first recognised in the White Paper on Design Quality published under John Major. Its influence led to the decision of John Prescott to promote design coding. It is actually a very old technique and was the basis of much Georgian, Victorian and Edwardian town building. In May 2004, the Deputy Prime Minister announced a nationwide programme to assess its potential and seven pilot projects were established to test design codes in a range of different contexts. As a result DCLG, CABE, and English Partnerships have developed a working definition of a design code:

> *A design code is a set of specific rules or requirements to guide the physical development of a site or place. The aim of design coding is to provide clarity as to what constitutes acceptable*

design quality and thereby a level of certainty for developers and the local community alike that can help to facilitate the delivery of good quality new development.

We support design coding as a valuable tool for developers, land owners, and local authorities where it is used strategically and carefully in the context of master-planning to assist good design, but care must be taken not to stifle creativity and innovation. We sympathise with the fear expressed by RIBA, amongst others, that design coding can be misapplied in a way that is over-prescriptive and encourages formulaic (often mediocre) responses and would suggest that design codes should provide no more than a set of design principles or so that flexibility can be retained. Nevertheless, we also recognise a common cause of concern among architects that lack of knowledge and vision among local planners and developers has contributed to a general decline in design quality.

We believe that there is a need to clarify the working relationship between the triumvirate of planning, design coding and democracy and that the right environment must be created to support good design. Therefore, where design codes are to be used at master-planning stage, local planning authorities and their communities should work with architects alongside urban designers and other built environment professionals in the development of individual codes that are appropriate to specific developments and the local context and traditions. Bodies that champion good design and provide access to examples of best practice and guidance to local planners (such as CABE and the Prince's Foundation) should continue to be supported in providing rigorous and independent advice.

We should build upon the design quality measures that have been put in place during the present administration, in particular, through a further extension of, and support for, CABE's design review process and the identification of design champions in all major governmental organisations and local authorities, and the recognition of design quality as a material condition in publicly promoted development and regeneration schemes and public procurement (especially PFI projects)[70]. Such design champions should be sitting side by side with local elected members as they make crucial planning decisions and negotiate Section 106 agreements (see below). Moreover, the promotion and improvement of architectural design will be boosted by our recommendations (see below) for stronger educational/skills provision across the relevant institutional disciplines.

The RIBA as the representative body of British Architects has long felt that the profession is often sidelined in these matters. A future Conservative government should seek a much greater involvement of the profession in the decisions about the built environment. That new-found collaboration would be exemplified by the abolition of the unnecessary and empire-building Architects Registration Board with its functions being handed over to the RIBA subject to the same kind of protections that have been provided for in the recent legislation in the Republic of Ireland. In this way the RIBA would be accorded the control over standards of education that is proper to such a professional body.

[70] See RIBA's position paper, ***Smart PFI***

Section 3.2. Land Use and Smart Growth

3.2.1. Overview and rationale for Smart Growth

3.2.1.1. Smart Growth: greening the built footprint

Land use is a complex and often controversial topic because of the very large number of interests and people involved; the politicised nature of land use planning; and the very high financial value attributable to development allocation. Against this background we have confronted the challenge of looking ahead and considering what might happen to our towns and cities were carbon emissions to be reduced by 80% by 2050. This has also made us consider what measures would have to be adopted to bring about less carbon-dependent, more sustainable land-use patterns. It has reminded us that we have to think ahead to what those sustainable land-use settlements will require in terms of infrastructure.

Under current planning and development practice, areas of commercial activity are commonly separated from residential areas; shopping centres are often only accessible by car; and public facilities are increasingly large scale and therefore less immediately accessible. This form of urbanism *builds in* a requirement for movement on a large scale both in terms of distances and journey numbers, and consequently energy consumption and waste.

- Road transport makes up around 21 per cent of total man-made carbon dioxide emissions in the UK

  RAC report 2003
- In 1999/2001 we in Britain walked an average of 189 miles per year, down from 237 miles per person per year in 1989/91

  National Travel Survey 2001
- 89 per cent of motorists agree with the statement: "I would find it very difficult to adjust my lifestyle to being without a car"

  RAC report 2003

While our focus is on land use, it must be recognised that the physical development of the land is inseparable from prevailing political and economic forces. In setting out a new model of development, we have adopted the term **Smart Growth** because this recognises the wide-reaching nature of change that must take place economically and politically across the built environment to achieve the necessary radical change to a more sustainable pattern of development.

The key factors that have contributed to current unsustainable land use patterns are commonly agreed:

- mass car ownership;
- planning methodologies that have over-prioritised the accommodation of the car relative to other considerations;
- post-war planning practice that has encouraged separation of land uses;
- post-war mass housing renewal schemes that have removed mixed uses and mixed tenures;
- a parallel preference on the part of private developers to deliver single-use, single-tenure housing schemes;
- property market segmentation which has led to the predominance of single-focus property development and investment in narrow specialties – retail; industrial; housing etc;
- property investment preference for large size, easy to manage investments;
- relatively unchecked sub-urban growth; and
- failure on the part of public and private sectors to find a complementary working method to deliver large scale well-planned development integrated with the effective provision of public infrastructure.

3.2.1.2. Smart Growth: the proposition

"Cities and towns have the potential to be the most efficient, the most ecologically sensitive and the most equalising environments. They have been so in the past."[71]

Before 1945, most urban development was created on the premise of *walkability* with areas containing a mixture of uses: local social and commercial facilities; a distributed pattern of schools, hospitals, parks; and all within reach of public transport. The neighbourhood was the primary building block of development, with a full range of facilities within a walkable radius that allowed individuals to carry out their domestic chores and their leisure life within walking/cycling distance and to travel over longer distance by means of public transport. This form of urbanism characterises the London 'urban villages' and 19th century inner urban suburbs that are to be found in cities up and down the UK. It is also the key to all successful villages and small towns.

3.2.1.2.i. A vision for a more sustainable urban form

- Towns and cities should develop to a poly-centric model so that they are not overly reliant upon the centre for jobs and services.
- At the national level, policies to encourage a distributed pattern of economic growth and regeneration should be pursued.
- Development should be focused around or near to existing or new public transport services, based on location efficiency.
- The neighbourhood should become the primary building block of land-use allocation and planning.
- Each neighbourhood should be planned to be walkable.
- Some employment can be provided within the neighbourhood – largely related to the servicing of the neighbourhood itself. However, it has to be recognised that work patterns often imply commuting to the urban centre or beyond. Efficient public transport should facilitate necessary movement to, and from, work.

These principles apply equally to the regeneration of existing areas as to new development and create a framework for Smart Growth that should optimise the UK's limited land resource.

[71] Girardet H, ***Gaia atlas of cities: new directions for sustainable urban living*** Stroud, Gaia, 1996; cited in Rogers R and Power A ***Cities for a Small Country*** Faber and Faber, 1999

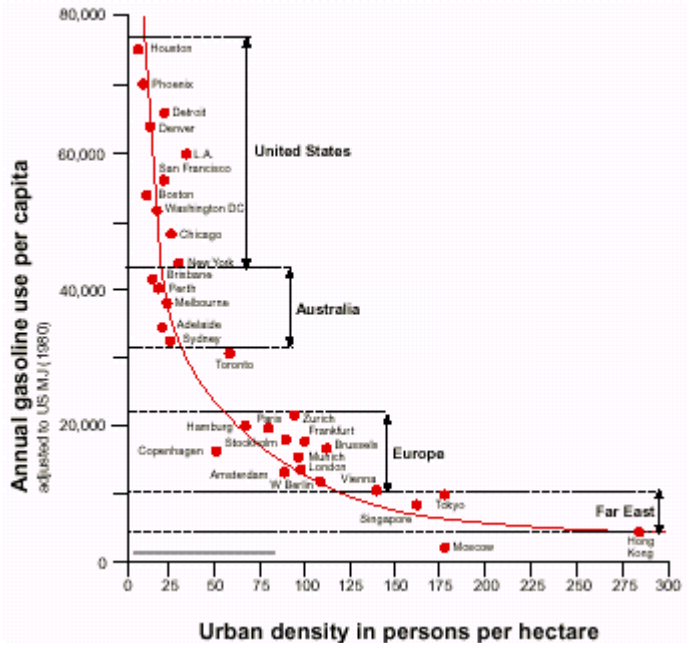
3.2.1.2.ii. What does Smart Growth mean for land use and planning?

- All new development should be built to be mixed use, mixed type and tenure-blind, with a range of accessible social facilities, well integrated into neighbourhoods and with public transport links to major employment centres.
- There should be a pronounced move away from the separation of uses towards a more integrated land use model.
- We should downgrade the motor car and elevate walking, cycling and use of public transport in development planning.
- More dense land use patterns would encourage public transport and make the provision of local services viable. This general rule should be tempered by the recognition that most successful urban neighbourhoods are characterised by 'density gradients' and that a blanket increase in density, poorly planned, and without appropriate infrastructure, leads to town cramming and a negative impact upon wellbeing.
- There should be carefully considered distribution of green space whether as gardens, allotments, parks, or urban public space which should be planned into developments and then managed effectively. As a result, neighbourhoods should be attractive and healthy, with opportunities for convenient outdoor recreation and leisure.
- Highly proactive land use planning is needed to optimise the acquisition and development of land, and to coordinate this with public infrastructure provision.
- The concept of the urban village needs to be introduced or reintroduced into existing single use urban areas, in association with improved public transport links.
- There is a need to plan across site boundaries in order to achieve neighbourhoods that are connected and optimise land use.

3.2.1.2.iii. The contribution of Smart Growth to carbon reduction and quality of life

The opportunity for reduced car dependence is a key attraction of the smart growth land use model. Compact, walkable, neighbourhoods facilitate shorter journey times. They give greater opportunity for walking, cycling and the use of public transport than dispersed residential environments, dependent on the private car. The National Traffic Survey of 2001 indicates that walking accounted for 351 trips a year for a resident of inner London in 1999/2001, 37 per cent of all trips; while those living in outer areas made 204 trips on foot a year on average, only 20 per cent of all trips. Assuming that most London residents still commute rather than walk to work, and that the majority of walking trips are in connection with daily and leisure activities, this figure would seem to indicate that an overall reduction in the volume of trips of between 10-17% could be expected if neighbourhoods were designed to be more *walkable.*

Figure 3.3. Relationship between urban fuel consumption and urban density



Andrew Wright Associates, first published in Report of the Urban Task Force, 1999

Figure 3.3. from the Report of the Urban Task Force[72] shows that across the world, higher density housing results in reduced fuel consumption per inhabitant (although it must be noted that there is a level beyond which efficiencies level out). This is based on a survey by Newman and Kenworthy (1989)[73], who found that the extremely low density urbanised areas of the US and Australia consumed over six times as much energy per capita as the very high density areas of Europe and the Far East. A number of further studies have been undertaken in the US examining the link between this link between urban form, public transport and fuel use, such as Holtzclaw (1994)[74]; and Holtzclaw, Clear, Dittmar, Goldstein and Hass (2000)[75].

These studies recognise the phenomenon of *location efficiency*, the characteristics of which have been defined as follows:

- density – sufficient customers within walking or bicycling distance of a public transport stop for viability;
- public transport accessibility – public transport stops that are positioned centrally or conveniently within the neighbourhood and a service that allows passengers to reach their destinations dependably and easily;
- pedestrian friendliness – a network of streets within the neighbourhood that is interconnected and scaled to the convenience of pedestrians[76]; and
- disposition of uses – encouraging the development of mixed use facilities in close proximity to public transport stops.

[72] ***Towards an Urban Renaissance: Final Report of the Urban Task Force*** F & N Spon, 1999; addressed the question of how to provide homes for almost 4 million additional households in England over a 25 year period by achieving an urban renaissance

[73] Newman P and Kenworthy J, ***Cities and Automobile Dependence: an international sourcebook*** Gower, Aldershot, 1989

[74] Hotlzclaw J ***Using Residential Patterns and Transit to Decrease Auto Dependence and Costs*** National Resources Defence Council 1994; available at: http://smartgrowth.org/library/cheers.html

[75] ***Location Efficiency: Neighbourhood and Socio-Economic Characteristics Determine Auto Ownership and Use*** Studies in Chicago, Los Angeles and San Francisco, Transportation Planning and Technology, Vol 25, Jan 2002

[76] Dittmar & Ohland ***The New Transit Town: Best Practices in Transit Oriented Development*** 2004

Within the UK, it is generally accepted that densities of greater than 40 homes per hectare make *walkable* local services viable. The Report of the Urban Villages Forum, and, subsequently, the Urban Task Force Report of 1999, supported the view that if housing is situated less than 500 metres from public facilities, people are likely to walk to them. Further analysis of populations required to support various neighbourhood facilities and services suggests that around 7,500 residents are required to support a viable local hub of activity, and a gross development density of around 100 persons per hectare achieves the potential of *walkability*.

Important neighbourhood facilities and their reasonable support population:	
Primary School	2,500 – 4,000
Doctor	2,500 – 3,000
Corner Shop	2,000 – 5,000
Public House	5,000 – 7,000
Group of shops	5,000 – 10,000

UWE for the DETR from Coombs, Farthing & Winter; GLC and MK Development Corporation

The *walkable* neighbourhood model of urban development out-performs conventional mono-use urban residential environments on a whole spectrum of quality of life measures from improved physical health through *walkability* to improved mental health as a result of stronger community connections and consequent reduction in crime and social exclusion.[77]

3.2.1.2.iv. The scale of the challenge

The shift from the status quo to Smart Growth is a very ambitious objective. The present Government's Urban Task Force and subsequent Sustainable Communities policies have rehearsed many of these arguments. What has been absent, however, is a wider political imperative for change of the scale required to deliver such a wide-ranging agenda. A Government committed to action and driven by the climate change agenda should be capable of making the radical changes that Smart Growth requires.

The need to reduce carbon generation seriously shifts the idea of *walkable* neighbourhoods and *location efficient* development from being a desirable but idealistic vision, to a necessity. It is only by shifting development towards this model that carbon reduction can be reconciled with individual choice, freedom, and quality of life. If we develop and redevelop so that it is easier to walk, cycle, and use public transport, we are following the Conservative route that makes the right choice the easiest choice.

We have examined a range of potential policy levers that might be put in place to help encourage this shift and these are set out below. The first set of initiatives addresses issues of governance; the second, the planning system; the third focus on delivery.

3.2.2. Governance

3.2.2.1. Departmental responsibility

We believe that the present, often ad hoc, governmental arrangements do not meet the needs of a modern state. We therefore recommend the abolition of the present Defra, DCLG and DfT and the creation of the DSG – Department of Sustainable Growth. It would be responsible for Environment, Planning, and Transport, including air and sea transport. There should also be a DLGH – a Department

[77] These effects are widely documented, but a useful summary is CABE's publication, ***The Value of Good Design*** researched by UCL/Bartlett School of Planning 2002

of Local Government and Housing. The DSG would work very closely with a new Department of Energy (DE) which would be key to the delivery of the environmental programme. In this structure the DSG would have a working remit to review and refine the planning system where necessary to enable it to fulfil its potential to deliver Smart Growth:

- It would develop priorities for spatial development in the light of national carbon reduction targets. That would mean identifying the major national infrastructure needs for generation, rail links, airports etc. and highlighting the 'pinch points' in the present arrangements for utilities and transport which prevent the best use of resources. It would refine the planning system so as to make effective timely national decisions on these strategic issues.

- It would prepare policies on land use and infrastructure in consultation with leading figures from industry, academia, and NGOs so that proposals would be open and transparent.

- It would oversee the delivery of the Sustainable Communities Action Plan as set out in the Sustainable Communities Bill (different from the Government's Sustainable Communities Plan), which should also include targets and criteria for local carbon reduction.

In its role as the deliverer of the government's Smart Growth agenda the DSG would have a relationship to other Departments parallel to that of the financial role of the Treasury. To facilitate this there would be in the DSG an equivalent of the Chief Secretary, part of whose responsibilities would be the government wide achievement of the carbon reduction targets That would not only involve the public sector but also the delivery by every Department of the means by which the private sector and individuals would be enabled to play their part.

The Sustainability Secretary would, in particular:

- establish, monitor, and enforce cross-cutting Smart Growth initiatives with other Departments to ensure effective delivery;

- review the Green Book 'Best Value' mechanism as applied to the sale of public land and property assets with a view to introducing a measure based on the concept of the triple bottom line;

- realign the present Government's macroeconomic and Sustainable Development Indicators in favour of Smart Growth targets and monitor and enforce them;

- take over responsibility for the present Government's Sustainability Task Forces, at present answerable to the Cabinet Sub-Committee on Sustainability, and redraw their terms of reference according to Smart Growth priorities;

- agree with the Chancellor the cross-departmental financial implications of the Government's Smart Growth programme; and

- in cooperation with the new DE, DLGH, County and Unitary Councils, using the mechanisms of the Sustainable Communities Bill, set individual county and unitary authority targets for carbon reduction and decentralised energy generation. It would be for the county or unitary authority to propose its plan and the target it believed possible and for the Sustainability Secretary, where necessary, to seek improvement. The means of delivery will be for local decision.

3.2.2.2. Joint Land Use Commission

We propose the establishment of a Joint Land Use Commission which would bring together the land use information held by Ordnance Survey, Land Registry, and Communities England/English Partnerships (keeper of the National Land Use Database and the Surplus Public Land Register) together with the relevant parts of the Environment Agency and National Statistics. The first two and the relevant parts of the other agencies would then become the Land Use Commission which would also establish a database of all Energy Performance Certificates issued in the UK (this would provide a wealth of information in terms of targeting support to address fuel poverty and the establishment of Low Carbon Zones – see our Chapter on Energy). The Commission should also liaise with the insurance industry to acquire insurance risk data, e.g. land subject to flood risk.

Amalgamating these information bases will create a sound foundation upon which to undertake strategic planning at national and regional level. Equally, the amalgamated data will be extremely valuable and should be commercialised to defray some of the project costs.

This Commission would be sponsored by the DSG and provide it with independent advice. It would also have the specific remit to gather data on strategic sites at a national and regional level with a general remit to facilitate sustainable development, remove blocks to such development, propose changes in planning status and infrastructure improvements, provide information as to environmental capacity and propose solutions to natural resource capacity constraints.

3.2.2.3. Sponsored Agencies

DSG would become the sponsoring agency for Communities England; the Environment Agency; English Heritage; and CABE. As such it would be responsible for the changes in these agencies recommended in other parts of this Report.

3.2.2.4. Communities England

We are not proposing to reverse the merger between English Partnerships and the Housing Corporation before it has a chance to prove itself. Under a Conservative government, it should become the main government agency through which the Smart Growth agenda will be delivered, and a renewed emphasis would be placed upon its role in delivering regeneration. The agency would be charged with working with local authorities to provide a central source of expertise on the delivery of complex and strategic projects. It would continue to provide expertise to government land holders in the management and disposal of surplus land portfolios. The agency would further be charged with running initiatives which, for effectiveness, require a national as opposed to local approach, particularly in the light of the proposed abolition of the regional development agencies (see below). A key priority would be for Communities England to operate as an interface between the property investment, development and infrastructure industries to ensure that an informed dialogue is in place between government and industry on the key issue of delivery.

3.2.3. Delivering Smart Growth and location efficiency

The planning system is the key policy tool available to government to influence land use and guide development. Although the planning system in the UK frequently comes in for criticism, it is important also to recognise its strengths and accomplishments. By contrast with other European countries, there is a much stronger distinction in the UK between rural and developed areas as a result of the maintenance of the Green Belt and other restrictive development policies. There has been a concerted effort to limit the effects of suburban sprawl and remarkable regeneration has taken place in our post-industrial towns and cities which were never allowed to fall into the decay experienced by their North American equivalents.

The defence of the Green Belt, the restriction of out-of-town retail developments, and the successful defence of the High Street continue to be essential parts of Conservative thinking. It is important that, while not descending to unthinking Nimbyism, we should continue to protect the countryside and thereby make our towns increasingly sustainable. Sprawl is never sustainable and the two parts of a Conservative planning policy – urban regeneration and countryside protection – fit together in providing for sustainable growth.

The role of planning is not to replace markets in making commercial judgments. Rather, it is to ensure that non-commercial factors are given their proper weight. Planning is most useful in ensuring that account is taken of the external costs of development (a change, sometimes degradation, of the land, and the accompanying impact upon society and community) and in reflecting local factors and democratic will. It is in the nature of the planning system that it is under pressure – this is symptomatic of a lively and expanding economy and of a system which actively courts the views of the electorate. This is not to say that the system is without flaws. It is inherently good and necessary, but it does need regular maintenance and sometimes significant reform.

In the past, great towns and cities were created without need of a planning system. From Lavenham to Lampeter and from Bridport via Berkeley to Berwick upon Tweed, we visit to admire the communities that have grown up over the centuries, without the help of a planner. Yet they were ordered in a different way. Money was in the hands of the few, decisions and fashion were concentrated, and the squire, the Church, and the village fathers imposed their own restrictions. Democracy has spread wealth, just as wider prosperity has demanded democracy. The planning system is simply the best method we have to decide between the competing demands on a limited supply of land and to recognise the profound public effect of particular private property decisions.

Even so, Conservatives should always be mindful of the basic rights of property ownership. They are enshrined in the great historic statements of human rights and stand today in the United Nations' Charter and the European Human Rights legislation. Property is the best guarantee of personal independence and is an essential ingredient of development. Without proper property rights, legally protected and defined, the basic source of collateral for business development is denied.

The very fact that the planning system will be so important in promoting sustainability and combating climate change makes it essential that local authorities should be clear about their priorities. The need to achieve great goals must make them very much more willing to be as flexible and accommodating as possible on lesser issues. It is for that reason that we are proposing to do away with a number of unnecessary restrictions which represent an unjustified intrusion into the rights of the individual.

This still requires an answer to the question of whether the planning system in its current form can effectively respond to the challenge of delivering more sustainable growth. The finite nature of land as a resource to be shared, the need to cut greenhouse emissions from buildings and transport, the harm done to quality of life by car dependence and traffic, and the loss of economic productivity and social cohesion from enforced travel to work – all these combine to make the need to address the efficiency of spatial development patterns one of the most urgent tasks facing us as a nation.

It must be recognised that the planning system is not a panacea. At its best, the planning system can set the principles to guide development; it can set the vision and illustrate it through masterplanning; it can secure a degree of public consensus, pull together partnerships of interest and facilitate change. However, the bulk of planning activity is the arbitration between competing interests, in taking development forward or indeed inhibiting it.

It is also worth noting that more sustainable urban living, less mobility-dependent, with lower energy, water and waste demand, should allow huge savings in the very large-scale infrastructure whose

prohibitive cost is currently holding back much development. Planning policy should enshrine the best use of existing infrastructure and require the minimum new infrastructural provision as basic principles to reduce the burden on the public purse.

We believe that all spatial planning should be subject to a new test of spatial or location efficiency. In practical terms, this means that proposals that would clearly increase the dependence of society on harmful forms of energy generation, or on undue mobility using motorised transport, should not be approved. This recommendation relates partly to sites and partly to the development itself (whether it is likely to give rise to multiple journeys by people or goods). The principle would require some form of expression that allowed it to be applied simply to planning policies and decisions. It could, for example, be based on the Dutch ABC tool used to match the intensity of activities to the accessibility of sites.

A return to the previous planning nomenclature would underline the need for planning to be a co-operative activity between the government with its national framework and local authorities reflecting their local needs. Planning Policy Statements (PPSs) should be restricted to core policies, with good practice guidance for other issues, and they should be progressively rewritten to emphasise the priority of sustainability principles. However, this will take time, and swift change is essential. We therefore recommend that PPS 1 Delivering Sustainable Development in particular should be urgently rewritten to reflect the overarching policy objective of achieving Smart Growth, to set out the principles of location efficiency and walkability as key drivers for the delivery of Smart Growth and to elevate the balanced neighbourhood as the primary building block of a carbon-efficient urban area. If done carefully, this revision of PPS1 could be made to apply across the whole body of national planning policy, so as to facilitate radical change without a need for lengthy revision of all PPSs (etc.) Statutory regional planning bodies and plans would be abolished but local authorities would be encouraged to produce their own guidance on how best, in their own circumstances, they could contribute to the achievement of Smart Growth. This would not just involve the planning departments but would cover all services. County and unitary authorities, especially, would be encouraged and enabled to come together to agree joint approaches wherever they were warranted by the geography of a particular issue, for example water catchment, travel to work, and housing market areas.

Planning alone cannot, however, deliver Smart Growth. Ultimately, it is the property investment and development markets that deliver and manage the built product. While government in its very many guises can do much to influence the nature of development, the single most compelling route to change will be the market. Government must therefore work with the market to encourage the change in the nature of the product necessary to meet our sustainability obligations. It is therefore vital that we use the full range of measures available to influence market behaviour.

Figure 3.4. Government and the property market: levers for change

Measure	Aim	Responsible Department/Agency
Planning System	Set the terms within which the market operates	Deptartment of Sustainable Growth (DSG)
Exemplar Schemes	Demonstrate feasibility/market acceptability of innovative projects	Communities England; Local authorities
Public Sector Development /Publicly owned property	Demonstrate good practice through example	Cross-departmental
Government investment in transport	Minimise increased transport of goods and people by focussing investment on local, sustainable transport, and constraining new aviation and road capacity.	HM Treasury and Dept of Sustainable Growth
Government Land Supply	Attach strong sustainability conditions to disposals	DSG and Communities England
Government Occupational Portfolio	Influence investor behaviour through attaching conditions to government occupation of rented space	Cross-departmental
Education Programmes	Create professional capacity to deliver new land use model and built product	DSG and Communities England
Public Awareness Programmes	Raise awareness to alter behaviour, spending, and investment patterns to smart growth model	DSG
Grant Regimes	Attach tough conditions to grant release to favour sustainable outcome	Cross-departmental
Government Purchasing	Use of public sector purchasing power to create new markets/support development of new products.	Cross-departmental

Section 3.3. Planning

3.3.1. Overview and rationale for planning

In recent years, the comprehensive system of town and country planning established in 1947 has evolved quite radically in an attempt to meet a range of new and broader concerns. The Environment White Paper of 1990 signalled a new concern about environmental problems and the Rio Earth Summit in 1992 propelled sustainable development to the forefront of international debate and concern. This was accompanied by a new seriousness in political circles about what planning could do for society, the environment, and the economy.

3.3.1.1. The plan-led system

The Town and Country Planning Act 1990 established the most comprehensive planning system yet seen in England and Wales. The amendment of this Act, the following year, by s.54A of the Planning and Compensation Act 1991 had profound implications, establishing for the first time, a plan-led system; that is, one where the presumption is that a decision should be made in accordance with the adopted development plan unless there are strong reasons why agreed policy should be relaxed or set aside.

This commitment to strong planning was also shown by some of the planning policy guidance issued during this period, notably that on transport (which emphasised he need to reduce the need to travel as an objective) and retailing (which focused on the vitality and viability of city and town centres as places for shopping), as well as Quality in Town and Country (a document which effectively reversed the previous dictum that planning authorities had no role in assessing or controlling the design quality of proposals).

3.3.1.2. Urban housing

This new approach continued in the early years of the Labour Government, notably in the form of efforts to continue and accelerate an increase in urban housing. The Urban Task Force and subsequent Urban White Paper were obvious highlights. Much of this was applied in practice via a revised version of PPG 3 Housing. This extended and expanded the ‘sequential test’ (town centres first) originally applied to retail development proposals into a formal ‘sequential approach’, which insisted that urban and previously developed land should be first for development and greenfield land last. This principle covered the selection, allocation and release of sites for housing development.

3.3.1.3. Recent planning reforms

Since the 2001 General Election, the Government has responded to pressure from bodies such as the Confederation of British Industry and the Housebuilders’ Federation to review the planning system with a series of papers, reviews and legislative changes. This process is continuing with the recent publication of the Planning White Paper 2007 and a number of related proposals for further change to the planning system, perhaps especially in relation to major infrastructure projects. It is not our intention to give a comprehensive account of these, but there is convincing evidence from diverse sources that they have, in large part, been ill-thought-through and inconsistent. The Planning Green Paper of 2001 and the Planning and Compulsory Purchase Act 2004 – which had the longest passage through Parliament of any bill in history – established a system of planning that is at once significantly more complex and less accountable to the public. This has been greeted with widespread disquiet among professionals and the public, with a strong sense that better information, management and resourcing in the existing system would have secured greater benefits and spared those involved, the delays and uncertainties arising from having to implement a new system.

The Royal Commission on Environmental Pollution Report of 2002 on Environmental Planning highlighted in detail the inadequacy of the existing arrangements to take proper account of environmental factors in planning for development and land use change. The Commission advocated a system of "four-dimensional planning", that would embrace not just land but soil, water, and air quality. In fact the environmental problems arising from these fundamental issues are in large part getting worse. There is a real need to take practical action to make sure the planning system does not exacerbate them through its actions, whether intentional or otherwise.

We recommend that a Government task force be established with the remit of proposing practical means of implementing the recommendations of the RCEP Report 2002 on Environmental Planning as far as possible without the need for primary legislation or major structural changes to the existing system. In particular, it should examine on what scale and according to what geographical criteria a) information should be gathered and held, and b) consideration and decisions should take place for different elements of the environment. Because of climate change, this will be particularly important, for example, in water planning at the level of catchment areas.

3.3.1.4. Planning and externalities

One of the central reasons for planning is its role in deciding between different interests. These may be private, commercial, organisational or community interests, at any scale from the neighbourhood or district through town, city or county to the region or the whole country. The wider public interest may span generations, since environmental goods and historic assets have endured for several centuries already. This means that the discounting periods used in commercial accounting are incapable of assigning appropriate value to such goods. While it may be tempting to consider that planning decisions might be reduced to a series of transactions, we suggest that there is no easy measurement that can infallibly be applied to decide between these competing interests.

Democratically accountable planning provides a better – albeit inevitably imperfect – means of attempting to do so. The imperatives of climate change and the wider elements of sustainable development demand an explicit recognition of the importance of inter-generational equity. These factors underlie our profound scepticism about suggestions that the costs and harm – the externalities – that are imposed by much development and other forms of spatial change can somehow be compensated for. Clearly, planning obligations can carry some of the direct and immediate external cost imposed by a new development or change of use; mitigation of such aspects as scale, appearance, or noise and light pollution is also possible to some degree and there can be arrangements to offer money to people, as some form of recompense for the loss of a view or open space. Payment to those living now for a benefit lost or reduced, however, does not address the needs or aspirations of future generations or honour the past. Money to assuage the loss felt by someone living close to a bulldozed mediaeval hedge is an inadequate response; building on agricultural land deprives people for centuries to come of the option of using it to produce food; a historic building, once lost, is lost forever.

We therefore see no merit in attempting to replace the planning system with a general system of compensation, other than already exists in the conditions imposed on planning permissions to minimise the harm arising from the immediate changes they entail.

3.3.1.5. Planning and democracy

Planning is widely criticised for its failings. Yet paradoxically, it is the area in public life where the public, as individuals and local communities, have the most opportunities to have their say and the most local control; and it frequently throws up issues and concerns that drive members of the public to become engaged in local political campaigning and decision-making. It is a rare example of a truly important public service in which most decisions are made by democratically elected authorities.

Making the most of these opportunities to engage local communities in a positive fashion has been seriously undermined by New Labour centralism. Its creation of unelected Regional Assemblies; its promotion of the so-called Sustainable Communities Plan; and its love of gratuitous and meaningless consultation processes have made the public very cynical even about genuine consultation, leading to unsurprisingly low levels of participation in these processes. In order to achieve democratic accountability, it is therefore of the highest importance that we reverse that trend. There is an acute and growing need for the restoration of public confidence in planning. Many communities' experience of the last few years – with central government intervening to ride roughshod over people's views – especially about their own surroundings – has been highly counter-productive in this respect. The increasing willingness and capacity among people to take action on single issues that they care most about, combined with the increasing importance of planning to society in the face of climate change, means that we need to strive to make planning more popular and accessible, not less so.

We fundamentally believe that elected, accountable local authorities aided by the active pursuit of public participation should be at the heart of all planning policy.

3.3.2. Recommendations for planning policy

3.3.2.1.The Land Use Review (LUR)

In reviewing the present system's capacity to deliver Smart Growth, we have seen that it has neither the clear aims nor the properly formulated information that are required to pursue those aims. If we want high quality and effective decision-making, both these serious gaps must be filled. We have already suggested that we bring together the information held by a range of overlapping agencies under the aegis of a Joint Land Use Commission. This would provide an integrated knowledge base upon which sensible decisions could be made. It would therefore allow a proper review of the national objectives of our planning policy in the context of climate change. This would seek to reconcile the currently conflicting aspects of Government policy as they affect spatial development and planning. This Land Use Review would be conducted by the Department of Sustainable Growth and form the basis of its future policy and of the role it would have in producing a co-ordinated approach across government in our response to climate change.

The Land Use Review would consider matters of strategic land use and infrastructural need that have a cross-regional or national dimension. Its objective would be the delivery of Smart Growth and the DSG would need to ensure that the planning implications of its own policies on transport, and environmental protection were brought together with those of Departments such as Energy, Industry, Education, Health, and Local Government. The LUR should be prepared in such as way as to facilitate maximum public input and ample opportunity for parliamentary debate. The DSG would then see that the LUR was kept up to date on a continuous basis as the guidance upon which the nation's planning priorities would be based. As such it would:

- stimulate and lead an informed public debate at national level about the future use and management of land and other natural resources, so that these debates do not need to be rehearsed at local level when considering planning applications;
- bring together up-to-date, statistically based information on the diverse issues that affect planning decisions, including water resources, tranquillity, economics, climate change, energy, and demographic change. This would enable it to ensure national planning policy in any one area would not be made in ignorance of another;
- articulate a coherent regional policy designed to encourage and facilitate co-operation between counties, unitaries and districts, and business and voluntary organisations to reduce disparities in regional wellbeing and economic prosperity; and
- set clear national criteria to guide both the consideration of, and decisions on, actual proposals, and to guide the formulation of county and local development frameworks.

It would be for the Land Use Review to propose national priorities for large-scale infrastructure and lay down the criteria for the assessment of proposals for major development. It should include a clear sequential approach to major infrastructure, prioritising alternatives to new development, then the use/upgrading of existing infrastructure, before considering new development.

The LUR should also provide sufficient guidance on national priorities to avoid any need for repetition of the lengthy discussion at local level of what national policy ought to be. This would mean that there would need to be no more inquiries like that of Heathrow's Terminal Five, when an effort was made to fill the national policy vacuum. Such major inquiries would be restricted to the particular proposals in a particular place and national matters of general environment, safety, or propriety would already have been decided at a national level.

The LUR would have the responsibility to consider such limited regional planning policies as may be necessary. In general, these would be initiated and produced by the counties and districts concerned but, where the national interest required a regional input it would be for the LUR to initiate the

process, carry out the research, and work through the options with representatives of the local authorities concerned.

3.3.2.2. Regional Planning

The current system, as developed since 1997, has not generally delivered effective or accountable strategic spatial planning. Instead it has resulted in:

- the acutely anti-collaborative 'dog-eat-dog' philosophy embodied in the public service agreement objective for regions, which has led each individual region to concentrate on maximising its own economic growth in competition with all the other regions. This has made it much harder to achieve any coherent inter-regional strategy, let alone the second aim of the PSA, namely a progressive reduction in the prosperity gap between regions;
- the narrow focus on competitiveness among Regional Development Agencies (RDAs) regardless (in spite of their statutory duty to further sustainable development) of wider concerns, with some RDAs' showing a lack of commitment to the framework set out in RSSs;
- the absence of a clear hierarchy where the RSS defines the policy framework within which the Regional Economic Strategy (RES) – representative of only one aspect of regional policy – should sit;
- the fact that the RDAs' sole sponsor is DBERR despite the spatial/land and property dimension of their role;
- the lack of direct democratic accountability of regional assemblies compounded by strong direction and pressure – both formal and behind-the-scenes – from central government via the Government Regional Offices; and
- the sheer size and diversity of individual regions, which cause practical problems (for example, the northern edge of the South West region is closer to the Scottish border than to its own western tip at Land's End). This is compounded in most cases by the lack of cultural or political resonance with the people who inhabit them.

However, the fundamental problem is that the so-called 'regions' of England do not exist. There really is no connection between Trimley St Mary in Suffolk and Luton in Bedfordshire although both are in the Eastern Region. What is everywhere an artificial construct is made more unrealistic by London whose hinterland is much more allied to, and aligned with, the metropolis than with the various regions in which particular communities are placed.

People tend to identify with their city, town or village and (in rural and some urban areas) with their county. Those identifications are the building blocks of a sensible governmental structure and it is more important to get the system to work at a local level than to meet the supposed needs of regional planning. We propose that the present planning powers of the regions be returned to local government and that the Government Regional offices return to their original function of serving as a vehicle for the delivery of government policies, rather as a regional sales office of a great corporation.

We recommend that the localism agenda be used to empower the very lowest of levels of government, nearest to the people whose lives they affect. Obviously, we do have to have national sustainability objectives if we are to combat climate change effectively but without local ownership and empowerment we will not achieve our ends. By bringing new life to parishes, towns, districts, cities and counties we would hope to make subsidiarity a living reality with decisions being taken at the lowest possible level. There is hardly a country in Europe that has so limited a system of local government (and, indeed, few if any that do not deliver government policy at a regional level). Almost everywhere else, small communities have a real say over their future. Towns and cities have a character and independence which local democracy maintains and fosters. Where you live matters and people do not complain about a 'post-code lottery' but glory in the variety and difference between places.

Our vision for localism is crucial for the wider Quality of Life agenda but it has a special importance when we consider planning. People need to take ownership of their own future in their own localities. The more complex the world gets, the more globalisation seems to remove power from people, politicians, and even nations, and the more it is important that individuals feel they have a real say about the future of their own community. The centralisation of the last ten years has been built on the back of an already over-centralised nation. We recommend that this process should be reversed. Our proposals for local government reform have grown out of our practical consideration of the Quality of Life.

For the purpose of this Section on planning, it suffices to say that we would wish to see a much more localised system without a regional government tier. Instead, the counties, unitaries, and districts would make such common cause as they considered necessary to deal with overlapping issues, especially where this would result in more sustainable solutions to the challenges they face. District councils, and city or borough councils, would be statutorily bound to take account of parish councils' views on planning proposals and provide clear and timely reasons for any dissent.

3.3.2.3. Local Planning

The evidence presented to us has been in part critical of Local Development Frameworks (LDFs), but there is also widespread acknowledgment that it is far too soon to tell how well they will work and complaints have centred upon the lack of resource to create and implement them properly. Thus far, it has been acknowledged, they have usefully introduced the spatial dimension to local planning and have opened up a greater dialogue between local authority and stakeholders in the plan-making process. Plans take a long time to emerge. We therefore recommend strongly against any radical reforms to the structure and process of local planning for the next ten years but suggest instead that energy and resources be directed towards the delivery of LDFs, taking account of the LUR and assisted by the local data and resources held by the Land Use Commission.

We do however recommend certain modifications that we believe would help to improve the emerging new system. Chief among these are changes to Local Strategic Partnerships (LSPs), Statements of Community Involvement (SCIs) and Community Landscape Character Assessments (CLCAs). We also recommend reform of the system of householder consents, to remove as many unnecessary controls as possible and allow more of local authority officers' energy and time to be directed to positive planning, such as Local Development Frameworks (LDFs).

Through the proposed review of the PPSs to advance the objectives of Smart Growth (see Section 2, above), local authorities should be given the aim of delivering walkable neighbourhoods as the primary driver of land use planning, both in setting the framework for existing areas and for new development.

3.3.2.3.i. Local Strategic Partnerships and Sustainable Community Strategies

Many LSPs have emerged under New Labour as important players at sub-regional and local levels. These LSPs are charged with producing Sustainable Community Strategies (SCSs) that are supposed to define the vision of a community and its location. This feeds directly into the local development plans. However, not only have this process and these documents consumed large quantities of energy and money, they have actually confused the public who do not know where they to focus their energies. Direct participation is difficult. The LSPs often meet during working hours, thus ensuring the dominance of those whose attendance is paid for as part of their employment. The LDF is supposed to be the spatial expression of the SCS, but the process which planning documents have to undergo (in terms of public consultation and independent examination) are far more rigorous than those that produce SCSs. The result is that SCS visions have frequently not been exposed to sufficient public scrutiny or robust enough testing before the LDF documents they are supposed to inform are prepared.

We note the requirement for a vision and a core policies document in every LDF; the desirability of minimising the number of processes and documents authorities and the public have to keep track of; and the need under the P&CP Act 2004 to widen the brief of planning to encompass all things spatial. In the light of these factors, combined with the criticisms of LSPs and SCSs, we believe that SCSs are redundant insofar as they refer to spatial planning matters.

3.3.2.3.ii. Statements of Community Involvement

SCIs were introduced as a part of the LDFs by the Planning and Compulsory Purchase Act 2004. They are peculiar in not being part of the development plan as such, while being mandatory and subject to independent examination like any Development Plan Document (DPD). SCIs were intended to be a sign of the Government's commitment to public participation in local planning, but they are criticised for several reasons:

- there is no requirement for SCIs to go beyond the statutory minimum level of public consultation set out in regulations (the Town and Country Planning (General Development Procedures) Order as amended);
- SCIs do not secure any greater opportunity for public participation in local planning;
- standards of public participation above and beyond those required by the regulations could be achieved without the need for hundreds of separate SCIs simply by raising the statutory minimum requirements for consultation; and
- consultation and independent examination for SCIs takes up a significant amount of the time and resources of local authorities, the Planning Inspectorate and concerned members the public.

We recommend that the requirement for individual Statements of Community Involvement be abolished, but that the statutory minimum standards of public engagement be improved to match current best practice, and reviewed regularly thereafter. Local authorities should be enabled by statute and, indeed, encouraged to go beyond the statutory minimum and be as creative as they would like to be in harnessing the positive energies of their own community in the formulation of LDFs.

3.3.2.3.iii. Community Landscape Character Assessments

CLCAs and the Statements that result are an exciting way of engaging communities directly in the appreciation and planning of their surroundings. They are crucial to enabling a more informed, sensitive approach in local spatial planning. This should inform better quality decisions and, where permitted, better development, so helping protect the elements which are central to quality of life. They are popular and seen to be practical and worthwhile. We recommend that all local authorities (particularly in rural areas) be strongly encouraged to facilitate Community Landscape Character

Assessments in their areas, and the incorporation of the reports as a statutory part of the Local Development Framework in Area Action Plans.

3.3.2.3.iv. Best Value and Comprehensive Performance Assessment

The targets imposed on local planning authorities, by Best Value and Comprehensive Performance Assessment, measure little more than the speed of decision-making. They neglect the quality of process and decision, let along the quality of outcomes. Their title was chosen to prejudice people in their favour. In fact, they are largely redundant. Local authorities have learned to refuse any planning application that they cannot determine in time. For planning to fulfil its potential as a constructive public service, Comprehensive Performance Assessment and Best Value performance indicators should be abolished.

3.3.2.4. Streamlining the System

3.3.2.4.i. Delivering national infrastructure

Critics of the system have highlighted the fact that decisions now take much longer than was once the case. They report an inclination on the part of some local planning authorities repeatedly to defer decisions so as to avoid electoral unpopularity or controversy. They also suggest that there is a real shortage of capacity in many planning departments, which are weighed down by the sheer number of applications. There is undoubtedly a real frustration with the failure of many officers to understand properly the financial significance to the applicant of delay and their willingness to seize upon reasons to avoid decisions simply because of their pressure of work.

In their defence, local government practitioners recognise the frustrations and the heavy workload but suggest that while national policy may encourage something in general, the local rejection of particular proposals on specific sites may be perfectly reasonable. Indeed it may be a sign that that the system is operating as was intended – interpreting national guidelines in the local context. They would also point out that successful applicants are not those who complain and that some local authorities have enviable records for careful and timely determination. Nevertheless, there is sufficient concern to warrant further action.

3.3.2.4.ii. Large-Scale Applications

There have been a number of recent reforms of procedures for public inquiries on large-scale development proposals. These include provision for teams of inspectors to hear evidence on different issues simultaneously, and a stricter timetabling of inquiries and submission of inspector's reports. The full effects of these changes have yet to be seen.

Large-scale projects of truly national importance do present a particular problem. The experience of recent years has been of national policy being decided on an ad hoc basis at inquiries into specific proposals. This is inefficient, inappropriate and wrong. We strongly support clearer national policy on need, priorities, and general criteria for the siting of desirable development. That national policy would be detailed in the Land Use Review, would reflect environmental capacity, the climate change imperative and quality of life objectives, and be democratically accountable to Parliament.

This change will go some way to meeting the concern that national policies have been frustrated by the planning system when the real issue has been that Governments have used the planning system as a cover for their own unwillingness to take the political flak for a clear decision on the principle of, say, Terminal 5.

However, there will still be suggestions that planning decisions place unnecessary obstacles in the way of achieving national or international policy objectives and obligations. The two main areas cited are renewable energy – specifically onshore and offshore wind power installations and network connections – and waste management where the issue is timely compliance with the EU Landfill Directive and the imperative needed to end our traditional reliance upon landfill. The difficulties experienced in getting permission for such proposals are indeed considerable but we strongly believe that the need for a national objective is not in itself justification for overriding locally other public objectives, not least those set out in planning policy. If a single national objective were used to override planning policies to which significant amounts of community time and effort had been devoted, public confidence in planning would rapidly evaporate, together with any enthusiasm to engage in policies. Where the local implementation of a national policy on something as important as renewable energy or waste is contentious, the planning system has to try to balance competing arguments and interests.

Although long inquiries are adduced as a major cause of delay, a worse culprit is the Secretary of State. After the inquiry has concluded and the inspector reported, his/her reluctance to reach, or more accurately, to announce a decision on some controversial project is the biggest cause of delay. This factor is entirely avoidable.

There will inevitably be a tension between national need and local preference. The planning system is there to reconcile those differences wherever possible, and in a few cases, where necessary, to strike a balance between them. It would be wrong to dismiss the views of the locality, especially in the light of the Conservative Party's localism agenda. It would be equally wrong to ignore the fact that we shall need a range of strategic infrastructure projects to deliver new approaches to energy generation, water and waste processing, and transportation. The national interest dictates that these should be delivered efficiently, while remaining subject to the democratic processes of public consultation and planning. This in turn demands changes to the present system:

- the proposed LUR, by filling the existing vacuum of national policy, should reduce or remove the need for general debate on that policy at a specific, local inquiry. Thus, if it were to be decided that nuclear power could safely form part of our future generation needs, an inquiry into Sizewell C would not concern itself with general issues of safety or waste but be confined to site-specific concerns about such things as coastal erosion and the transport of waste from the site;
- the LUR would include a specific expression of need for certain projects of national importance, general policy on the desirability or otherwise of certain forms of development (e.g. major transport proposals such as airports, water and waste processing, and energy generation and storage). It would also present general planning criteria to assist prospective developers, planning authorities, and inspectors in assessing specific proposals for large-scale development;
- the LUR would enable consideration of competing proposals for similar projects together, to minimise piecemeal decision-making. Indeed, further consideration should be given as to how a system of co-ordinated or consolidated approval for infrastructure projects can be encouraged to emerge. The three recent, unco-ordinated decisions on port expansion show the advantage of some improved system here;
- the LUR would provide the statistical and geographical information necessary for the Sustainability Secretary and the counties and unitaries to construct the local energy generation and carbon reduction strategies;
- planning Timetable Agreements between the applicant(s) and the planning authority should be required for any complex application which the authority assesses as likely to take longer than 12 weeks to determine (in order to enable information to be obtained for a properly informed decision), and ensure an agreed deadline for a decision to be issued (these have been promoted, as Planning Performance Agreements, in the Government's recent Planning White Paper);

- where a public inquiry is held on a proposal, the scope of the debate and decision-making should remain as it is, including the option to recommend rejection of the application in the light of the evidence of its likely effects. The exception is the removal of the right to debate principles of national policy made clear in the LUR;
- the Secretary of State should be obliged, except in circumstances where Parliament determines that further evidence is required for an informed decision, to issue a decision within one month of receipt of the Inspector's report from a public inquiry;
- the practice of 'twin-tracking', where an applicant submits two identical or near-identical applications, negotiates with the planning authority on one and appeals against non-determination of the other, thus dividing and wasting public resources should be prohibited, to reduce further the burden on the Planning Inspectorate;
- the right of appeal against a local authority determination should be confined to the evidence as presented to the local authority and to the basis that the local authority misdirected itself. Appellants could not demand a rehearing of the case by producing new evidence; and
- the right of appeal against refusal of a proposal contrary to the development plan should be abolished (see below). This would reduce the number of speculative applications and the burden on the Planning Inspectorate from vexatious appeals.

3.3.2.4.iii. Planning Timetable Agreements

Developers prize certainty of timing. It is a difficult enough business anyway and timing is all. All too often, local planning authorities simply refuse complex applications lest, by giving them due consideration, they incur a penalty from national government via the Best Value and CPA regimes (see above). At the same time, some concentrate their efforts on processing the smaller and easier applications that enable them to meet targets for the proportion of applications dealt with within the prescribed time.

To address this problem, Planning Timetable Agreements (PTAs) have been trialled. These are designed to ensure that enough time is given to consideration of complex proposals for a properly informed decision to be reached, while maintaining a degree of confidence and certainty on the part of the applicant. The applicant and the local authority are encouraged to draw up an agreement on the timetable needed for full consideration of an application and a decision to be reached. Albeit formal, the agreement is not enforceable, and to make it so might reduce the likelihood of parties entering into them for fear of sanctions. The trials have involved the Planning Officers' Society, the Planning Advisory Service and certain developers and planning authorities, with support from the National Planning Forum.

Wider use of PTAs should help reduce uncertainties of timing for applicants and the public alike, and focus planning authorities on reaching a decision within an agreed time. It should also throw into relief those cases where the planning authority has no intention of making a decision – a cause of considerable frustration to some applicants – and make it easier for applicants to decide whether to wait for the decision or force the issue through an appeal against non-determination.

However, to make these PTAs work effectively they need:

- formal status in national guidance on planning procedures and a similar format to remove local inconsistency (e.g. insertion in the Town and Country Planning [General Development (Procedures) Order]);
- explicit provision to remove applications on which a PTA exists from the assessment of an authority's performance in processing applications it receives; and
- arrangements to ensure that PTAs are drawn up in as transparent a way as possible with proper community consultation – otherwise they risk being seen as deals stitched up between applicant and authority.

3.3.2.4.iv. Rights of appeal

It is suggested that an anomaly exists in the plan-led system whereby the applicant may appeal to the Secretary of State against refusal of any proposal, no matter how clearly it contradicts policies set out in adopted plans. Yet, there is no corresponding right for third parties to appeal against the approval of such an application. What we consider to be unnecessary is the retention of appeal rights that derive from before the plan-led system, where decisions must be made in accordance with the development plan "unless material considerations indicate otherwise". Whereas appeals are justified where applications are refused although in accordance with policy, when they run counter to adopted policies, a right of appeal seems unnecessary. Indeed, the application is itself a kind of appeal against policies to which the applicant will have had access before making the application and may well have had a chance to influence before adoption. Curtailing this right would remove an unnecessary burden on the planning Inspectorate and local authorities; encourage greater engagement by developers with the LDF process; and increase the likelihood of proposals being submitted that accord with policies in the development plan.

3.3.2.4.v. Front-loading the development definition process

The present system is an inherently adversarial process in which a developer devises a scheme, often pushing the criteria set out in the local plan to the limit to maximise his return from the site in the expectation that the local authority will negotiate the scheme, and his margins, down. This route is often highly protracted with a considerable waste of resources on both sides. Yet further delay will arise if the scheme falls foul of local interest groups. All too often, the end result is a building or scheme that is a compromise, reflecting the process by which it was conceived.

A number of approaches have begun to emerge which propose an alternative route to project definition which amplify the early stages of a scheme, encouraging a much higher degree of developer/local authority/community deliberation at the outset. By properly canvassing all the various stakeholder interests in a site, and reflecting these in the scheme as it emerges, support for it is created between all parties and, so the theory goes, the scheme will progress more rapidly through the permissioning process. A distinct and apparently successful methodology along these lines – called *Enquiry by Design* – has recently been piloted in the UK under the aegis of English Partnerships.

Enquiry by Design (EbD) is a highly participative, cross-disciplinary process for defining detailed spatial plans, masterplans and regeneration frameworks for identified (usually large) sites as part of the production of the Local Development Framework process, particularly where major development allocations are to be made or regeneration frameworks put in place.

An incoming Conservative government should issue guidance on the application of *Enquiry by Design*, drawing on the experience of Communities England, the Prince's Foundation, and the

Government of Western Australia.[78] Such guidance will need also to take into account the experience of some local authorities, including Southwark, where extensive consultations leading to community-based solutions were resented and finally killed by Councillors who saw in them a threat to their representative role.

The key characteristics of the *Enquiry by Design* process are as follows:

- A single workshop event held over several days assesses a complex series of design requirements of a new or revived community.
- This intense workshop is normally preceded by one or more two-day scoping workshops, to gather technical information, conduct a thorough physical analysis of the site and its surroundings and produce a pattern book – a study of nearby villages, towns or neighbourhoods which identifies prevalent local spatial types which should be drawn upon for the design of the new development.
- The process brings key decision-makers and stakeholders together around the same table, where problems can be aired as they arise.
- The process also brings together the full professional team so that the range of technical issues relating to the development can be aired and negotiated from the outset.
- The local community is engaged at the heart of the design process, giving it much more potential to influence outcomes in a positive way than de post facto consultation processes.
- EbD can be used for the regeneration of existing communities or the planning of wholly new developments.
- By its nature, the EbD approaches each brief as a new design problem, and tailors a response appropriate to the emerging dialogue between stakeholders.
- The outcome is a vision that unifies everyone involved in the development, including those who will eventually give planning permission.
- While EbD implies the front-loading of professional costs implied in taking forward a major scheme or strategy, it potentially saves money over the course of the project as it builds early agreement and consensus, and may ultimately speed the planning consent.

To avoid this and other concerns a more extensive pilot should be initiated and an EbD fund allocated by Communities England to roll it out more widely. This would provide local authorities with a proportion of the funds required to be matched by landowners and developers with relevant site interests. The pilot should be monitored, particularly to discover whether the process does in fact create efficiencies in taking a scheme through planning; to evaluate whether local communities are relatively more content with the development outcome having been involved in the definition of the project; and to assess whether the end result is a more successful built product.

The DSG should set up an EbD Team within ATLAS, the major projects advisory unit of the Planning Advisory Service which works within English Partnerships. The team should administer the EbD fund, and provide technical assistance to local authorities in running EbD processes. If the extended pilot proves effective, EbD could be embedded within the planning system and given statutory status. As in the Western Australia example, EbD should not be compulsory and developers and local authorities should retain the right to pursue whichever process they see fit.[79]

3.3.2.4.vi. Householder applications

a) The principle

One of the problems associated with planning is that we have got far away from the principles under which the community restricts property rights. Conservatives need to recover an understanding of

[78] Communities England has already undertaken two such processes at Upton, Northampton and Telford, while the Prince's Foundation has promoted a substantial number of EbD processes in the UK.
[79] See Appendix 3.6: Description of Enquiry by Design Process Application as Non-Compulsory Policy in Western Australia

those principles or we shall further erode property in general and home ownership in particular as bulwarks of independence.

No one today would assert that property rights should be unrestricted but Conservatives believe that those restrictions must always be justified and remain as limited as possible. Property has always been the foundation of freedom and a defence against servitude. It is not surprising that dictatorial regimes from Hitler and Stalin to Mao and Mugabe have undermined the rights of property and asserted communal rights over those of the individual. That fact should not lead us to demand unfettered command over what we own but it should warn us that the State should not extend or continue restrictions that cannot fully be justified. With this in mind, we need to look carefully at the planning system as it affects the individual home owner.

Our starting point should be that a man or woman ought to be able to do precisely what he or she likes with his property unless what is proposed so damages the interests of other individuals or the community at large that society has to impose restrictions. This approach is unfamiliar to many planners who have grown up with the view that the property owner is only one stakeholder among others. There are too many who act as if they believe that most people cannot be trusted to make decisions themselves without the superior advice and judgement of professionals. Some councillors, too long on planning committees, react to a restatement of the inherent rights of property by fearing loss of control! It is that word which is the key.

Too much planning has become development control. This is not to say that the control of development is unimportant. The 1947 Town and Country Planning Act was the product of a consensus that the ribbon development and largely uncontrolled growth of suburbs could not continue without great disadvantage to the community as a whole. The restrictions on out of town development marked another moment when society recognised that specific and tough controls were necessary. In the first case a Labour and in the second a Conservative government recognised the need for restriction. Time has proved both right. The difficulty is that control becomes a habit and those who are empowered to control begin to take for granted that they know best. It is not long before we find ourselves on Stafford Cripps' ground.

No one who has had detailed involvement in planning can doubt that there is a serious need to remove as many temptations to unnecessary control as possible. That need becomes an imperative when we realise that the demands of the battle against climate change will mean that we are going to have to insist that householders accept more onerous standards and targets in their energy and water use, and in the construction, quality and performance of their homes and extensions. If we are to ask this because of the necessary community imperative, we have to be very careful to ensure that we do not ask unnecessary things of them. That is why we propose that an incoming Conservative government should remove unnecessary controls wherever they exist.

b) Estates built since 1945

Much development control is not about planning principles but about neighbourhood disputes. There may be no aesthetic or community reason for refusing a loft or kitchen extension but it may be unpopular for good or bad reasons with a neighbour. There are often good architectural reasons for keeping a well designed estate of houses in their original format. The pre-war quality of the Bedford Park Estate or the less well known council estate in West Acton deserve proper planning protection. However, since 1945, estates of this quality have been few and most of those that do stand out have properly been made into conservation areas. For the rest, changes, alterations, and improvements by individual owners may well do much to improve the scene. Yet, the time and trouble that has been spent on dealing with planning applications for extensions and additions, porches and garages on estates built since the war by the volume house builders cannot be seriously said to have been cost-effective. The humanity and variety that individual and distinctive changes would bring to such estates must be the better path. It is, after all, by such small changes that communities are created and the

artificially planned becomes distinctive and interesting. The idea that such estates embody so valuable an architectural form that they ought to be preserved in all the loveliness of 1976 is surely not sustainable.

We therefore propose that on all estates of more than four houses built since 1945, unless identified as being of particular architectural merit or urban design integrity (potentially having been awarded urban Conservation Area Status), home owners should be allowed to make such alterations to their homes as they wish subject only to giving one month's notice to the local planning authority and to all contiguous neighbours. Should a neighbour feel that the proposed alteration seriously disadvantaged them, they could contact the planning authority and ask for a Conciliation notice, giving the grounds of their complaint. If the local council felt that the grounds were sufficient they would issue a Conciliation notice and appoint a Conciliator from a list kept by the Council of fit and proper persons willing to perform this duty on a fixed-fee basis. Their job would be simply to look at the proposals on the ground, together with the home owner and the complainant within one month of the date of the Conciliation notice. They would have to answer two questions:

- first, is the proposal so damaging to the neighbour's peaceful enjoyment of his house that it is sufficient to justify not allowing the property owner to exercise his overriding right to do what he likes with his own property? If the answer is no, then the Conciliator would issue a determination on the basis of the plans proposed and there would be no appeal. If the answer were yes, then the Conciliator would ask;
- Is there a version of the proposal that would diminish the damage to the neighbour sufficiently to allow it to go ahead? If so, the Conciliator would seek agreement on that proposal but if none were forthcoming he would issue a determination with two working days which showed clearly the extent of the works that he would allow, so that the house owner could proceed should he wish. Again there would be no appeal procedure although judicial review would, as always, be open to a complaint about lack of due process. In all cases, if the house owner wanted to go through the normal planning system he could choose to do so.

By adopting this proposal, there would be a considerable lessening of the work of many local planning departments and the scarce supply of planners would be released to get on with the kind of work for which they are needed. This would do much to speed up the system and the price of Conciliation would be minimal. It would encourage neighbours to agree without intervention and it would much improve the quality of life for many on post-war estates. Clearly, determinations under this system would need to be compliant with the new Building Standards proposed in earlier Sections of this Chapter. So too would uncontested proposals. In all cases the sustainability requirements and general building regulations would obtain.

c) Lightening the Load

There are several other circumstances where the same simple system could be used. Two examples will suffice. At the moment, a householder has to get planning permission to turn a neighbouring field into part of his garden. The same deemed consent could be applied as in the case of post-1945 home extensions and the same notice period and Conciliation regime could be used on the rare occasion when it would be possible for a neighbour reasonably to object. This could also be applied where a householder wishes to erect a marquee for longer than the number of days allowed. At the moment he has to apply for planning permission. He would have deemed consent unless there was an objections and that objection were seen as sufficiently strong to override the presumption of consent.

d) Listed Buildings

There are other ways too that the present system could be simplified. Minor changes to listed buildings, such as replacing a window, which are certified as in accordance with the guidance and in keeping with the house by a qualified architect and the conservation officer could go ahead without the usual notice requirements.

The present rules mean that internal changes to listed buildings, even where they are for security reasons, have to be available for all to view and can even be accessed via the Internet. This means that changes to protect a person targeted by terrorists have to be displayed so that the terrorists can get full details in the privacy of their own homes! In future no internal changes should be accessed by any person except those who could show a valid reason and then only at the premises of the planning authority. Similarly, the Government should end the anomaly that allows Internet access to the details of the price paid by anyone with a mortgage.

e) The Country House tradition

Britain lost a very large number of country houses during the 20th Century. Many were destroyed by fire and military use but most were simply dismantled. Such philistinism would not be allowed today. One of Britain's major contributions to art and architecture is its tradition of the country house. It is a tradition that was in danger of coming to an end before the introduction of the so-called Gummer clause in 1996. This resuscitated the tradition and has been widely acclaimed by the architectural profession who jumped to its defence when the present Government sought to repeal it. In the event, the Government's compromise has proved difficult to administer and should be reversed and the rules established previously reintroduced.

It has been widely recommended that the fee scale applied to smaller planning applications should be revised to match more closely the level of work generated to process them. As the public's appetite for refurbishment of domestic properties increases, many householder applications are becoming relatively complex and protracted planning exercises. It has been proposed that a new fee scale reflecting more closely the project value should be introduced to take account of the increasing workload associated with small scale domestic development.

3.3.2.5. The town and the countryside

Whether towns produced civilisation or vice-versa will continue to be a matter of debate but human beings have made of their urban existence a hugely creative force. Half the population of the world now lives in cities and towns and for most they are still the beacons of hope, and place of opportunity to make dreams a reality. Back as far as Horace, the village and the city were seen as the two ideals – very different but both admirable places to feed the soul. Today these are still the two forms of community that are most important for the quality of life.

Today the city has gained an even more important role as the best option for achieving the most sustainable patterns of development and living. As the world of 6 billion increases towards one of 9 billion, urban concentration is the only way we can see of providing for such a population. Already China is building five new cities every year to accommodate the movement from the land. It is a portent of things to come. Yet as a society and a civilisation we are still making ourselves more and more dependent on lengthy (and lengthening) goods supply chains and on car and air-borne personal mobility. In a small nation like ours, the pressures upon land for so many competing demands means that the planning system is under pressure at every point – and, whatever changes we may make, that is the way of the world.

For all its problems, however, the town and country planning system has given this country a much clearer distinction between urban and rural areas than some of our continental neighbours have managed – including those with a far lower overall population density. We must not take that success

for granted. Relaxation of controls over the location of development would be disastrous. We support a continuation and strengthening of the successful principles of urban containment and protection of the countryside for its own sake, but believe that these in themselves are inadequate to the challenges facing us a society today.

Planning needs to adopt additional fundamental principles, not merely as warm intentions but as rigorous standards by which all proposed change should be measured. Planning must promote and prioritise urban regeneration from the bottom up, instead of continuing to see regeneration as almost a form of social relief administered by national government through the agency of developers. Minimising use of natural resources and drastically reducing greenhouse gas emission must also be central tenets throughout the system. These changes need to be complemented by changes to the framework within which business operates; otherwise development aspirations will continue to conflict with public policy objectives, to the huge disadvantage of all of us.

We recommend that:

- the sequential approach be maintained and strengthened in all aspects of planning policy; and that this should be accompanied by amendments to the definition of Previously Developed Land (PDL) particularly regarding gardens;
- the Urban Task Force should be reconvened with assurances that this time its recommendations would be taken as a serious call to action and not Government window-dressing. It should review and update its original report for the DSG and propose how best to expedite the implementation of those recommendations. A reconvened Urban Task Force should look at how land use and economic strategies can be harnessed to bring about a real and permanent transformation of the declining areas of England; and
- national planning policy on commercial and structural development (PPG 4 Industrial, commercial development and small firms) should be urgently revised to incorporate the sequential approach along the lines of PPG3 (2000)).

3.3.2.6. Land Use Classification and delivering mixed use neighbourhoods

3.3.2.6.i. Establishing mixed use in areas of new development

We recognise that place making is an incremental process and that schools, churches, and other community and commercial premises are key to the establishment of successful neighbourhoods but may not in the first instance have a sufficient catchment population within a new development to attract operators or occupiers.

The importance of establishing a mixed community right from the start of new developments is clear. The habit of commuting for jobs and services, once established, is much more difficult to break. The creation of a self-sufficient, walkable neighbourhood is a prime purpose of planning in this context. The recommendations made on Smart Growth in Section 3.2 of this Chapter are intended to move the whole planning process for new developments in this direction.

3.3.2.6.ii. Retaining mixed use in established areas

In established areas, the challenge is a different one. We have to preserve diversified land use, particularly in the light of very buoyant residential values. The desperation that has become a feature of the present Government's housing policy has meant the sterilisation of neighbourhoods, as every inch is given over to housing – currently the most valuable use. Equally there is a need to design into redevelopment plans the continuance of small retail traders who are otherwise squeezed out in the developers' understandable concentration upon strong covenant, higher rent chain stores.

We recommend that the Land Use Review conducted by an incoming Conservative government should give local authorities the duty to put in place strategies for maintaining or re-engineering diversified land use patterns to support Smart Growth which could include:

- identification of areas of character or amenity retail;
- resisting pressure in these areas for amalgamation of shop units;
- identifying parking opportunities to complement such shopping;
- encouraging the formation of local traders' associations to permit regular communication between them and local authority;
- putting in place a shopfronts guide;
- looking for opportunities for holding some of the retail space within a community land trust in order to maintain units for start-up and small trader occupation as part of a wider retail economic development programme; and
- resisting the loss of D1 (Community space) unless a clear case can be made that there is no further demand for a building within that use category.

3.3.2.7. Trees in urban areas

The popularity of gardens has long been part of the British urban tradition and it continues to grow. Happily, there has been little need for political intervention. We have, however, failed to respect that tradition in much of our post-war development and the recent assault on garden land because the Government's lax definition of brown field sites has made things worse. Elsewhere in this Chapter we have proposed that the definition be redrawn to put garden and allotment land into the 'green field' category. We would also want to emphasise the importance of gardens and private open space to the sustainability of our towns and cities more generally. They are an important habitat for our wild life and their importance to the quality of human life is readily recognised – not least by the premium paid by house buyers in green and leafy environments. Private ownership is often a guarantee of diversity and protection as well as continuity of upkeep. Yet, private ownership provides a considerable community contribution beyond that. It is the hidden places between and within private gardens where wildlife thrives. Gardens make wildlife corridors and provide a generally leafy environment for the whole human community.

Public space, too, is of considerable importance. Modern research has confirmed what the Victorians guessed, public parks and open spaces relieve stress, contribute greatly to the working environment, and improve urban air quality. The renewed impetus to the recreation of our parks which was given by private funding during the last two decades has now run its course and many urban administrators have not put the necessary emphasis on the upkeep of old parks and the creation of new. We propose that a future Conservative government should reverse this trend and encourage local authorities to use Section 106 agreements more widely to fund public parks and open spaces, particularly in light of the increases in density which we propose. In particular we should end the assault on urban trees that a mixture of insurance companies, health and safety enthusiasts, and local government officers have mounted. We propose that a future Conservative government should extend our proposals to deal with unnecessary health and safety restrictions so that we would remove the fear that local authorities and private owners would be sued because a tree branch might fall and injure someone or that a conker might make an individual slip. Gross negligence should be the only test in these cases. Thus relieved, local authorities should be encouraged to begin a process of planting more trees. These need to be native species sufficiently robust to contribute to the environment effectively and not mere dwarf ornamentals. Urban trees are ten times more effective in reducing carbon dioxide pollution than tree planted in forests. A single mature beech can provide enough oxygen for ten people every year and fix over ten kilograms of carbon dioxide an hour. Despite that, public authorities are cutting down such trees and replacing them with flowering cherries on the grounds of easier maintenance and health and safety. We must reverse this trend. Intelligent an appropriate planting gives a sense of human scale and seasonality. It makes urban spaces more comfortable for people.

3.3.2.8. Use Classes Order

Currently, the planning system tends not to consider issues other than those of land use. The one exception is the formal and discretionary controls over the proportion of new housing that is affordable, as distinct from that for sale on the open market. We believe that for planning to fulfil its potential as a tool for economic prosperity, social justice, and sustainability, the distinctions between uses and activities need to be better nuanced. The aim is one of fine-tuning local planning to meet the challenge of a globalising world.

There are two areas we believe are particularly worth pursing in this respect:

a) Local traders

The diversity and interest of high streets and shopping centres is at risk from the dominance of large chains to the exclusion of speciality and local shops. Clone High Street is a reality as a result of the ability of large companies to absorb higher costs. It produces homogeneity at the expense of localism. There is, however, no simple solution and the most important element would be a change in the thinking of property owners and agents. However, the introduction of a distinct use class for small-scale retailers and service providers (in Use Classes A1, A2, A3) would enable planning authorities and their communities to insist upon more affordable space for local entrepreneurs and thus provide diversity in new retail developments or redevelopments. This would have benefits for the incubation of new businesses, for local distinctiveness and for local economies – with more money retained in the area - and for shoppers who would have more choice.

b) Rural land-based employment

Rural settlements and their communities need more employment as agricultural jobs continue to decline. Again, in the quest for localism and to encourage the incubation of new business, it is important that there should be opportunities for start-up and next-step enterprises. Because of the necessarily tight planning policies for the countryside and in order to foster land-based, environmentally sustainable businesses and employment, we would like to see a distinct Use Class created for rurally based economic uses. This should exclude footloose urban businesses from outbidding land-based enterprises for scarce rural premises, and also help prevent increases in traffic on quiet rural roads from urban out-commuting.

We therefore recommend the following changes to the Use Classes Order:

- a new use class for small-scale sole traders, with retail floor space of up to 100m²; and
- a new use class for Rural Land-Based Economic Activity, with a floor space maximum.

3.3.2.9. Utilities, provision and environmental capacity

Central government, through the regional assemblies, is planning large increases in housing all over the southern half of England with far too little regard to the capacity, the environmental implications, or the hidden costs to the public and the economy. A recent example of this was the examination-in-public of draft Regional Spatial Strategy 14 – the East of England Plan. The scale of development required was effectively passed down to the Regional Assembly by central government in the Sustainable Communities Plan. The draft Plan had been produced, revised, subjected to formal public consultation and reached the examination stage before it became apparent that the regional planning body did not have the necessary information on water availability and infrastructure to make well-informed decisions. The experience of Ashford was even more dramatic as housing numbers had to be revised downwards on almost a bi-monthly basis as the limitations on water provision, sewerage and rail transport capacity became all too clear – long after the Deputy Prime Minister had made sweeping announcements about the numbers of homes that he would seek to build.

It is therefore essential that information on environmental and infrastructural capacity be factored in at the earliest stage of strategic planning and options appraisal. This information – collected and held by the proposed Joint Land Use Commission – should be used to inform a capacity-led approach to deciding how best to accommodate the development that is needed.

We also recommend the production of a new PPS on water as a priority, to cover key concerns such as: the need for restrictions on new development where water is scarce; the prevention of development on land likely to be at risk of flooding now or in the foreseeable future; and maximising the contribution of planning to demand reduction and efficient use of water, sustainable drainage and rainwater collection and storage.

3.3.2.10. The historic environment

There has been a chronic and wilful failure at the highest level of government to understand and appreciate the contribution of the historic environment to society – as an aesthetic and cultural asset and a driver of social and economic regeneration. This same philistine attitude has meant that the environmental benefits of conservation compared with demolition and new build have also been undervalued. This neglect has led to a narrowing of the focus of conservation funding, such that proposals which affect sites and structures that do not enjoy statutory designation – however important they might be in the local community – receive less attention or none. Recent concerns include Defra's failure to see the line of Martello Towers as a material issue in deciding on coastal protection measures and the Government's inadequate response to UNESCO's criticism of our treatment of World Heritage Sites. In European terms, UK government attitudes towards the historic built environment have long been ungenerous. The National Lottery, with its clear 'additionality' provision, was, in part, intended to remedy this. Sadly the diversion of funds towards activities which should have been paid for by taxation has further diminished the money available to improve our heritage.

English Heritage is suffering a significant cut in real terms in its resources, while the tax system directly penalises repair and maintenance of existing buildings. The work of the Heritage Lottery Fund has been extremely welcome as has been its willingness to fight against the sillier manifestations of political correctness. Its role however is very different and complementary to English Heritage – the national champion of the historic environment in informing and assisting decision-making at all levels. In this EH is very greatly assisted by the work of a multitude of small building preservation trusts and other heritage bodies that are so active in raising awareness, money, and volunteers.

We recommend that the value of the historic environment be accorded greater recognition in planning, regeneration and economic policy. The profile and importance of the heritage agencies should be raised; DSG, as the main department dealing with planning and regeneration should be made sponsor of English Heritage. English Heritage's budget should ensure as a minimum no further reduction in real terms of the department's capacity and resourcing. Moreover, the English Heritage budget should be brought within the mainstream of regeneration funding, thereby recognising the role of heritage in regeneration, local identity, and place-making. We have made recommendations for changes in the VAT regime to remove a key barrier to efficient use of existing stock, to encourage reuse of materials, to discourage demolition and reduce waste so that we can generate benefits for the public realm and conservation. It is particularly important that these VAT changes should be accompanied by a simplification so that the many volunteers involved in the protection of built heritage can deal with system more easily.

We further recognise that tension is likely to arise between the interests of conserving the historic fabric of buildings and energy conservation measures. This is a matter that requires a sensitive and considered approach where trade-offs should be made between environmental performance and the embedded energy, local character and cultural values represented by the historic building stock.

To ensure that these issues are better addressed, we welcome the recent programme for changes in the administration of the listed buildings regime and particularly for streamlining the arrangements for owners of estates. The experience gained in this exercise must be applied more widely so that the present over-complicated regime for minor alterations to listed buildings could be adapted without loss of protection. This is particularly important as owners seek to use greener technology, heating, and lighting in circumstances which are often far from ideal.

At present, conservation officers do an important job in councils all over the country. It is, however, a job capable of systemic improvement. We propose the establishment of a best practice handbook to ensure that we begin to turn what is sometimes mere opinion into recognised standards and also promote ingenuity and flexibility without sacrificing protection. Better in-service training and quality control is also vital. We therefore recommend that an incoming Conservative government should charge English Heritage with the job of producing these materials and courses so that the role and importance of conservation officers can properly be enhanced. English Heritage should also advise on how the present VAT regime relating to historic buildings might be simplified and revised.

3.3.2.11. The public realm

Management of the public realm is critical to the long-term success of the built environment and the communities who inhabit it. The challenge is to find organisational structures capable of doing this well and experience suggests that this does not always mean local authorities. In the past, one of the advantages of the best of estate-managers was their continued commitment to the environment of their estates. London and Birmingham are only two of our great cities that still benefit from the continuing interest of the great estates. Today we need to create means more in keeping with the spirit of the times that might better ensure that today's developers retain an interest in the long-term quality of the environment they have created.

We propose public realm management agreements as a formal part of Section 106. We seek to advance the establishment of a template for Local Public Amenity Companies, managed and owned by local people. This would draw on best practice and the experience of the wide range of successful groups of mutual management companies and help to make the prospect less daunting to new entrants.

3.3.2.12. Professional education and capacity building

The planning system is increasingly complex, charged, as it is, both with taking a comprehensive view of the great issues of land use and climate change and at the same time with seeking properly to represent local concerns. Inevitably, in these circumstances, both members of planning committees and officers sometimes find themselves under-informed and ill-equipped for the task they face.

At the same time there are many with precisely the skills required to deliver the Smart Growth agenda who are not at the moment working within the planning system, as narrowly defined. Our skills agenda should therefore be about unlocking the talent and enthusiasm that we need if we are to deliver Smart Growth. There is much that can be done through the stimulation of enlightened leadership. The creation of a culture of empowerment within planning and development will act as a catalyst to drive up standards of professional performance and a magnet to attract specialist talent. To make way for this enhanced role, we must – as is suggested in previous Sections of this Chapter – first relieve planners of the unnecessary control work which has become so great a part of their workload. The culture of control has to be replaced by an enthusiasm for enablement and a vision for the best product.

However, there are still serious issues of training, inter-disciplinary working, resources, and rewards and a pervasive culture that expects and even insists upon mediocrity. In order to take forward high quality urban and rural planning, it is essential that the skills base within both the political and

executive functions of local government and the public development agencies is revitalised and constantly developed. With limited time and resources available to deliver the Smart Growth agenda, it will be vital to focus resources where they are most capable of creating this cultural change.

We recommend the following measures:

- creation of a high level 'Leader's Institute' on the Model of the US 'Mayor's Institute'. This would run a rolling programme of short residential courses for civic leaders, both members and officers, raising their awareness of the potential of their role to drive revitalisation and Smart Growth by describing precedents, techniques, and programmes, and facilitating peer-networking;
- the introduction of in-service training in planning and urban design for all councillors sitting on Planning Committees. The DSG would sponsor the creation of this programme which would include induction training for new members and update courses for both members and officers, as part of the dissemination of new policies and the creation of an enabling culture to deliver Smart Growth;
- the DSG would work with the respective professional bodies to deliver a reform of built environment professional training around a common curriculum in the principles and practice of sustainable development and Smart Growth. It would also further encourage the emergence of common CPD programmes; and
- the DSG would initiate the development of an accredited flexible, MBA-level course to develop the cross-professional skill sets required for the delivery of complex projects, helping managers and professionals to grow into leadership roles as well as providing a qualification for experienced mid-career entrants from other professions.

3.3.2.13. Enforcement

If planning is the unsung hero of environmental policy, enforcement is its mothballed battleship. Enforcement – whether of compliance with planning conditions or against unauthorised breaches of planning control – is a powerful tool for effective planning. Unfortunately and inexplicably, enforcement is not a mandatory activity for planning authorities; nor is it assessed as part of Best Value, Corporate Performance Assessment, Planning Delivery Grant or any other income-linked assessment of their performance. The result is that, as with the Buildings Control regime (see above), enforcement is honoured more in the breach than the observance – underfunded, understaffed, and not given the political commitment needed to secure success in the face of opposition.

While we share the widespread view offered to us that planning needs to become more positive and proactive and less reactive, we also believe that continuing neglect of enforcement is highly damaging in at least three ways. Firstly, it is morally wrong that those who abide by planning rules should see others flouting them, often entirely deliberately, and getting away with it. Secondly, the gradual erosion of the deterrent effect of enforcement sanctions seems destined, by making more people think they can ignore the rules, only increase the burden on planning authorities in the long run. Thirdly, the public expects and deserves a robust planning system operated without fear or favour; the lamentable failure to accord enforcement the status it deserves is undermining what fragile confidence communities retain in planning decisions, and if allowed to continue will exacerbate public cynicism about politics and reduce people's inclination to engage in planning still further.

We recommend action to improve the status, commitment to and consistency of enforcement in planning authorities. Should any system of central assessment of planning authorities be retained, enforcement performance should be a criterion. We believe the idea of simply making enforcement a statutory duty for authorities (i.e. removing any element of discretion) risks spending substantial resources on actions with dubious public benefit, but we strongly recommend that options be explored that would improve the situation without causing these undesirable side-effects.

Section 3.4. Housing the People of a Crowded Island

Modern lifestyles, the collapse of the confidence in equity based pensions, and Britian's global attractiveness as a property investment location have created unprecedented levels of demand for UK property. Despite successive reviews of the housing market conducted by the present Government there remains a question as to whether Britain is facing a 'housing crisis' or an affordability crisis.

It is an over simplification to refer to the 'housing market' as a single entity and governments who fail to understand the complexity of any given market before planning intervention do so at their peril. The 21 million homes that make up the UK housing market are owned in a variety of ways, by private individuals; through local authorities; through commercial landlords; as second homes; and as private rental investments. Each segment of the market is operates in its own way and has a different set of effects on housing 'affordability' and the access of the individual to 'decent' accommodation. It is critical that the interaction between the owner-occupier and rental markets are understood if the financial wellbeing of all parties involved is to be safe-guarded. Housing markets are furthermore highly localised so interventions appropriate to one location do not necessarily pertain to another.

It is vital that in formulating well-based policy with regard to housing, a Conservative government recognises the multiple facets of residential property and develops subtle policy interventions which acknowledge the interconnectedness of supply, demand and weight of money within the housing market place. Simplistic approaches which run the risk of oversupplying the market either locally or globally, particularly in the face of tightening credit conditions, will do more harm than good.

The need for more homes is inescapable. Avoiding that reality would damage the poorest most and undermine all that we would wish to do to strengthen the family and increase social cohesion. Yet, building on green fields, on floodplains, and overwhelmingly in the South East makes no environmental, social, or economic sense. A future Conservative government will need to face up to the failure of the present Government and dramatically alter the terms upon which we solve our housing crisis. We need to build or refurbish the homes the nation requires, regenerating established communities and prioritising land that has already been used building zero-carbon walkable neighbourhoods which will not only deliver homes but environmetal, social and economic benefits. Nothing less will do and we believe that this can be done if we set about it with a will.

3.4.1. The cost of owner occupation

The price of houses in Britain has grown inexorably over more than a decade despite constant warnings by commentators that such growth could not continue because of affordability, as the gap between prices and the earnings of first-time buyers would ultimately force a standstill. But banks and building societies have responded by lending ever higher multiples of joint incomes on the basis that this is the only way to make homes affordable, seemingly oblivious of the fact that easier credit is itself part of the reason for the increase in prices.

3.4.2. Why the shortage?

The fundamentals of the situation are relatively clear although seemingly disconnected. We have a growing demand for new homes. It is fuelled first by the fact that people are living longer and living in their own homes longer. The efforts of social services departments all round the country will continue to encourage this trend. At the other end of the age scale, an increasing proportion of young people are going to university and, unlike our continental partners, are tending to go to an institution some way from home. The UK has no tradition of local universities serving largely their own hinterland. Students therefore live at home much more rarely and much more regularly take accommodation that might, in

other circumstances, be available to let to the general market. Their expectations of accommodation do not include rooms in the homes of traditional landladies. Instead, they share flats.

First-generation university students, in particular, are much less likely to return to live at home on the completion of their studies. University is, for them, a coming of age and they often have no interest or intention of returning to their family home. The introduction of student loans and the increase in student fees may change this but only at the margins. The 'complaint' of some middle class parents that their children won't leave home is not representative of the situation more generally. Thus, the effect of more students living in flats and more continuing to live away from home thereafter is to increase demand for accommodation at the lower end of the scale.

Immigration is certainly having a real effect on demand. At the top level, the much publicised purchases of the super-rich probably have a limited effect on properties of a very specialist kind. However, the large number of senior executives who have come to Britain to serve in the booming financial sector and in international companies who have located here has increased the pressures, particularly in London and the South East. The culture of bonuses in the financial services and related sectors has created a huge wealth gap making well-located relatively modest housing unaffordable to a vast swathe of the working population. The same bonus culture has encouraged the boom in second home ownership and has also put much of the most attractive country residential property beyond the reach of those living and working in the countryside.

Lower down the ladder, there is a real effect from the continuing immigration from traditional sources which has been much enhanced by people from the expanded European Union. An increasing number of these are intending to make a permanent home here but, in any case, those who return to Poland, Latvia, or the like are usually replaced by others in what is, economically for the UK, often a very advantageous movement. Other factors, too, have an effect. Higher expectations leading to the merging of previously separate units, the purchase of housing left empty for capital appreciation rather than rental income, and lengthy planning procedures leaving properties, caught up in redevelopment, empty for long periods.

All these are important but somewhat marginal compared with the breakdown of marriage which is the biggest continuing reason for the increase in demand. Indeed, it is arguable that the whole market is now driven by second-time buyers. It is not just the simple fact of divorce, for that might merely produce a shuffling of housing occupants while requiring the same number of houses and flats. The difference is that traditional patterns of divorce have been replaced. The children are much more likely to be shared and both parties are therefore more likely to want sufficient accommodation for the whole family. Many divorcees thereafter form sequential relationships in which both sides keep their own homes. Even when a stable relationship ensues it is often some time before traditional housing patterns are resumed. It may be thought that these patterns are environmentally unsustainable but it is difficult to see that they are politically reversible, at least in the short or medium term.

A further and increasingly important factor is the emergence of the buy-to-let sector. New mortgage products, City bonuses, a much more sanguine approach to personal debt and disenchantment with the present government's approach to equity based pensions have fuelled the growth of the buy-to-let market. No systematic review has been undertaken of the impact of buy-to-let on the housing market generally, and on the affordability of housing to principle purchasers. An obvious point is that buy-to-let investors tend to operate in areas of high demand and are consequently fuelling competition for properties in areas of scarcity. This is an area which must be examined as a first priority for an incoming government, particularly as part of a balanced approach to understanding the housing market.

3.4.3. A Conservative priority

So, if we are not able to affect any of the causes of the increase in housing demand, we ought at least to recognise that demand. There are those who suggest that the attempt to build sufficient homes to meet it is unacceptable. They make the comparison with road building and suggest that 'predict and provide' is a recipe for further demand. The parallel is misleading. Not building a road does not deprive any section of the community of the ability to drive. Not building enough houses deprives individuals of a decent place to live. What is more, it always deprives the poorest. Under any system, the rich find ways to get a home. Modern, compassionate Conservatives, committed to social justice, cannot support policies that so squeeze house-building that the deprived lose out. We are also duty bound to find ways of meeting the housing crisis because of our commitment to the family and to the concept of a property-owning democracy. Almost nothing is more materially damaging to the family unit than poor housing. If we seek to support marriage and promote the stability of family life, proper housing has to be a Conservative priority. Similarly, if we see home ownership as itself a good and a major contributor to stability in society, we must be concerned that a growing number have no hope of getting on the first rung of the housing ladder.

3.4.4. The Government's approach

3.4.4.1. Before the Green Paper

The fact, however, is that the cost of housing has increased, is increasing, and cannot easily be diminished. Kate Barker's recognition of the seriousness of the crisis is therefore to be welcomed. Her proposed solutions are not. The approach to meeting housing need initiated jointly by John Prescott and Gordon Brown would lead to potentially irreversible environmental damage over large areas. The supreme irony is that the greatest increases in supply, and therefore development pressure, are proposed for precisely those places where, by reason of their attractive environment, the maximum harm would be inflicted on the environment and the quality of life. Beauty, open countryside, historic townscapes and tranquillity are all at risk from the Barker-inspired reforms. Indeed the very areas which are now under siege have retained their desirability largely because of planning restrictions on development over several decades. Those are the very restrictions she proposes to sweep away. In doing so we would sweep away the conservation efforts of generations.

Attempts to justify the proposals have been largely unconvincing. Even the work of Entec on the likely environmental effects of Barker's suggestions was marred by the Government's insistence on some highly debatable assumptions, especially in relation to environmental value and discounting periods. Only a barbarian could possibly suggest that the value of an unspoilt piece of countryside could be monetised in terms which do not properly account for the interest of past or future generations. Indeed, only a barbarian could suggest that you can price beauty in any meaningful way. But then barbarians know the price of everything and the value of nothing.

3.4.4.2. The Green Paper

In the recent Housing Green Paper, the housing target has been increased from 200,000 to 240,000 a year after 2016. That contrasts with this Government's worst year of a less than 150,000 and figures of 400,000 under both Labour and Conservative Governments in the early 1960s.

3.4.4.3. The fundamental conflicts

We must be prepared to recognise the real conflicts in housing policy. Sadly the Green Paper glides over them and thereby leaves significant doubts that its formulations are likely to deliver even its own,

insufficient targets. It continues to make the Prescott assumptions that most of these new units will be built south of Milton Keynes; that they take up a significant amount of virgin land; and that house builders can reasonably be asked to deliver environmentally friendly homes while providing high proportions of 'affordable' units, contributing significantly to local amenities and infrastructure, and paying a new development tax. This simply adds up to fewer, more expensive, homes, too many of which will be built on green field sites in the South East of England. Our proposals seek to provide a different way forward which, although it will not be easy, will be realistic.

Inherent in the Smart Growth approach to land use planning set out above is a view that existing neighbourhoods can be transformed through proper planning to create more sustainable attractive places. A key plank of Conservative housing policy will therefore be to regenerate each and every neighbourhood requiring of it.

3.4.5. A Conservative approach

3.4.5.1. The basics

We start with the basics. The building industry is simply not geared up, under present conditions, to deliver numbers of the kind required. So, for proposals to be realistic, they must take account of the technical changes that increased building will demand. The Green Paper is fundamentally deficient in its handling of this issue.

The second basic principle is that we have to use brown field sites for the vast majority of these new homes. Of course, the industry would be better pleased to be given carte blanche to build on virgin land. However, not only is that environmentally unacceptable, but it is also politically impossible. Such developments have few friends and many, increasingly sophisticated, enemies. The battle in every locality which is threatened with environmentally damaging development will be fierce and hard-fought. The Government clearly plans a degree of coercion structured so that the unpopularity will be visited on the local authority, forced to carry through central government instructions. Simply shifting the blame is not a possible Tory approach.

Yet, nor is a stand-off position in which environmentalists are accused of nimbyism and house-builders of desecration. The key is the supply of brown field sites. The real need, therefore, is for Government action to release the necessary land, much of which is held by public authorities. Few such bodies have much incentive to sell and many specifically seek to stockpile. Instead of encouraging the OFT to look at the land banks of builders, a determined government would have produced a regime to force the wholesale release of all public landholdings for which no immediate need can be established. The justification of any retention should need to be precise, immediate, and very compelling. If such a policy means that land sales secure a lower return than might have been obtained by slower release, so be it. The difference is a small price to pay for the effective solution to our most pressing housing needs.

The third principle is that there is a shortage of new homes all over England and in many parts of Scotland and Wales. There is a real need for housing all over the country in present circumstances and the demand north of Milton Keynes should be further stimulated as all the additional homes cannot properly be accommodated in the South East alone. The UK is a small nation and yet we have allowed a disproportionate amount of activity to be centred in London and its environs. That was never as necessary as many thought. It is now even less so. The coming of the internet, video-conferencing, and telecommunications more generally make it much more possible to run business and create employment in the increasingly lively city centres of Manchester and Leeds, Newcastle and Sheffield as well as smaller towns and cities from Bradford and Bolton to Derby and Leicester. Nor should we forget that the home-working made possible by modern communications means that our rural areas and market towns are increasingly attractive to business.

However, as long as government insists on hugging the centre of London it is not surprising that institutions and businesses believe that, to be accounted serious, they have to be there too. Far better than regional government would be a government much of which was run in the regions: not just the foot-soldiers, but the Permanent Secretaries and their direct reports. Nor should devolution stop us considering Scotland and Wales for this migration. It would do much to lessen the understandable concern at our 'Londoncentricity'. Policies to improve fast rail links between our city centes are discussed in our Transport Chapter, while those to improve the planning system are to be found elsewhere in this. Together, they would do much to open the opportunity for development over a much wider proportion of our nation to the benefit of the quality of life of us all.

So we propose that three principles should underlie our approach. We must create an environment that makes it possible for the construction industry to increase house-building significantly. We must release enough already used land to accommodate the overwhelming majority of those homes. We must use the opportunities that modern communications provide to grow in a less lop-sided way.

3.4.5.2. Housing targets

The present regional housing targets are based upon compulsion. An unelected regional body imposes numbers upon local authorities based on figures handed down from central government. A new approach to understanding the real nature of housing demand needs to be put in place understanding the subtlety of housing need, and demand from a local perspective. The data is available to analyse the property market to a very fine grain – an incoming Conservative administration should take immediate advantage of this data and put it to work to help support a much closer understanding of local housing markets.

At the moment there is a blame game. The government is quick to say that this is all a local authority matter and to accuse any or all of nimbyism. The local authority has grown wise to this tactic and is soon out there blaming the Government for the housing plans that it is forced to pass. Under our proposals the government would come to the local authority with something to contribute. Its positive, even aggressive, policy towards the release of unused land would pave the way for a proper dialogue by which, together, government and local authority could produce local housing targets. This would be the responsibility of a new Housing and Local Government Department (DHLG) for which the enabling of sufficient homes would be a primary task. As we know how many new units are needed overall, we would have to produce indicative ranges for provision which are then reviewed annually on the basis of monitoring data and revised as necessary. This is the 'plan, monitor, and manage' approach by which the co-operation between government and local authority would be measured.

The planning system would be revised to ensure that new developments were balanced communities with amenities within walking distance as described elsewhere in this Chapter. The DHLG would use its levers through its planning policies, call-ins, and Ministerial decisions to ensure that all development everywhere is part of its context, going well with the grain of its surroundings on all sides, and, with some exceptions to do with size and local circumstances, must be expected as a matter of course to be mixed use and mixed tenure – that is, a mixed community, not simply a collection of houses.

To achieve that, we should need to encourage the building of market-priced homes in regeneration areas where years of neglect have usually resulted in properties of one kind, with a predominance of social housing and a higher than average proportion of rented accommodation. As these are also areas where the nature of the brown field sites means that development costs are high, it is particularly difficult to cover them and, as a result, the release of such land will not result in the kind of increases in housing numbers that we have to achieve. We should therefore not insist on the provision of 'affordable' housing on such sites but concentrate instead on the numbers and quality of the units built.

In this we would be walking in the steps of Harold Macmillan who insisted that, at a time when we were short of homes of every type, policies should concentrate on getting houses built rather than on detailed arguments about categories. Any new house is likely to release other accommodation lower down the scale which will usually become available at a lower price or on different tenure. In a situation in which we face shortages at all levels, our central aim should be to increase housing completions. To reduce the total number of homes built because of too great a concentration on artificially high demands for non-market provision damages many more families than it helps.

It is particularly important to insist on quality and community building as well as sheer numbers. We propose therefore to accept the Government's targets for eco–homes but with three important differences. First, our proposals for the reform of the building regulations will make the introduction of new building technology faster and easier. Second, we believe that the industry should be given proper notice of even tougher standards for each of the ensuing five year periods so that there is a real impetus to research, produce, and prove new techniques for making homes ever more sustainable. Third, our determination to build communities, not estates, with mixed tenure, local facilities, and 'walkability', would add the social dimension to the definition of sustainability that is largely missing in the Government's present plans.

3.4.5.3. The Existing Housing Stock

For this programme of community building to work, we need also to increase the availability of the already built accommodation that inevitably forms so large a proportion of our current housing stock. We therefore propose a range of measures that would seek to encourage the fuller use of the homes we have. No single measure will transform the present situation but, taken together, they could make a significant difference. That is why we propose elsewhere in this Chapter a change in the incidence of VAT to encourage building repairs and renovation and to discriminate in favour of building on brown field sites.

We see no reason to reduce the attractiveness of housing as an investment but we do believe that we should do much more to stop houses being bought and left empty. If there are indeed 500,000 homes that are currently empty and that could be let or sold, they would make a significant contribution to solving the housing crisis. We therefore propose that council tax should continue to be levied when properties become empty and that the amount should be doubled on accommodation that remains empty for more than a year, with the revenues to decrease council tax for others. Homes that cannot be occupied because of the intervention of public authorities would be exempt and local authorities would have discretion to waive the tax where they believe other circumstances warrant it. Again, it is part of the localism agenda that these powers would not be subject to detailed restrictions but would allow the council to make sensible decisions in light of the local situation.

Because there are situations where a vacant site may suit the purposes of an individual although it may be very damaging to the community, it should be made clear that the demolition or the rendering of houses uninhabitable would require planning permission and failure to respect this requirement would normally result in an automatic order to reinstate or rebuild within twelve months. We recognise, too, that the present powers of local authorities to require improvements to empty properties threatened because of disrepair may need to be strengthened.

We propose that the tax relief on letting rooms in one's own home should be significantly increased so that people who under-occupy accommodation would be further encouraged to take in lodgers. Recent legislation designed to improve safety in the wake of serious incidents of fires has proved deficient in its implementation and should be revisited to remove the unnecessary bureaucracy and unintended distortions while retaining the valuable safety improvements. The present regulations are likely to

reduce the rental properties available further, not for safety reasons but as a result of the way the Act has been drawn.

We recommend that planning practice and regulations be revisited with regard to annexes and granny flats. It should be the principle that such alterations and additions would be encouraged unless there were a very substantial reason to refuse. Normally, section 106 requirements that might be attached to proposals for the construction of a new house should be waived in such cases. For example it is clearly not sensible to require people to pay towards children's play facilities as a condition of getting permission to construct a flat for aged relatives. Indeed, efforts to provide such accommodation should be encouraged as they usually release family sized accommodation elsewhere. Similarly, the planning system should give greater encouragement to the full range of private housing specially designed for older people as such developments unlock under-occupied family housing.

Both the last and the present Governments have attempted to get flats over shops back into use. We recommend that current measures should be reassessed by the DHLG so that a more coherent regime could be developed with local authorities. In addition, consideration should be given to a change in the rating laws which would enable such empty properties to be charged the full council tax. Where owners or occupiers of the connected retail space, on first being charged, offer to make the property available for sale or letting, the local authority would have the power to waive such council tax and, indeed, provide help while such structural alterations, as may be necessary to provide a secure and separate entrance, are made.

3.4.5.4. Affordable Housing

There will always be a need to help those whose resources do not enable them to acquire decent housing. That need becomes overwhelming when the sheer shortage of accommodation at every level means that, even for those who could manage a market rent or mortgage, there are simply not sufficient homes to meet the demand. That is why our priority is to ensure that we have the number of units we need. Our policies to increase total construction, to ensure a better spread of building in all the regions of England, to increase the availability of the current stock, and encourage development that will lead to less under-occupation – all these will contribute significantly to the provision of affordable housing.

Nonetheless, there must be specific provision for those who cannot readily buy or rent even, under more favourable market circumstances. Again we would want to make much more of the improvement of the existing stock and the creation of new communities where hard-to-let properties or dysfunctional estates present such a range of social problems. Bottom-up, community-led modification and adaptation rather than wholesale redevelopment brings such additional value over and above the provision of affordable homes that concentration here is crucial. Shared equity, staircasing, as well as low-cost housing for sale can play their part in developing a community out of an estate. Many of these opportunities are to be found in smaller towns round the country where local authorities and community groups are just not aware of best practice and innovative funding. The emphasis should be on the sharing of the best examples to the many who are capable of such hands-on improvement.

We do not support the Government's wish that local authorities should become housing providers again. They have no advantages over housing associations and other affordable housing providers. Indeed, such a change would undermine the important independent strategic role of the local authority to plan its communities and to work even-handedly with all suppliers, public and private, to match the scale of the need and reduce the backlog. It cannot, properly, do that as an interested party.

The Government moved to reorganise the Housing Corporation and English Partnerships into a single operation which was to be called Communities England. Despite the trendiness of the name, it did, at least lay emphasis on the importance of community building. Mr Brown's decision to produce a new

name which emphasises housing provision is explicable but must raise real questions about the purpose of the amalgamation. If the new body is not to create communities, to plan development in a holistic way (which includes the regeneration or creation of new economies), and to see that social housing is properly integrated into the community and its provisions – then why link English Partnerships with the Housing Corporation? The departure of Baroness Ford for the banking industry leaves the new body leaderless as well as nameless and much will depend on the successful appointment of a new head. We do not, however, propose that the marriage should be brought to an end. Properly led and with the right programme, the new Corporation could perform a very effective role. However, mere amalgamation is not enough. We should look to the new body to bring practicality and creativity to the provision of housing and the creation of communities. By its success in innovation and delivery it will be judged and then the provision of further funding ought to be considered.

It must be doubted that sufficient resources to provide the supported housing are at present being applied or that spending is as productive as it could be. However, the ci-devant Communities England will have to show efficient delivery and the ability to draw in other funding from public and private sources before we would argue for an increase in the total funds being made available to it. It must be given a fair chance but speed is of the essence. We are now so behind in meeting the needs of the most vulnerable that this new body has to prove itself fast. It will not be helped by being undermined by the reassertion of the role of the local authority as provider, even in the limited way that the Prime Minister suggests. We advise the Shadow Cabinet to welcome the steps being taken, watch the appointment of a chief executive with care, and monitor closely the performance and delivery that the new body achieves.

We support the view of successive Governments on diversity of tenure so that people can get at least some equity in their home. We recognise that many of these schemes will never reach large numbers but support strongly the view that these efforts, although marginal, are thoroughly worthwhile. At the same time we acknowledge the need to reduce the complexity of shared ownership mechanisms and look to improve ways of explaining them more effectively to tenants At the same time we need to develop mechanisms that enable much more flexible use to be made of the housing stock according to people's needs at particular times in their lives – helping both those who aspire to own a greater proportion of the equity of their home, and those who want or need to withdraw some or all of the equity they hold for other purposes.

We would encourage the new Housing Corporation to work for the establishment of a form of revolving low interest loan fund vehicle to assist households wishing but unable to move from renting to part-ownership. This would be offered through Intermediate Housing Trusts, which would include a mix of private and commercial investment and focus exclusively on assisting people with funds for part of the equity of an intermediate home, so that tenants could move more easily into shared ownership. The IMTs would subsequently retain their proportion of any gains on sale for re-use to help others.

We would also encourage the growth of entirely independent Community Land Trusts which would hold land in perpetuity and develop schemes for local housing along the lines of our localhold proposals. Again, these could not be seen as more than a contribution to solving the national problem but there are local groups, long-standing local charities, and wealthy individuals who would welcome a means of dedicating land and housing to local social use if the enterprise could be controlled by local people. These Trusts would therefore be entirely independent of national government, although eligible for grants from national and local sources, public and private. Their whole point would be variety and diversity and the only public intervention would be to provide an independent source of professional advice and best practice in the setting up of such Trusts. They could be established for the benefit of particular kinds of people, particular localities, or members of particular religious or social groups. Gifts to them would attract maximum tax relief and we would hope that this would be an area

in which a future Chancellor would move towards the more generous tax treatment that characterises the US system. It is proposed that the new Housing Corporation would fund the setting up of small central advisory groups to develop with district and parish councils and the voluntary sector a one stop shop, providing an effective, off-the-shelf flexible legal package together with the necessary advice to encourage the development of these individual Trusts. Again this forms part of our localism agenda through which we would hope to bring to secure resources that would otherwise not be available.

3.4.5.5. The Right to Buy

There is a strong case for reforming the right to buy (RTB). The regional and local limits introduced in 1999 and 2003 are now in many cases discouraging sales that would represent good value for money to the public sector. A balance can and should be struck that seeks to maximise sales at discount levels that still represent reasonable value to the public sector, and such a balance could be achieved where average RTB discounts were within the range of 30-35% of open market value. Moreover, receipts should be fully reinvested in replacement housing. Such reforms provide a very real opportunity to improve the outcomes from sales policies and to balance and maximise the gains from policies that can promote greater consumer choice and empowerment, while at the same time imposing no net economic costs on the public sector.

We recognise the peculiar difficulties of the RTB in a few areas where the demand for second homes means that such accommodation, once sold, may well on successive sale cease to be available for permanent use. These are often areas where the use of revenues from RTB are urgently needed because the same phenomenon means that there is real difficulty in housing those whose local wages are so out of line with the resources available to incomers. As part of the idea of the RTB is that it releases resources for further housebuilding, it is obviously valuable if we can ensure that a former council house continues to house a family even when those who exercise the RTB no longer live there. We propose that the DHLG would develop with local authorities a form of tenancy that would enable the RTB to be exercised with a covenant, enforceable by the local authority, making future sales dependent upon the permanent occupation of the property. We would envisage this being used in a small number of vulnerable areas where weekenders already own a significant proportion of the property.

3.4.5.6. Conclusion

There is no silver bullet to solve our housing problems. The failure over the last ten years to increase housebuilding to meet the need for it has made what was a serious problem into a crisis. Many other social issues will continue to be more difficult to solve so long as so many people are unable to find a home which they can afford. The Government's main contribution will be to ensure the sufficient release of appropriate brown field land. It will have to remove urgently the inhibitors which prevent the widespread use of the new technology necessary for building low-carbon communities. It will also have to get much more from the public money it puts into social housing and ensure quality delivery. We believe that, until we are in a position to promote our agenda in full, we should do all that is possible to encourage the Government to take these proposals on board. Otherwise, the social legacy that it will leave an incoming Conservative administration will indeed be dire.

Section 3.5. Financing the Delivery of Smart Growth

3.5.1. Overview

Development that displays the qualities of Smart Growth – whether the development of new-build neighbourhoods or the regeneration of run down areas – will be far more complex than conventional development. The delivery of Smart Growth will require the emergence of new property development and investment vehicles and new forms of partnership between the public and private sectors. In order to fund the volume of development and regeneration that is anticipated, engagement with a wider range of investment sources than is presently the case – in particular, investing institutions, private equity and potentially, the bond markets – will be necessary.

DSG, Communities England, and HM Treasury will need to work co-operatively with the property industry to identify how such new mechanisms can be encouraged. It will be critical for a partnership approach to be developed at a high level between government and the industry to facilitate the emergence of such new arrangements. The private and public sectors must work more effectively together if we are to create schemes of mixed development of high design quality, with good public transport links and amenities. We shall need to find ways whereby the private sector takes a much greater role in the provision of the public realm and infrastructure. However, if the private sector is to be induced to carry higher levels of investment risk, the public sector cannot expect to take out of the development comparable sums in respect of Section 106 agreements.

3.5.2. Recommendations

3.5.2.1. Smart Growth REIT

We propose that a variation on the Real Estate Investment Trust (REIT) mechanism might be adopted to create a Smart Growth Development and Investment Trust to attract significant new capital flows into the delivery of the smart growth agenda. Detailed consideration of such a mechanism was jointly commissioned by the Investment Property Forum, the British Property Federation, the British Urban Regeneration Association and English Partnerships.[80] This proposes a tax transparent investment/ development vehicle with transfer tax rates comparable to those that apply to equities. The aim is to open up investment in regeneration and Smart Growth to a range of institutional and private equity investors which currently have little exposure to this sector of the property market. The scope of the vehicle would be drawn to allow for the development and investment in qualifying projects that would meet a set of criteria based on the Smart Growth principles and including regeneration projects. The structure of the proposed vehicle would vary substantively from the present REIT arrangement in so far as it would enable a substantial element of the fund to be applied to qualifying development activity as opposed to being held in standing investments. An early task for Communities England would be the definition and working arrangements for such a vehicle.

3.5.2.2. Tax Increment Financing

The use of tax increment funding (TIF) mechanisms to fund the delivery of major public infrastructure should be considered. TIF funding is well established in the United States as a means to pay for such infrastructure, involving the hypothecation of tax revenues within a defined area of benefit. Various models apply but most are based on the following structure:

- a TIF ‘benefit’ district is identified;
- a tax incremental base value is established by the district valuer at the time of establishment;

[80] Institutional Investment in Regeneration: Necessary conditions for effective funding, Investment Property Forum 2006

- the tax increment equals the general property taxes levied on the value of the TIF district in excess of the base value; and
- the revenue is raised directly to improve the district.

The model could offer a means by which to securitise future income streams to fund upfront infrastructure which is combined with a bond structure that could create the revenue to pay a coupon.[81]

3.5.2.3. Use of VAT differential

We have recommended above (see Section 3.1.8 of this Chapter) the use of differential VAT rates to incentivise refurbishment and maintenance. Additionally, at present, VAT does not distinguish directly between greenfield and brownfield development. Greater incentives to switch out of greenfield and into brownfield development would have two key advantages: the negative externalities associated with brownfield development will typically be lower than with greenfield sites (e.g. less likely to damage landscape character and to reduce recreation areas); and there are also likely to be positive externalities associated with brownfield development, such as urban renewal and regeneration. We therefore also recommend that consideration be given to levying some rate of VAT for greenfield development and not levying VAT for brownfield development.[82]

3.5.2.4. The public estate

We are of the view that the public estate provides a key opportunity to lever the delivery of Smart Growth and environmental efficiency generally. Government should look for opportunities to partner with the private sector to test new forms of public/private partnership to assist the delivery of Smart Growth.[83] Where government is making a major investment in infrastructure or public realm works it should look at how the land value increase that results from such public investment activity can be captured to benefit regeneration (see TIF funding mechanism above).

We recommend, too, that in all government land disposals, the measure of value sought should be governed by 'best public value' rather than 'best value'. A 'best public value' criterion would enable government departments and local authorities to consider the potential value to the community and public good rather than merely selling to the highest commercial bidder. The Joseph Rowntree Foundation, commenting on the problems of rural areas, has similarly called for a change in the law to place a duty on local authorities to secure the 'greatest public benefit' in its return. This is to prevent statutory bodies from being forced to part with sites in villages to the highest bidder when they can see that the real value lies elsewhere, either in using the land for affordable homes or providing some other public good. A similar consideration is important in urban areas.

In the disposal of surplus government land, local authorities should be able to utilise such land to deliver walkable neighbourhoods. At present, once land is deemed surplus to the requirements, the pressure is for it to be sold off at best market price by the relevant department. We propose a shift from current disposal mechanisms and would seek to extend Communities England' right of first refusal to facilitate land being retained in public or community use. Where a local authority identifies a site as being strategic to the delivery of walkable neighbourhood objectives, and where this is framed within a planning brief, Communities England could be asked to hold the site for a time limited period to enable the local authority to either put together a development vehicle for the site (which might be a Community Land Trust) or Communities England could become the agency responsible for disposing of the site subject to the Council's detailed planning brief. Of course, there will be many occasions in which the 'best public value' is the same as the best market price. Where it thinks that is not a proper definition, the local authority would be obliged to state its case for not seeking the highest financial

[81] Institutional Investment in Regeneration: Necessary conditions for effective funding, Investment Property Forum 2006, p32.

return. In order to guard against some of the obvious dangers of this procedure, we propose that DSG have a right of call-in and examination which would have to be completed in less than two months (the land remaining in the meantime under the guardianship of Communities England).

We have been convinced by the value of Community Land Trusts which capture the land value in perpetuity and we see that they could be used to provide part ownership schemes which would parallel our 'local hold' proposals for rural areas. They might also provide a vehicle for the use of National Lottery funds to deliver locally driven Smart Growth initiatives and neighbourhood investment as long as the 'additionality' test were strictly applied.

3.5.3. Planning consent and capturing land value uplift

3.5.3.1. Rationale

There are two key reasons why government wants to levy a development tax. The first seeks to capture an element of the increase in value of land that arises from the granting of a development allocation or permission – because this increase is often dramatic, there is a sense that it is immoral for a landowner or developer to be the sole beneficiary and therefore taxation is redistributive. The second is to divert some of the increase in value towards putting in place social infrastructure and amenities that otherwise would be omitted by a developer bent on achieving maximum return from his scheme.

Some of this is, of course, already delivered by Section 106 agreements but governments have sensed that the extent of the gain is inadequately captured and believe that some local authorities are less good than others at obtaining their due.

There have been four attempts by previous Governments (Labour and Conservative) to secure for the public benefit a portion of the land value increase resulting from planning permission:

- The 1947 Town and Country Planning Act nationalised UK development rights, which were purchased by the Government from landowners for £300m, and as an integral part of this system, a 'Development Charge' of 100% was levied on the excess value attributable to the granting of planning permission, relative to the previous use value on the date development began;
- The Labour Government's Land Commission Act of 1967 introduced a 'Betterment Levy' at 40% of the difference between the development value when the land was sold, leased or realised by development, and 110% of its previous use value;
- The Development Gains Tax, introduced by the Conservatives in 1973, altered the basis on which tax was charged on 'substantial' capital gains arising on the disposal of land or buildings with development value or potential, with the tax being charged at the point at which a building was first let following 'material development'; and
- The Development Land Tax in 1976 was charged on each occasion of the realisation of development gain flowing from disposals of land after the start-date, with the tax falling not only on actual sales, but also on assumed disposals where development projects began on land without a preceding land sale.

None of these measures was effective or successful, all having the net effect of discouraging development with sites being mothballed in the expectation of a change of political regime. One factor contributing to the failure of such attempts to capture land value increase may have been the high rates at which they were levied: 100 per cent in the case of the Development Charge; 110 per cent for the Betterment Levy; between 52 and 82 per cent for the Development Gains Tax; and 80 per cent for the Development Land Tax, which was then reduced to 60 per cent after the Conservatives returned to

[82] As recommended in a report by Europe Economics, ***The Taxation of Property***, 12 January 2004
[83] See RIBA policy paper; ***Smart PFI***

power in 1979 (before the Tax was eventually abolished in the Finance Act of 1985). In contrast, speculation suggests that PGS would be levied in the region of 20 per cent.[84]

Even if the rate is modest, however, we oppose the Government's proposal to impose a Planning Gain Supplement (PGS) in so far as it involves collecting money centrally with a complicated formula for returning value in part to the local area but allowing the potential for Government to redistribute elsewhere. We are inclined to believe, as do so many others, that this is a recipe for the dispersal of valuable public funds within the centralising bureaucracy of Whitehall administration. The delivery of a proper level of public and social infrastructure as part and parcel of development is fundamental to the principle of Smart Growth, and on this basis we strongly believe that value arising from a development needs to be captured within the scheme in order that these elements can be provided.

At present, developers may be required to make a contribution to infrastructure provision through a system of agreements with the local planning authority. The legal basis for these agreements is set out in Section 106 of the Town and Country Planning Act 1990. Section 106 agreements are negotiated between the developer and planning authority and operate alongside statutory planning permission. They can impose specific requirements, for instance for the provision of affordable housing, open spaces, transport or travel to work schemes, or education or community facilities, which must be met by developers when implementing associated planning permissions. The intended scope of Section 106 agreements is set out in Government planning guidance, which states that obligations secured under Section 106 should be relevant, necessary, reasonable, fairly and reasonably related in scale to the proposed development and "directly related to the proposed development".[85]

Local authorities have, however, "been encouraged to experiment with formulae and standard charges", allowing, for instance, the use of Section 106 powers to permit alternatives to conventional planning obligations such as the tariff-based systems developed for use in Ashford and Milton Keynes.[86] This model is appropriate where the public sector is a major landowner, and where, as a result, Communities England is able to perform the role of 'banker'.

One of the most prominent benefits of the Section 106 system is its inherent flexibility and its ability to adapt to local circumstances and needs. However, criticism levelled at Section 106 agreements centres on the unpredictability of the system, its lack of transparency, the time taken to reach agreements and, particularly, the divergent practices of different planning authorities and differing levels of contributions demanded. Local authorities are dependent upon their own size and relative expertise in negotiating Section 106 agreements and, more often than not, do not have access to experience and best practice from other areas in defining a realistic bargaining position and setting realistic objectives suitable for their area. More controversially, there has been a tendency on the part of local authorities to use Section 106 agreements to secure benefits for the community which go beyond matters 'directly related' to the proposed development; payments often go to works elsewhere and even if they are local there is no monitoring of delivery.

We suggest that the link between a development and the local use of revenues arising should remain unbroken. Further, if as a result of the adoption of Smart Growth principles, development become more complex in its nature with a greater element of public realm and inclusion of mixed social and commercial uses inherent in schemes, there will be a need to redraw the distinction between public and private interests. There could be an argument in complex schemes for dropping the requirement for Section 106 revenues in favour of conditional agreement to deliver a set of amenities, with scope being

[84] House of Commons: Communities and Local Government Committee; ***Planning Gain Supplement***, 5th Report of Session 2005-06, p6
[85] ODPM Circular 5/2005, ***Planning Obligations***, July 2005, para B5
[86] Department for Communities and Local Government, ***Valuing Planning Obligations in England: Final Report,*** May 2006, para 1.5

left to the developer to determine the funding as part of the business plan and potentially crystallised by means of a Public Private Partnership Agreement.

3.5.3.2. Recommendations

We recommend the following measures for the acquisition of planning gain:

- the retention of Section 106 as the primary mechanism for the delivery of community infrastructure and public realm benefit in association with its development as an inherently flexible instrument which is responsive to different scales of project and to local needs;
- the adoption of front-loaded development definition processes, whether Enquiry by Design or Planning Delivery Agreements, to speed up the Section 106 negotiation process as it will provide the developer with a much clearer view at an early stage in the scheme what the local authority's likely conditions will be; and
- in recognition of the inconsistency in local authority experience and competence to negotiate complex Section 106 agreements, Section 106 expert negotiation teams should be established to advise and assist local authorities on request, collating and providing access to best practice experience. This would build on the pilot which has been established within Communities England's ATLAS team and would supplement local authority resources to undertake these negotiations.

3.5.4. Property Taxation and the achievement of Smart Growth

We propose that a review of the impact of property taxation on the development and occupation of property should be commissioned. This would be given the task of investigating and reporting upon the unforeseen consequences in land use, occupation and affordability of various property tax measures particularly with reference to the objective of delivering Smart Growth. In particular, a review should consider the following areas, this not being an exhaustive list:

a) Capital Gains Tax (CGT), Capital Allowances, Stamp Duty Land Tax (SDLT) and land pooling

The complexity of SDLT and CGT arrangements in relation to land pooling and equalisation often discourage landowners from getting involved in them, preferring to go down the simpler route of optioning land which will typically be less beneficial from the point of view of contributing to the Smart Growth model. A fully 'HM Revenue and Customs compliant', tax transparent vehicle could help to unlock a more co-ordinated approach to development.

b) CGT and the illiquidity of 'Buy to Let' Housing

CGT on the disposal of housing held as an investment could be to reinforce the lack of liquidity in the property market. Although properties owned through 'Buy to Let' arrangements stand at around 11% of the housing stock nationally, according to figures from the Council of Mortgage Lenders, the proportion is far greater in areas of high housing demand. A recently commissioned report by London Development Research for the Mayor of London indicates that 66% of new housing completed within London is acquired by investors. Although the figure attaching to the purchase of second-hand stock is likely to be considerably less, it is possible that 'Buy to Let' is creating a much greater drag on the market than currently acknowledged and preventing access to affordable housing for first-time buyers.

c) SDLT and the impact on Housing Market Affordability and Liquidity

The impact of the new SDLT regime on market liquidity should be reviewed from the point of view of the first time buyer, and to establish what effect current tax levels have had on market liquidity.

d) Impact of SDLT on the role of Limited Partnerships in Regeneration and Development

Limited partnerships have been a very useful, tax transparent mechanism in encouraging the engagement of a wide range of investors and in particular the investing institutions to gain exposure to unusual property developments and regeneration. The introduction of SDLT in its present form, which taxes the value of the underlying asset rather than the value of the participation transferred, has served to curtail institutional involvement in limited partnerships. The impact of these measures should be reviewed.

e) CGT and impact on home-working

If the reduction in unnecessary commuting is regarded as a principal objective in reducing carbon consumption, and encouragement of working from home as a policy aim, then the impact of charging the element of the home as a part of home-working to CGT should be reviewed.

f) Unoccupied Sites/ Property Tax

The proposals made in the Section on housing to levy council tax on empty properties should be considered in the wider context of unused sites in general. We need a better understanding of the scope of the problem before proposing any further steps but clearly the full use of brownfield sites and of existing property is important in the present context.

g) Local Property Taxation

Proposals have come forward from many quarters (e.g. Policy Exchange, the Liberal Democrats and Labour) for a higher level of local property taxation reflecting the perceived increase in the value of property, and the most recent Budget statement has provided for the imposition of a set of new higher rate council tax bands, although these will not be brought into force until after the next election.

We have chosen to reject punitive property-based taxation based on notional property values on the grounds that it would damage the delivery of the principles of Smart Growth outlined throughout this Report. The creation and maintenance of balanced mixed communities is fundamental to the Smart Growth proposition; taxation based on property values is likely have the effect of ghettoising wealth in areas of perceived high value, and would make the objective of supporting stable, mixed income neighbourhoods virtually impossible.

Other points that weigh against higher local property taxation are as follows:

- they are based on a notional concept of property value (on the evidence of the relatively small volume of sales that takes place within a given time frame);
- true value is only clear upon sale;
- if the tax regime triggered a wave of sales, the market could dip dramatically with the release of a large number of properties at once;
- there is no absolute correlation between household income and the capital value of the home. Higher property-value taxes would therefore accentuate problems of affordability;
- such taxes would operate against maintaining community stability and would encourage movement of families from their homes and local neighbourhoods;
- the value attributable to a property is beyond the control of the occupier – who is therefore going to being penalised for the government's own policies which may have contributed to the super-inflation of property hotspots;
- householders should not be penalised for maintaining and improving the value of their property;
- equally, at a neighbourhood level, good citizens who contribute to the well-being of their neighbourhood, which then becomes valuable, could be penalised for good behaviour; and
- other jurisdictions such as Switzerland which run a high level of local taxation do so in the context of low level of federal taxation.

Chapter 4. Rural Life; Food and Farming; Fishing and the Marine Environment

Contents

Part I. Rural Life

Section 4.1. A Changing Countryside 136
Section 4.2. Local Democracy 139
Section 4.3. Affordable Housing 143
Section 4.4. Regulation 145
Section 4.5. Defra 147
Section 4.6. Transport 149
Section 4.7. Access to Services 151
Section 4.8. Climate Change and Food Security 153
Section 4.9. Volunteering 154
Section 4.10. Conclusion 156

Part II. The Future of Our Farming and Our Food

Section 4.11. The Vision for Food and Farming 158
Section 4.12. The Mechanisms 166
Section 4.13. Transforming the CAP 167
Section 4.14. Reducing the Burden of Regulation 171
Section 4.15. Public Procurement 173
Section 4.16. Multiple Dividends from Sustainable Food 176
Section 4.17. Re-building the Local Food Infrastructure 181
Section 4.18. Balance of Power in the Food System 186
Section 4.19. Standards, Consumer Information, Labelling and Education 190
Section 4.20. Food, Diet and Health 194

Part III. Marine, Coastal and Fisheries

Section 4.21. The Crisis in Our Seas 198
Section 4.22. The Vision 200
Section 4.23. The Science – Implementing an Ecosystem-Based Approach 202
Section 4.24. Top Down Decision Making 204
Section 4.25. Marine Protected Areas 210
Section 4.26. Aquaculture 211
Section 4.27. UK's International Responsibilities and Obligations 213

Chapter 4. Part I. Rural Life

Rural Britain is dependent upon a strong agricultural industry to provide jobs, look after the land, and produce much of the nation's food. This part of the Quality of Life Report serves as a preface to a more detailed survey of Food and Farming but a number of more general issues that bear directly upon agriculture are considered here, not least because a discussion of rural affairs which excluded any such consideration would be seriously skewed. The more detailed examination of the issues raised will be found in the Food and Farming Part of this Chapter.

Section 4.1. A Changing Countryside

4.1.1. Rural England

The countryside is an essential part of England, not just for country people, but for the whole nation. It is not simply that it has informed our history and our character as a people but it is today an important part of the quality of life of the urban majority. For those for whom it is home, the countryside exercises as strong an influence as it has ever done. It is still a different place, even though, in these small islands, no part is untouched by the life of the towns. Indeed, there is not a village in England that would not be within the city limits in the United States. Even in its wildest parts, it is an intimate tapestry. It is about small things and local differences. When it needs repair, the renewal is often small-scale and intricate: very different from place to place, local and differentiated. Yet, its peculiar beauty is not just for itself; it provides recreation and spiritual solace for townspeople and for a host of visitors from all over the world.

4.1.2. The changing scene

The countryside has always changed and the people who call themselves countrymen have changed too. It is part of our character as a nation that many of those who live and prosper in the town seek later in life to move into a village. It has been like that for centuries but it is even more so now when, over this last decade, the population of rural areas has increased by more than ten per cent. Yet, even so, the urban majority here does not have the ties of family and sentiment to farming and food production – to the business of the countryside – that is still widespread on the continent.

Everywhere in rural England there are people in various stages of assimilation – from the long established, who have made their living there for generations, to the recent incomers. Rural Britain is no less complex and the changes no less dramatic than we find in built-up Britain. They are just different and it is this which makes rural policy so difficult.

Yet, it is increasingly important. At a time when our environment is under growing pressure from the impact of global warming; when we are ever more concerned about the over-use of natural resources; and when even more urgently we feel the need for somewhere to recharge the batteries, how we manage the countryside is of critical importance. The problem is that rural communities are specially vulnerable to the effects of an increasingly globalised economy and the impact of climate change on primary production Conversely, it is to the countryside that we shall have to look to grow our own fuel, harness the wind, provide food security, sequester our carbon, protect us from flooding, and harvest our water.

4.1.3. Alienation

In recent years, there has been a fundamental breakdown of trust between our rural communities and those government departments and the many agencies that have increasing influence over the way in which they live their lives. This absence of trust affects whole communities and a vast range of interests

from farming to field sports. The diverse population of the countryside includes many who are disadvantaged and a big proportion of these feel that their problems are not as successfully addressed as equivalent groups in urban areas. Poverty is often concealed when it comes thatched. No wonder that many feel marginalised and cut off from influence on the political decision-making process when the voice of the urban majority shouts so loudly.

They see that in local government funding, the NHS share-out, and the provision of community services the rural areas come off worse. Disadvantage takes the form of 'dispersed deprivation' so today's politicians feel it is safe to ignore. Those on low incomes live cheek by jowl with people who are very rich[87], so it is easy to quote average figures for income and access, which hide the reality of rural poverty. Yet it is the culture of country areas to be self-reliant, resilient and uncomplaining. In the world of megaphone campaigning, it means they are often overlooked. That is why the attack on field sports cut so deep. It had become the norm for country people to feel ignored, but to be confronted and their way of life attacked was novel and deeply offensive.

Indeed, while alienation affects Britain as a whole, rural areas have taken an exceptional pasting from bureaucratic incompetence. Foot and mouth disease was a turning-point in an already soured relationship with the Labour Government. Ironically, it is now being used by the Government as a reason to attack the failings of the farm sector. In fact, of course, the nation-wide spread of the epidemic was a direct consequence of administrative incompetence. Similarly, the rural world is being fined in order to pay for the Single Farm Payment debacle which brought many farmers close to bankruptcy and has left many more in debt.

Sadly, officials in Defra and other key agencies often have little training in, or knowledge of, the rural world in which they are supposed to work. This results in policies and actions which are either completely inappropriate or designed to favour urban communities and neglect the needs of the rural world.

Labour has introduced what it calls rural proofing but the concept has not worked. Community hospitals are being closed all over rural England. Magistrates' courts are made more accessible in the towns but closed in the countryside. NHS funding is increased overall but cut in rural areas. Rural proofing is all too often a mere administrative convention, designed to hide the Government's fundamental lack of interest or knowledge of the countryside of England.

4.1.4. Localism and trust

It is in facing up to these rural realities that two core themes have emerged: localism and trust. Rural issues are so very local that only by a localised approach can they be properly addressed. Yet localism is impossible unless there is trust. Subsidiarity depends on the willingness of every level of government to do only what cannot be done at a level below. Each tier of government must therefore trust those below. Whether it is Brussels, Westminster, County Hall, the District Offices, the Parish, or the local group, the key is trust. For rural people it means a recovery of trust in government at every level. That is why:

- We recommend that local government should be devolved down to the lowest competent and appropriate level, including the smallest of building blocks – the parish council and its parish plan. We want to encourage community solutions to community problems as these are the most long-lasting. Successful, community ownership of solutions means that they are more likely to be sustainable.
- We recommend that regulation should be measured by outcomes, rather than minutely monitored as a series of processes designed to satisfy the bureaucrat rather than deliver the intended result. The culture of commonsense must be restored, so that children can climb trees

[87] 18% of the rural population live in poverty (NCH, Briefing on Rural Child Poverty)

and make contact with animals, and adults can run village halls, without fear of litigation, nannying officialdom, or bureaucratic overload.

- We urge that rural regulation and the activities of government departments and agencies are undertaken by people with rural insight in order that the level of trust that existed between the regulated and the regulator can be restored. That means neither the present "Bully culture" nor the "Nanny culture" that is so often the alternative. Instead, we should adopt a relationship based on partnership, outcome-driven policy, and better-informed, better-resourced and more sympathetic communication.
- Instead of rural proofing being a substitute for understanding and knowledge of the countryside and respect for the contribution made by rural society, it should be the natural outcome of a close and continuing relationship between government, national and local, and the rural communities it serves. It is only with such a partnership, based on a recognition of the contribution that rural society can make, that trust between government and the countryside can be restored. Policy-making should therefore draw from rural expertise as well as other established sources of credible advice and insight. Government should give adequate priority to resourcing dialogue between rural communities and central government.

Section 4.2. Local Democracy

4.2.1. Reversing Centralisation

In the countryside, there is increasing alienation from the democratic processes. Even though this may be paralleled in urban England, it has taken on a sharpness and universality not found in the towns. This has worsened as more and more decision-making has been pulled upwards into regional and central government. Despite the rhetoric, the consultations, and the stakeholder forums, England has never been so centralised a society. Even local government is characterised by a top-down structure. We have introduced remote and undemocratic regions that do not reflect history, geography, or the popular will. They do not fit with the governance which local people recognise, nor do they reflect local identity.

We therefore recommend:

- that this centralising process should be reversed. The regions should be abolished except in so far as they are the local offices of central government;
- we should replace regionalism with local government based on the established sources of local authority: the county, district, and parish;
- we should not seek wholesale reorganisation of local government but instead take the partnership model already being developed by some county councils with their districts. This extends the local delivery of services while getting the benefits of combined operations in areas like IT, transport, and procurement. Significant savings can be made by working in this co-operative way. Parallel to this, we should allow cities to work co-operative agreements on the lines pioneered by Manchester, rather than subject them to the upheaval and bitter disagreement associated with reorganisation; and
- we should abolish the Regional Development Agencies and transfer their powers and funding to local authorities. Decision-making should become closer to, and derive more evidence from, the community.

4.2.2. Local government

People who live in the countryside have an affinity with their community, the parish in which they live, their market town and their county. A sense of place is an important part of rural identity and, when abroad, they do not answer the question 'Where do you come from?' by saying 'the South West Region', they say Somerset, Bridgewater, or even Hinton Charterhouse. Local government must reclaim its hold upon people's trust by more nearly reflecting the way they see themselves.

4.2.2.1. Parish Councils

Properly constituted and elected parish councils are the basic building blocks of our rural democracy. However, parishes vary hugely in their size and the degree of involvement they seek. Many large, modern towns would relish greater control over their affairs as would many smaller historic towns. Even some villages would like to increase their powers, but for many there is enough to do within the present arrangements.

Because parish councils come in all shapes and sizes, clustering and sharing of council officers may help the smaller ones achieve a critical mass. Co-operation with their neighbours can still mean that they maintain their closeness to their very local community. Parish Councils should be given help through county councils to assume greater responsibility, and the wider use of contractors responsible to parish councils can also assist in giving power back to the people.

The formation of community areas, whereby a number of parish councils which would otherwise be too small to assume greater responsibility are encouraged to collaborate, is an example of best practice in bringing delivery of services down to community level.

We propose that parish councils that wish to carry out services now provided by the Unitary, District, or county councils could apply to do so, subject to a referendum. The money allocated to the service at the higher level would then be paid direct to the town council as the service provider. It would, of course, have the option of spending more by raising the parish rate, or less by reducing that rate.

Parish plans are a means of involving the whole community in shaping their neighbourhood. They should retain their status in planning and the shaping of communities. District councils should be obliged to provide full sets of planning papers for relevant planning decisions in good time and record why the advice has been accepted or rejected and communicate decisions to the Parish Council concerned.

Village design statements, parish plans, and community statements on the future of the landscape surrounding settlements are of crucial importance. This work cannot be left to remote officials who do not have to live with the consequences of their actions. Of course, the wider community too has a role but the tendency has been to elevate that in such a way that the local people have felt powerless to influence the development of their community. The balance must be restored.

4.2.2.2. County Councils

Councils should return to being the strategic focus for administration and decision making within local government, with powers delegated to district and parish levels and regional collaboration based on natural/geographic links (e.g. shared interests of Wiltshire and Hampshire and opportunities to work together that are excluded within current RDA structure).

The pathfinder strategy being developed in several rural counties should become the guiding principle for relationships between county and districts. Where unitary authorities exist or will exist under the proposals of this Government, it should not be the purpose of a new Conservative government to introduce change. Local government does not have to be a neat arrangement that is the same everywhere. Indeed it is much better as a variegated patchwork suited to the locality. A future Conservative administration should not fall for uniformity to make administration easier, but should instead stand up for variety.

Although unitary status is not normally sensible for populations under 200,000, smaller towns would, under the pathfinder model, be accorded greater local control over policy and delivery, working under the general strategic planning of the county.

Government funding at county level takes too little account of major rural delivery challenges and factors like rural isolation. In areas such as social care and education this is major problem as the Government's own advisers have shown. The work of the SPARSE local authority group illustrates this even more clearly.

Appropriate non-statutory co-cooperation between neighbouring authorities on matters of regional significance should be encouraged**.** The fact that it is the chosen and voluntary pathway will make it much more effective than the enforced, top-down co-operation on the regional model designed by John Prescott. Simplification is required to enhance delivery and reduce the burden on the public purse. There must be therefore be greater transparency on the funding principles so that rural disadvantage and rural exclusion can be seen to have been given proper priority

4.2.3. Rural planning

Although the planning structure is considered in more detail in our Chapter on the Built Environment and some specific recommendations relating to rural housing appear elsewhere in this Section, there are some important considerations relating to rural planning that are best considered separately here.

Planning policy is not fit for purpose in rural Britain and a new approach must be devised that allows small communities to grow slowly and organically over a number of years in response to the wishes of the community, particularly as expressed in the Parish Plan. At the moment, if a village is below a deemed threshold it does not merit a 'village envelope' and is treated as 'open country'. Often, real villages are designated as mere 'scattered settlements. In these cases development will not be permitted and such communities are doomed to decline. They often lapse into simple dormitories, with no ability to evolve or sustain themselves. Local authorities are so focused upon a concern that they may have to provide services to such places, particularly school transport, that they stop any growth at all.

The Conservative localist agenda would return to such places the right to control their own future and, with the help of our proposals for Localhold, the opportunity to protect or recover a mixed community. Where villages want this organic growth and the district or county council feels that it would place an unacceptable new burden on their services, they should be able to serve a 'certificate of exemption' on these limited developments. This would mean that the house or houses was 'unadopted' as far as specific local services were concerned and that they would therefore have to be sold or let on the basis that those services, school transport etc, would not be provided or not provided free.

There is a close interaction between economy, community and environment in rural areas which serves as a lesson for sustainable development elsewhere. For example, environmentally good land management produces a valuable backdrop for inward investment and tourism, but that management can only be sustained through profitable use of land and buildings. This use generates jobs and incomes, which lead to the need for some additional housing in all rural settlements, whether remote or not. All of the above assists in the maintenance of sustainable and economically viable communities and the retention of some rural services. Without changes to the planning system to help stimulate economic development and new employment opportunities many rural areas will continue to ossify.

However, a more benign attitude towards growth of communities must be balanced by the highest expectations in terms of architecture and planning. The Prince of Wales's Foundation is pioneering the concept of design guides, which should be developed more widely in consultation with the local community. At present planning officers, partly because of the emphasis on urban planning in planning education, often lack understanding of the rural economy and rural development issues. They tend to transpose principles that may be relevant in towns and cities to the countryside. This problem needs to be addressed through more effective local democracy and more effective guidelines and training. In particular:

- The concept of "sustainability" must continue to be the guide to good planning, but it must be recognised that a healthy environment and a viable community depend on a strong and evolving rural economy and the planning system must reflect this.

- Those developing planning education must ensure that there is a greater rural component in the curriculum. Qualified planners operating in rural areas must be obliged to take more extensive in-service training on rural issues.

- Planners must recognise that rural businesses require some degree of activity (processing or adding value) at the source of production.

- Planners must be prepared to recognise that it is in the nature of rural areas that ideal conditions are unlikely to exist. Compromises therefore have to be made and the Highway Department may well have to put up with a less than perfect access or a smaller than usual splay.

- The training of Highways staff needs to include much more emphasis on the differences presented by rural communities so that they become flexible enablers rather than impediments to rural growth.

- Village envelopes should apply to all but the very smallest communities, and be a ‘material consideration’ rather than an indissoluble line.

- It should be the accepted norm that villages and small towns will wish to grow in a slow organic way and planning permissions should be granted accordingly. Planning committees should be statutorily required to take serious account of the views of parish councils on the rate of growth in their communities and respond publicly to a statement of their requirements.

Section 4.3. Affordable housing

4.3.1. The rural mix

Rising house prices are turning many rural areas into exclusively middle-class preserves, particularly in the Southern counties. Outsiders can almost always outbid locals dependent upon lower rural wages. Many communities have therefore become unsustainable ghettos of the affluent retired. The mix of age and income levels that is necessary if a society is to function sustainably is not possible unless there is housing provision for local people. There is no chance otherwise of the extended family support which takes pressure off social services (children look after grandparents, grandparents help care for the grandchildren).

The older generation in lower income groups may well have a house because it was provided or bought before the extreme pressure for country properties existed. Once they die, their cottages are liable to be sold off to incomers and another middle aged, middle class couple joins the community. We must develop greater provision to allow young locals to get onto the housing ladder while retaining such dedicated housing for the purpose it was designed.

4.3.2. Homes for local people

The present policy that encourages landowners to give or sell land that would otherwise not get planning permission for developments designed for local people is not as widely used as we would like. This is partly because of lack of drive in some local communities, but also because landowners cannot be assured that the land they give will not provide a significant capital gain for someone else down the line.

We therefore propose to build on the present arrangements but add a new form of part-ownership which will enable a wide range of organisations and individuals to build houses for part rent and part sale. In these cases, where the land had been dedicated, given, or sold at a low price, the houses built on it could be sold with a reversionary clause that enabled the donor/vendor to have first refusal at a price that reflected the increase in house prices while not passing on the providing a windfall profit on the land. The donor/vendor could be a housing association, a District or Parish Council, or a private individual or company. It would then buy back the house at a price that would reflect the increase in the worth of the bricks and mortar but not the land. It the donor/vendor would then have the opportunity to sell on again to a local family, a house which still would be significantly less expensive than one on the open market. The donor/vendor would not be able to take an enhanced profit at this stage because sale would only be permitted to local people of limited means. The arrangement would be in a basic simple form which would be registered with the district council and would permit sale to be on a basis restricted to local people of limited means. This system we may call Localhold. It would form part of a series of measures that are outlined below:

- Conservative planning policy should continue the use of ‘exception sites’ policy, as recently confirmed in PPS3, until more effective means of providing affordable rural housing have been established.
- The new obligation for local authorities to allocate sites for affordable housing should be retained and the exclusion from the right to buy in communities of less than 3,000 should become permissive so that local authorities could allow Right to Buy in smaller communities if they thought fit.
- Local authorities should be specifically encouraged to use Section 106 as a means to transfer planning gain from developers of market housing in towns for use in small rural communities for affordable housing under the new Localhold arrangements.
- Landowners seeking to redevelop redundant farm buildings or gain planning permission for non-agricultural uses might be encouraged to dedicate land for Localhold homes. They would

be entitled to retain the ownership of the land as long as the sales were conducted under the Localhold arrangements. They would also have the right to use reversions for employees or family members.

- Affordable housing providers, including the Housing Corporation, need a clearer set of objectives in relation to rural housing and the funding allocation to achieve them.

4.3.3. Second homes

We have considered the issue of second homes and their effect upon local affordability. We note that a very high proportion of such homes are purchased with a view to retirement and that many other owners have two homes for necessary business reasons. According to the Affordable Rural Housing Commission, second homes are not a significant factor in creating the rural housing crisis, except in very limited situations. We are therefore not satisfied that there is either a case for limiting second homes or for taxing them more heavily than they would be if they were not second homes. Nonetheless, as part of our localism agenda, we need to address the concerns of particular towns and villages where second home owners are in such numbers that there is a real issue of community sustainability. If they felt this to be the case in their particular community, parish councils could opt for a residency test which would build on the experience of the Dutch. By referendum, they could decide that houses in their area, or a part of their area, could only be sold to people who intended to live in them for at least 200 days in the year. We are working on the detailed proposals for national guidelines to which councils would have to adhere. Such a residency requirement would only come into force when a proposition was properly put by the parish council to all electors in the area concerned in a successful referendum. Electors should be made aware of the effect that this could have on the local property market and hence the value of their homes. It may be that, having weighed up the matter, electors opt for the status quo but that decision would be theirs and not imposed from outside.

Section 4.4. Regulation

4.4.1. Health and safety

Rural life is particularly susceptible to the excessive direction of regulatory bodies working with urban-oriented regulations – in particular, the Health and Safety Executive and local government officers working to its agenda. We need a specific commitment to liberate rural householders, volunteers, and small businessmen from the excessive interference of do-gooding institutions. Although our proposals for health and safety affect a much wider community than simply those in the countryside, they are appended here because of the particular effect on so many rural activities and businesses.

We propose that legislation should be drafted to ensure that in future:

- Trespassers and burglars should no longer have any right to sue for damage done to them on other people's land or buildings. Occupiers would, of course, continue to be required not to use unreasonable force in protecting their property, or to use dangerous equipment to deter trespassers.

- Volunteers whose homes and gardens, land or buildings are used for charitable or political money-raising would only be liable for injuries caused in the event of gross negligence being proved. Areas of land or buildings roped off with a clear notice would be deemed to come under the absolute terms of point 1 above.

- The volunteer committees of village halls, church halls, and similar meeting places would be liable to no greater extent than under point 2 above. In both cases, they would be required only to display a notice reminding people that they are responsible for their own health and safety and that of any children who are in their charge.

- Public places that charge for visitors, including the National Trust, English Heritage, and private owners of houses, open to the public, will be required to mark clearly the hazards that a reasonable person might not recognise as such. Those who disobey clear notices or who act in an obviously dangerous way such as climbing on ancient walls would have no redress against the owners. A notice similar to that in point 3 above would be required.

At the same time, we would propose a detailed consideration of all health and safety rules to determine and rescind all examples of 'gold plating'. In parallel, we should consider much tougher penalties for companies, in particular manufacturing companies, where there are gross breaches of sensible health and safety codes. We should introduce criminal sanctions on the directors of such companies where it can be shown that board negligence led to a serious breach of health and safety.

4.4.2. Rural activities

The countryside is different and country people have ways and interests that are not necessarily shared by the towns. The variety of Britain is something Conservatives have always sought to preserve. We continue to do so and would look to a future Conservative government to maintain this diversity. The call to celebrate newer, largely urban, contributions to the rich differences in our national life is one to which we should all respond. It will, however, remain a hollow response if, at the same time, we seek to eradicate national differences that have a long history and tradition. A future Conservative government should pledge itself therefore to protect country sports: fishing in our rivers and lakes and shooting that does so much for the conservation of our countryside. It should arrange time for a free vote on repeal of the Hunting Act.

Private landownership is an important part of the defence of freedom and variety. It has done much to conserve our countryside and very often has taken a much longer view to the benefit of future generations. A future Conservative government should therefore find it natural to continue to defend the private ownership of land and protect it from unnecessary state interference.

4.4.3. Farm Inspections

Regulation and government intervention should be driven by outcome rather than process and such process as is necessary must be clear and transparent. In particular we need to reduce the number of agencies and bodies that have an obligation to inspect farms and rural businesses and make sure that, wherever possible, inspectors carry out work for all the necessary agencies at one time. In part this can be done by much more contracting out to regional and local organisations.

We should proceed on the basis of trusting farmers and others to deliver what they have contracted to do. If such trust were to be broken by any individual, the penalty should properly be severe. However, prescriptive and detailed inspection and unnecessary form-filling should be things of the past.

The basis of grants should be a contract to deliver agreed outcomes (e.g. for market town development or community programmes, countryside and habitat management) with incentives for the right outcomes and penalties for non-delivery.

Section 4.5. Defra

4.5.1. Government reorganisation

Elsewhere in this Report we make recommendations about the need for the reorganisation of Government Departments, so that the necessary reforms can be delivered more effectively. Here we discuss the way in which Defra works at present and suggest the changes that are necessary whatever structure is adopted.

Defra is unfit for purpose. It was created, over lunch, to provide a sufficient job for a particular individual and it has not worked. It is seen in rural areas as incompetent, remote, unhelpful, ill-informed, obstructive and lacking common sense. It lacks in-house expertise, is structurally ill-equipped to communicate with rural interests, and is often unsympathetic to rural communities and ignorant about some of its areas of responsibility. Ministers have lost control of agencies that provide delivery, most notoriously, the Rural Payments Agency.

4.5.2. The role for Defra or its successor

Labour conceived Defra to be a policy formulator and regulator. Defra Ministers should also act as rural champions, defenders of UK rural interests in Brussels and Whitehall, and creative leaders of the new role for agriculture in Europe .

Rural land management and farming is a highly bureaucratised industry because of its subsidised nature. Public money has to be properly accounted for. That makes it all the more important that Defra is recognised to be expert in its areas of responsibility. If Defra is to restore trust and improve delivery it must become rurally aware and technically more competent.

It must also have a voice within government which is listened to. The specifically rural planning issues, which we deal with in this Chapter and in our coverage of the built environment, have had no real hearing over the last decade. Rural planning is not the same as urban planning although it may share some of the same problems. Keeping the countryside alive with a real mix of working people and businesses demands a flexibility in decision-making which the British tradition finds difficult.

4.5.3. Changing attitudes

Ministers' panels made up of individuals trusted by farmers in each of the regions were a valuable way in which the old MAFF was seen to keep directly in contact with farmers. It provided an independent source of information unconnected with the formal lines of the civil service. They should be reconstituted. The Chairmen of each of these should have direct and immediate access to the Minister so that he has a chance to warn of untoward matters. There is every reason to believe that had such a system still existed under the present Government, local concern about the practices in the North East that led to the Foot and Mouth outbreak would have reached the Minister before it was too late. It is certain that many of the mistakes of the handling of the outbreak could have been avoided if that close connection had continued. Abolished in arrogance, the restitution of these panels should be accompanied by a wider remit to cover the sustainable management of land and natural resources. The membership should therefore include representatives of rural business and land management, as well as those directly engaged in agriculture.

Defra's past record of the management of crises does not give rural people much faith in its ability to handle future outbreaks, although bird 'flu in Suffolk was well contained and co-operation with local authorities was exemplary. The problem is that such outbreaks will become increasingly likely as a result of climate change. We have dwelt upon the agricultural implications of this in the Food and

Farming Part of this Chapter but the implications for the wider rural community are important. The effect on tourism and commercial activity in the countryside is considerable and we have to recover the confidence of a considerable constituency way beyond the world of livestock farmers.

4.5.4. The agencies

Part of building that confidence will be found in the reform of the Defra agencies. Two different sets of fundamental contradictions have to be resolved. First, the fact that most of these agencies have the dual role of adviser and regulator. Second, each needs to have the wide remit to deal with matters holistically but also needs local knowledge and experience to deal with them sensitively and effectively. Regulation/advice: national/local – they all struggle with the implications. Where the contradiction is inevitable, government needs to be clear where the emphasis should lie. Wherever possible, the role of the agency should be defined so that the conflicts are minimised.

Policy implementation should, wherever appropriate, become more localised. For instance, management of diffuse pollution in sensitive river catchments, under the EU Water Framework Directive, should be the responsibility of local management boards made up primarily of land managers and riparian owners. They would emply the locally based advisers who would be able to draw upon national expertise provided by the reformed environment agencies.

To restore trust in the regulatory agencies and bodies charged with rural delivery, the whole emphasis of policy formulation should be changed to focus on delivery of agreed objectives on land managers, with specified outcomes rather than excessive bureaucratic oversight.

To ensure that the new spirit of trust is not abused, it is important that land managers who play the system or fail to produce outcomes they have contracted to deliver, should be hit with significant sanctions or financial penalties to reflect omissions or errors that have been committed (along the lines of self-assessment procedures imposed on all of us by the Inland Revenue). The quid pro quo would be that there would be an appeal system available to landowners to claim against the agencies where their impositions are shown to be excessive.

Section 4.6. Transport

4.6.1. The sparsity factor

Country life is inevitably less convenient than life in urban areas, because services are more remote – this is accepted by most rural people as a fair exchange for the enhanced quality of life that they enjoy as a result of their greener, quieter surroundings. The weakness is the degree to which it depends on car ownership. Without a car, teenagers, mothers of young children and the elderly risk becoming isolated. It is important that local services are maintained and Conservatives should make this a social priority due to the higher risk of market failure in rural areas.

It is generally desirable to reduce use of the internal combustion engine, not least because of greenhouse gas emissions. But rural life depends heavily on cars and delivery vans for its day–to-day survival. A rise in the cost of fuel, as a result of taxation, would be regressive, because it would disproportionately affect the rural poor and those unable to afford fuel-efficient cars. Some models of sensible road pricing may provide a preferable means of discouraging car use where alternatives exist.

4.6.2. Cars in the countryside

Any Conservative policy for limiting car use must respect the absolute reliance of rural people on cars and rural business on road transport.

Planners must accept that the development of rural businesses and the organic growth of communities can only be achieved if car use is allowed. Rural jobs are almost always car-transport dependent.

In return for this sensitivity to rural needs, it is important that country people should seek to limit car-emissions wherever possible. For example, all schools should follow present best practice and institute 'green travel plans' which would ensure that the largest number possible should walk to school. Teacher and parent rotas for 'walking buses' should become the norm. Use of any school car-park that exists should be dependent upon staff being unable to walk or use public transport and being prepared to join in a car-sharing scheme. It is important that teachers should see this changing behaviour as part of their educational role not as an additional chore.

Planners should be given a remit to minimise the visual impact of the car in the countryside by the removal of unnecessary signs and road markings. The suburbanisation of our rural areas by the enthusiasts for nannying signs about horses, toads, and other livestock should be tested objectively to see if they serve any useful purpose. Similarly, experiments on the safety effects of road markings should be encouraged, as it is thought there is evidence that in many cases they increase accidents.

4.6.3. Public transport

We applaud creative ideas that give country people increased access to transport, not necessarily in the form of buses. The Wheels to Work (W2W) scheme, which loans young rural people who need to get to job interviews or start work motor scooters until they can afford transport of their own, is a model of the non-conventional thinking that must be applied to this area.

Empty buses travelling the countryside are not a sensible use of resources. Parish-based community car-sharing can be significantly expanded with the development of simple software to allow offers of lifts to be matched with needs. Local solutions to local problems can be found within the community.

The way in which voluntary groups already provide access to hospitals is an example for other activities. The key to success is organisation and the willingness to provide sufficient funds to defray the expenses

of retired people for whom their car represents one of their biggest outgoings. There is an important role for parish councils in this.

The growth in locally based rural car hire businesses should be expanded. The insurance industry's present practices militate against 'occasional hire' on no very clear actuarial basis. Government should encourage changes that would allow arrangements to ensure that many more people would be prepared to provide occasional taxi services.

County councils should reassess their transport provision with imagination. School buses should be seen as part of rural transport and, wherever practical, provide a mixed service, taking adults as well as children. Similarly, where special provision is made for one child or two to be taken to school by taxi, the opportunity to take further passengers should be made available. Again this could properly be linked with parish-run computerised car-sharing.

Public/private partnership could well expand versions of the London based 'Streetcar' model into market towns where it would otherwise be marginally profitable. An annual fee would provide access to a motor car for those who cannot or choose not to own a car.

Section 4.7. Access to Services

4.7.1. Keeping the sub post offices alive

Shop, post office, church, pub, and primary school – these are some of the indicators of a vibrant rural community, but few villages possess all five. However, they remain vital for the minority of the population – e.g. young people, mothers in one-car families, the elderly – who do not have access to a car. Conservatives should aim to minimise the closure of these services and stimulate innovative ways of providing alternatives for villages that do not have them.

Sub post offices play an important role in village life and could become again a vibrant centre for rural services. In the age of the internet, they already perform a useful role in mail order fulfilment. Their demise is partly because of the failure of Government to design modern benefit delivery packages that would make use of their services and partly the legacy of Post Office history where labyrinthine systems, a lack of interest in the network, and a failure to keep up with modern retailing was bred by a belief that the system had a God-given right to survive. There are clear indications that the Post Office has changed significantly and would be capable, given the chance, of running a sensibly sized rural network providing a wide range of services in communities that would otherwise be without. Instead of complaining when supermarkets do not want to continue to house a post office, we should be redesigning the sub-post office so that it becomes a much sought after adjunct to a business as well as a business in its own right. To that end we should initiate an independent enquiry chaired by a successful retailer and with full access to Government Ministers and Departments, to recommend innovative structures and technologies to make the Post Office rural network modern and indispensable. It should also be charged with advising Government on the redesign of its services so that they could be provided better through the agency of the local post office.

In the meantime, Conservatives should pledge to keep the £150m a year subsidy for rural sub post offices in order to maintain the network while exploring radical solutions for service delivery in rural areas, which might include their being the agent for suitable local authority services, the centre for parish council transport-sharing schemes, and the provider of an emissions-saving means of taking services to rural customers.

4.7.2. Other services

There are many examples of communities clubbing together to save village shops, post offices or pubs. Conservatives should encourage local enterprise of this kind and where communities develop good ideas, government should make it easier for such groups to access funding.

Where demand for services falls below a critical mass, different services can be grouped under one roof. Pub is the Hub, set up in 2001 to enable pubs to improve their viability by offering other services, is a good example.

Better use could be made of local resources (village halls, public libraries, schools and other community buildings) for delivery of services in rural areas. County councils are the key here. Too often the various services maintain their provision separately, failing to share information, know-how, or resources. It is a key part of the move towards the ‘pathfinder’ model of local government that the multi-use of buildings, staff, and other resources should become the norm. County councils should be incentivised to develop innovative these innovative systems by being clearly able to keep and redeploy the savings engendered.

Churches are recognised as an essential part of village life even by people who do not normally go through their doors. The village church is part of the British identity. The burden of maintaining these buildings was always shouldered by the community at large. It is clearly inappropriate to expect a small

and often elderly congregation to support buildings that are a national treasure. Britain is one of the meanest countries among the rich countries of Europe in its support for church buildings. This is clearly the sort of cause for which the Major Government set up the National Lottery and it would be appropriate for a Lottery fund dedicated to putting parish churches in good order to be established, using the money that has been appropriated by the present Government to fund the NHS and other needs that are clearly matters for national taxation and which breach the 'additionality' principle.

Section 4.8. Climate Change and Food Security

4.8.1. The front line

Climate change is already affecting the biodiversity of the countryside, and can be seen in the way plants and animals behave. The implications of global warming and increasing pressure on global food production capacity make it essential that open country is not wantonly developed. Rural people are at the front line of climate change and meeting the rural challenge should be a central part of the Conservatives' climate change alleviation strategy.

Where productive land is currently not required for food production it must be kept in a condition where it can be returned at short notice to productive use for food or energy crops.

The future value of farmland, in the context of climate change, should be given greater weight in the calculations leading to proposals to abandon flood and coastal protection defences. So-called 'managed realignment' is often the cover for money-saving schemes that will burden future generations with the cost of sea or river defences that we are unwilling to maintain.

Our proposals for the local sourcing of food and for carbon taxation to reflect the environmental impact of much-travelled products will be important in driving a healthy rural economy.

4.8.2. Water

Water is a crucial resource for the entire nation and not just for food supply. An incoming Conservative government will need to stimulate efforts, local and national, to increase aquifer recharge and water storage to reduce the volume of run off during the increasingly heavy rainfalls that will become ever more commonplace. Now that the East of England is a semi-arid area changes of this kind must become a serious concern of the planning system.

Climate change offers increased opportunities for land managers to be rewarded for the supply of public goods, which could include the supply of energy, flood prevention (with better use of flood plains), water harvesting and sequestration and using land as a carbon sink.

A detailed extension of these arguments will be found in our Chapter on Water.

4.8.3. Other issues

Many of the environmental proposals that we make more generally have particular relevance to the rural community. These include: micro generation, geothermal heating and other low carbon energy technologies such as biogas and CHP generation. Support of these must take the rural dimension fully into account.

Section 4.9. Volunteering

4.9.1. Encouraging the volunteer

The voluntary sector is specially important in the countryside. It must not be allowed to be suppressed through excessive red tape. Volunteering is already under pressure from the nature of modern life (e.g. longer working hours, longer commutes, more families with two working parents). It should be a Conservative priority to make volunteering easier by lightening the burden of regulation.

Labour's Change Up programme has sought to "professionalise" the voluntary sector. This may be appropriate for large charitable bodies but the extra bureaucracy deters volunteers at village level. Significant deregulation in this area is very desirable.

Rural policy should seek to accommodate an increasingly litigious society. A society that requires a four-page risk assessment to be completed by everyone collecting money for charities has clearly got it wrong. The application of common sense should take priority over the desire to legislate**.**

4.9.2. Risk

Management of risk is an issue that affects the entire nation, not just the countryside. However, we draw attention to it here, because of a specific rural aspect: the countryside should be the place where children climb trees, play on river banks, explore woods and healthy rural walks are encouraged. Animals give pleasure but also entail a degree of risk as any farmer or horse-rider knows. Traditionally some risk was accepted as part of life but in an increasingly litigious society expects life to be risk-free. Political correctness has encouraged this attitude but policy-makers should ensure that common sense prevails.

There is a particular role for the judiciary here. As the author of 'The Lost Art of Drawing the Line', has properly suggested, magistrates and judges should be much more prepared to laugh out of court litigants seeking compensation in cases where their own duty of care is paramount. Government should provide legislative back-up in the form of penalties for those who waste the courts' time with such cases. Hard cases do, in fact, make bad law and we have allowed our sympathy with individual examples of tragedy to do grave damage to the population as a whole. More particularly we have limited the opportunities for young people through this culture of blame. A risk-free world does not exist and if it did it would be an intolerably dull world.

Parents should be able to give their permission in writing for schools, voluntary organisations, churches, and faith groups to provide adventurous programmes for young people. Such permission should provide an absolute legal defence in the event of an accident in which gross negligence is not established.

As we have said above, the householder who wants to host a fund-raising event in his garden should be subject to no restrictions beyond those of the common law. We should remove all present requirements which bear on charitable, religious, or political events held on domestic premises or in premises licensed for public assembly or religious worship. A simple notice at the entrance, reminding people that this is a charitable event and they participate at their own risk, should be sufficient legal defence in any case except where gross negligence were proved. This would also cover food and drink provided for sale at such events.

The recent Licensing Act has put village halls under great pressure. In future they should be subject merely to a simple licensing procedure under which a properly constituted body, public or private, should be responsible for ensuring reasonable behaviour on the premises. Otherwise they would merely have to show a current simplified health, safety, and fire certificate. Parish councils should be

encouraged to take out insurance policies covering all communal activities in the hall to prevent this burden falling each time on the individual.

Similarly, we should remove the requirements of the Licensing Act which bear heavily on small-scale operations, charging, for example, a Punch and Judy man an annual fee of £400. In most cases, these can revert to very simple registration with the local authority. In many, registration is unnecessary.

Section 4.10. Conclusion

The countryside looks to an incoming Conservative government to rebuild trust, reduce the burden of legislation, give local people more power over decision-making, and re-establish common sense as the first priority. The interests of the countryside should therefore play a proper part in the preparation for a general election. This is not just because of the needs of country people but because the countryside is important to everyone. It provides the rest and recreation for which so many urban people yearn. The beauty of its landscapes and of its market towns and villages should increasingly be seen as a resource for urban England. So too should it be recognised as a crucial provider of public goods which become the more important as we face up to the implications of climate change.

Chapter 4. Part II. The Future of Our Farming and Our Food

'My subject is food, which concerns everyone; it is health which concerns everyone; it is the soil which concerns everyone – even if he does not realise it – and it is the history of recent scientific research linking these three vital subjects……If fresh food is necessary to health in man and beast, then that food must be provided not only from our own soil but as near as possible to the sources of consumption. If this involves fewer imports and consequent repercussions on exports, then it is industry that must be readjusted to the needs of food. If such readjustment involves the decentralisation of industry and the re-opening of local mills and slaughter-houses, then the health of the nation is more important than any large combine'.

Lady Eve Balfour, Living Earth 1944

Food is fundamental – materially, socially, culturally, and religiously. It is a major contributor to our physical and mental wellbeing. It is a key determinant of our quality of life.

The debate has begun about the quality of food in our hospitals and schools. And many individuals are increasingly choose what they believe to be more sustainable food, with organic sales in supermarkets increasing by around 30% year on year, and organic sales through local outlets, box schemes, farmers' markets and specialist shops growing as fast or faster. But too many people aren't being given the choice of healthy, affordable, sustainably-produced food, and we are facing mounting public health problems such as obesity, diabetes and coronary heart disease as a result. Food has always been a marginal issue for policy-makers. It needs to become central.

The choices we make when we buy food have ramifications far beyond our own or our children's health. Farming is by far the major user of land in Britain. It is a significant economic sector, and it is responsible for shaping the countryside we know and love. Farming is also a major contributor to climate change and the UK's carbon emissions. Worldwide, agriculture contributes to serious problems, not least large-scale soil erosion and growing water shortages. The effect of this, a growing world population and increasing urbanisation is that the world's bread baskets are under pressure.

Protecting and encouraging our own domestic food capacity is therefore crucial. But an understanding of the fundamental importance of agriculture is rarely voiced. There is a feeling among farmers that they are unwanted, undervalued, and misunderstood. The present Government has failed to give confidence to the agricultural community as a whole. Its antagonism to the countryside has increased the feeling of marginalisation.

This is compounded by the fact that agriculture is an industry in crisis. Fierce global competition, BSE and Foot and Mouth disease, rising costs, the disproportionate burden of UK regulation and an increasingly powerful retail sector squeezing supplier prices, have all contributed to the industry's difficulties. Farm incomes have been falling – down by 11% since 1997 in real terms per full time worker in 2005 to £12,500 per annum[88].

For these and other reasons, our farmers are not operating on a level playing field. A key question we therefore have to address here in the UK is whether or not our agricultural sector can be internationally competitive, and if so what measures are needed to make that possible.

[88] *Agriculture in the UK* (2005) Defra

Section 4.11. The Vision for Food and Farming

Our vision for food and farming in the UK is framed by a number of key principles:

- the need to value our farmers;
- the need to value our food;
- the need to secure domestic food production;
- the need for a balance of power in the food sector;
- the need to re-localise food systems and empower local communities;
- the need for agriculture to deliver valuable public goods and environmental services for the benefit of society;
- the need to create a sustainable, low carbon food system;
- the need to recognise the impact of our food choices on international development; and
- the need to improve diets and enable people to make informed decisions about the food that they eat.

4.11.1. Valuing our farmers

Despite the serious difficulties of recent years, a new spirit is surfacing in the farming community. At the same time, Britain's seemingly lost food culture is undergoing a renaissance. An entrepreneurial spirit is re-emerging among farmers and food producers, in particular among the younger generation. The farmer is back in the market place again, reconnecting with his customers. Since the war, European farmers have been working within a structure of production subsidies originally and necessarily intended to ensure that we were fed. The habit of mind which this bred among UK farmers in particular, meant that they largely produced, not for the customer, but for the subsidy UK deficiency payments, as much as their replacement – the Common Agricultural Policy (CAP) – bred a dependency that divorced the producer from the market.

Even though successive Ministers and farmers' leaders have extolled the virtues of catering for the customer, it has taken two decades for that attitude to become mainstream. Now, from the very largest commodity producers to the smallest providers to niche markets, farmers are increasingly close to their customers. Direct marketing through farm shops, farmers' markets, organic box schemes, brand development, adding value to primary produce, educational projects linked with schools and local communities – all are helping to revitalise farming and food production in the UK. The organic and fair trade movements have burgeoned and significantly increased the interest in the origin and nature of the food we buy, at the same time setting high standards of animal welfare and environmental sustainability. This change is taking place all over the country and being driven by large numbers of individual farmers. That is how it should be. State support is no substitute for the entrepreneurial spirit.

However, the conditions within which farmers seek new markets, create brands, and reach their customers are, at least in part, the product of past Government actions and international structures both within the EU and in the wider world beyond. Even in France, where local food has continued to hold a much more important place in the market and farmers' co-operatives have been so much more successful, the pressures of multiple retailers and multi-national commodity traders have proved very powerful.

We have therefore sought to identify measures that we can take to maintain and increase the variety of home-produced food, protect and enhance the routes to market of small and innovative producers, and ensure that the size and success of supermarkets does not suffocate the small, the original and even the large-scale suppliers.

4.11.2. Valuing food

Providing food for ourselves, our families, and our communities has always been the essential activity. In all but abjectly poor circumstances, everybody eats, every day. Food affects how we behave and our achievement, our work and our play. Historically, as subsistence existence gave way to choice and the beginnings of variety, the preparation and serving of food become increasingly important. We developed customs and rituals around eating. Food has always been part of our cultural and religious life and a major feature of our social interaction. Indeed how and what we eat has helped to define civilised society.

Yet today we sense there is something fundamentally wrong about the way we eat. Such a concern is not new. What, however, is different is the sheer scale of the problem. An abundance of food, food wastage and bad food habits have become synonymous with our Western way of life – it is not only *American* airline seats that have had to be widened. Nor is it just that the majority of us are too fat, eat too much and eat too much of the wrong things. Nor simply that, because so many are so much richer, the problems of excess afflict more people. It is fundamentally that, despite education, diets, and health warnings, we *choose* to eat badly. It is a characteristic not only of the rich nations but of the rich in poor nations. Wherever in the world people have choice, they tend to choose a diet high in fats and sugars, low in fruit and fibre; they eat more and prepare less; they demand greater choice but almost always use that choice to pick food characterised by high levels of salt, sugar, and fat. Processed food and pre-cooked meals are increasingly popular because of their convenience and so less fresh food is eaten and cooking skills are lost. Those choices are a reflection of our way of life and of the way we produce, distribute, and deliver food. Food defines us today just as it always has.

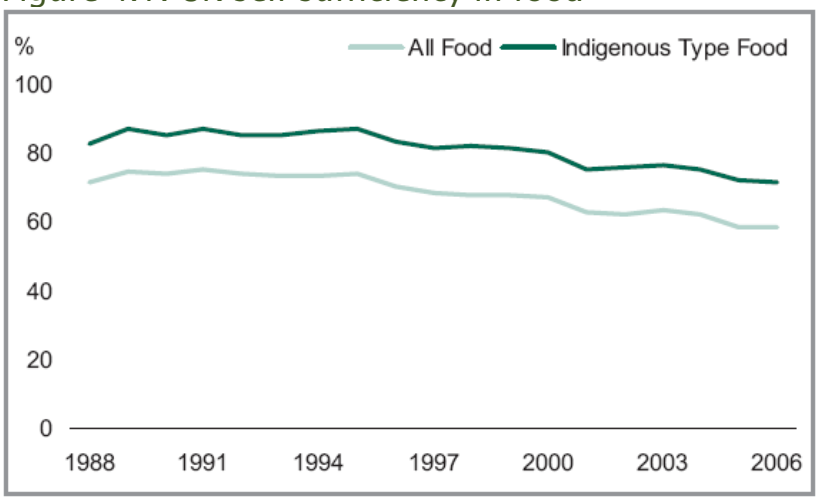
However, as usual, we concentrate on the symptoms: the obesity and the anorexia; the cancer and the diabetes; children's attention deficiency and aggression. We need instead to take a more fundamental approach to the food we eat. That will take us way beyond government guidelines and nannying by the Department of Health.

4.11.3. Food Security

In an uncertain future, where climate change and international insecurity challenge traditional ways of being and doing, it is again of strategic importance for the UK to secure its food supply. No national imperative can be greater. That demands, prima facie, that we maintain a profitable agricultural base capable of producing food. It may also mean that we will need to ensure a capability to produce non-food crops for fuel and raw materials. Today's complex, global food system is vulnerable to international political crises, rising fuel and other input costs, terrorism threats, population increase and population migration and increasing environmental and climate change pressures. As carbon is progressively priced into the equation exclusive reliance on that system will become economically much less attractive. The demands of security and economics begin to converge.

Yet, the actual trend is the opposite. The UK's self-sufficiency in food production is decreasing – from 72% in 1996, to just 60% in 2005 for all food, and from 85% to 73% for food that can be produced here. In detail, this trend can be seen to be seriously damaging. For example, at a time when market demand for fresh fruit and vegetables is increasing, self-sufficiency in fruit is only 10% of total supply – an all-time low.

Figure 4.1. UK self sufficiency in food[89]



Yet, while the concept of 'fuel security' is generally accepted, the issue of 'food security' is ignored by the present Government . A recent report from Defra downplayed any vulnerability in the UK's food supply chain, preferring to place confidence in international trade and globalisation, and denying any potential adverse impact from climate change; 'Climate change particularly is likely to bring new challenges for the food security, not of rich countries like the UK, but of less developed, tropical, regions.'[90] Yet the UK, as a net importer of food, cannot be unaffected. The state of the current grain market makes the point clearly:

- Australia, a significant source of our food, is experiencing probably its worst drought in history with an expected reduction in its wheat crop of more than 60%. Farmers in the Murray River area currently produce 40% of Australian agricultural produce and depend on irrigation. This has been only weeks away from being cut off in order to safeguard water supply for the population. Climate change will make such extreme events more likely and more frequent.
- With rising world demand world grain stocks are at the lowest level in more than 30 years.
- China's grain harvest has fallen by nearly 10% over the last 7 years and increasingly relies on world markets to make up the short-fall.
- A growing global diversion of farm commodities to biofuels, has contributed to a doubling of grain prices.

The UK therefore needs a food and farming policy which fully acknowledges the importance and value of domestic production; otherwise, climate change, international insecurity, a growing world population with rising standards of living will make us increasingly vulnerable. This is not a policy driven by the need to safeguard our ability to provide the commodities that our people need.

4.11.4. Balance of power in the food economy

Modern retailing has clearly increased the range of foodstuffs available to the population as a whole. For urban people, there is no doubt that our supermarkets have ensured fresher and cheaper food than at any time in the past. Supermarkets have been successful because they fulfil a real need. It would be foolish to try to turn the clock back.

[89] Defra (2007) Agriculture in the UK 2006
[90] *Food Security and the UK: An Evidence and Analysis Paper, Food Chain Analysis Group(* December 2006) Defra

However the current and growing dominance of the multiple retailers has taken its toll – not least the closure of more than 2,000 small independent shops a year. As a result, many towns and villages have lost diversity of retail provision. A recent poll showed that 71% of consumers[91], while acknowledging that supermarkets make shopping cheaper and easier, are concerned that they are too powerful, squeezing suppliers, limiting consumer choice and driving smaller shops out of business.

> 'The erosion of small shops is viewed as the erosion of the 'social glue' that binds communities together'
>
> *High Street Britain 2015: All Party Parliamentary Small Shops Group (2006)*

The four largest supermarkets now control 75% of the retail market. That power is also felt by food producers whose own bargaining power has dwindled. Tony Blair described the situation as an 'armlock'. This imbalance needs to be addressed, and in particular anti-competitive practices such as below-cost selling needs to stop.

We have sought to address the current planning bias in favour of the development of the superstore over alternative retail outlets. We believe that where diversity exists, we should support efforts to maintain it, and where it does not we should seek the opportunities to recreate it. Above all we should be careful to maintain alternative routes to market.

4.11.5. Re-localising the food system

Thousands of today's 8 year olds think that cows lay eggs

More than one in ten (11%) 8 year olds don't know where pork chops come from, and many more have no idea where yoghurt (18%) or cheese comes (11%) from.

Dairy Farmers of Britain survey (February 2007)

We need to invest in our food once again – and not only with money. When only one in four households in the UK possesses a dining table[92], we are clearly undervaluing the role of good food in family life. From an early age we should be teaching our children how to cook and the importance of fresh quality food – in delivering wellbeing, economic prosperity and environmental sustainability, and the value of the role that farming plays in delivering public goods in society. 'Best value', a phrase often used by supermarkets and Government, must mean food that is the best value for our health and our environment, and not just the cheapest available by any means.

Individuals and communities have become disconnected from their food supply. Our children are growing up without a real understanding of food or the skills necessary to make the right food choices. Communities have little or no input or control over the food system that serves them.

However, the food system of a town, city or rural area can offer enormous opportunities for creating employment, raising income levels, and creating economic prosperity for the wellbeing of the whole community. Research by the New Economics Foundation demonstrates that for every £10 spent on a local food initiative, £25 is generated for the local economy, whereas £10 spent in a supermarket only generates £14 locally[93]. Developing integrated

Spade to Spoon: making the connections is a pioneering food strategy developed by Brighton and Hove Food Partnership, based on collaborative work with partners in the City Council, the Primary Care Trust, the Community and Voluntary sectors, and individual residents.

The strategy brings a cross-sectoral approach to improve the food system in order to achieve a variety of policy objectives, from reducing waste, to combating health inequalities. Brighton and Hove suffers from pockets of severe deprivation and consequent inequalities in health outcomes between rich and poor. Both the City Council and the Primary Care Trust are committed to addressing the wider determinants of health, such as environment and poverty, and food is an excellent vehicle for addressing a range of appropriate issues.

www.bhfood.org.uk

[91] Guardian/NOP Poll Nov 2006
[92] The Times, 4 June 2005, cited in 'Bad Food Britain' by Joanna Blythman
[93] New Economics Foundation (2004) *Plugging the Leaks*

food strategies, as in London and Brighton and Hove (see box, above), can help communities realise the potential for the local food economy to deliver a range of public policy objectives, from economic development through to public health.

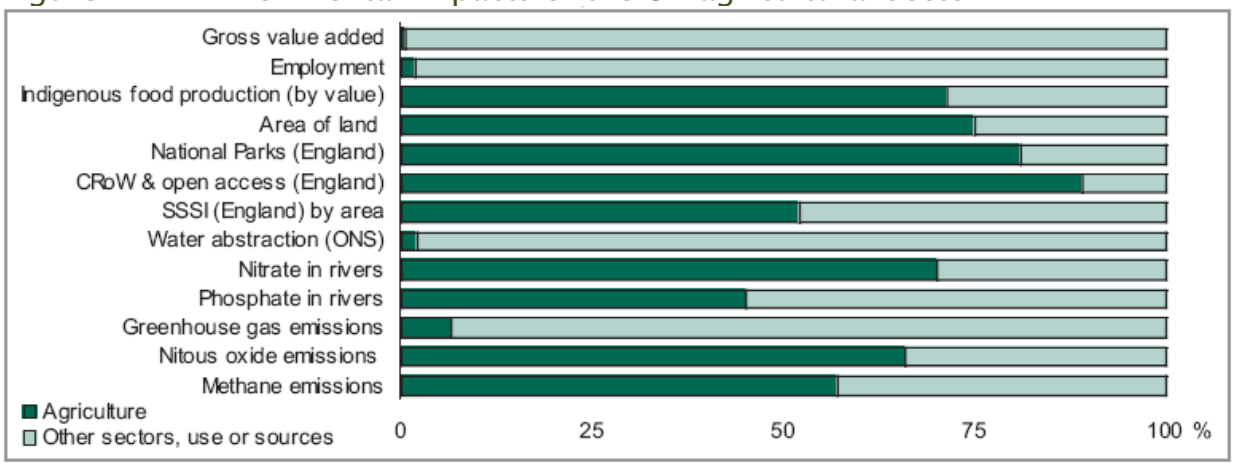
Localising food systems is about more than just increasing availability of local food and shortening supply chains. It is about ensuring that people and communities can again feel involved in how their food is produced, distributed, and consumed. Food is just too important to be left to those without direct and significant interest in the local community.

4.11.6. Delivering public goods and environmental services

To emphasise the importance of food production is not to underplay the role of agriculture and land management in the provision of environmental and social benefits. Through the delivery of public goods such as recreational opportunities, tourism, biodiversity, and nature conservation, the quality of life of the community is hugely enhanced. Indeed, the beauty and richness of our countryside is largely shaped and managed by agricultural activity. Without it, the nature and quality of our rural landscape would not have been created. If profitable farming were not to continue, much of what we most value in our countryside would go too.

Farmers are therefore at the environmental front-line – they are an enormously important repository of knowledge and understanding of natural systems, soil and water resources, weather patterns and crop production. They have been among the first to chronicle their experience of global warming. They have a unique and positive role to play in providing environmental services which both mitigate the effects of, and help us adapt to, climate change. For them, climate change therefore presents both opportunities and profound challenges. No serious agricultural policy can ignore this part of the farmers' contribution to the quality of the lives of all of us.

Figure 4.2. Environmental impacts of the UK agricultural sector[94]



4.11.7. A sustainable, low-carbon food chain

An abundance of diverse produce is available all year round, at any time, night or day. Yet it comes at a cost. It is not just the impact of emissions from food miles upon the planet but what appears to be so affordable at the till comes with other hidden bills to the consumer and taxpayer. The congestion associated with food transport costs us £5 billion[95] annually; removing diffuse pollution from water systems caused by intensive agriculture adds £250 million a year to our water bills; and the cost to the council tax payer of the disposal of packaging waste rises inexorably.

[94] Defra (2007) Agriculture in the United Kingdom 2006
[95] *The Validity of food miles as an Indicator of Sustainable Development* (2005) Defra

Seeking to internalise these costs is clearly a complex business. Producer responsibility is beginning to take some of the burden, through the packaging regulations of the EU, but it is only a partial answer. The Water Framework Directive will start the clean-up of the worst of agricultural pollution. Modern logistics are going some way to reducing wasted journeys and therefore cutting congestion. Even so, our rejection of seasonal variations, our demand for instant, universal, and comprehensive availability, and our failure to exact a carbon price from transport mean that modern food production and distribution is fundamentally flawed.

We must get the economics right. By not pricing properly, we have allowed the market to be skewed, so it is cheaper to carry food all over the country and all over the globe than to produce it at home, locally. The everyday price of ignoring the seasons in a British supermarket, of drinking Evian water in Shanghai is simply not reflective of the real cost. We pretend we have a market economy but we are not charging the consumer a market price.

That is why creating a sustainable, low carbon food chain is an essential economic reform. It plays a key part in achieving climate change objectives, reducing carbon emissions, and reducing environmental impact. It does so by market means. At the same time, by giving a true value to shortened supply chains, we will also make it easier to ensure economic sustainability for the UK farming community, especially those farmers who farm using the most sustainable, low-carbon methods.

It happens that this economic imperative is paralleled by a growing desire among consumers to reconnect with their locality, not least when it comes to food. That desire is strengthened as people become aware of the environmental imperative. Our current food system, from production through to consumption, has an enormous impact on our environment, and is a significant contributor to global climate change. The food industry is responsible for 14% of commercial energy consumption in the UK, 7 million tonnes of carbon emissions a year, 10% of industrial water use, 10% of the industrial waste stream, and 25% of road freight[96]. Food consumption and production contributes to a third of our ecological footprint[97], representing one of the most significant ways in which our current lifestyles have an impact on natural resources.

It is here that we have to beware of too simplistic a concept of 'food miles'. It has become an attractive shorthand and Defra has even calculated that the social, environmental and economic costs of food transport are over £9 billion a year[98]. However, the phrase 'food miles' can often result in an over-simplification of what is a complicated issue because it can disguise the impact of the consumer's carbon emissions when travelling to shop. In fact, if we are not to distort our judgements we need a full life cycle analysis of food products to take account of the many variables involved in the production and distribution. Nor can the raw carbon figures be properly used without weighing social issues in the balance particularly when looking at food produced in less developed countries such as Kenya and Ethiopia. The key is to know and not to hide the facts. To choose a higher carbon cost for good social reasons may well be entirely justified but the cost of that choice must also be recognised.

4.11.8. Supporting global development goals

Advocating the shortening of food supply chains and more sourcing of local and UK produced food does raise the question of imports. In particular, it highlights the impact on development goals in developing countries.

[96] Food Industry Sustainability Strategy, Defra.
[97] Work on 'One Planet Living' by WWF, see www.wwf.org.uk
[98] Defra:*The Validity of food miles as an Indicator of Sustainable Development* (2005)

There will, of course, always be trade between countries in those goods that cannot be produced locally – e.g. coffee, cocoa, exotic fruits. However, trade in goods that *can* be produced locally will inevitably be affected by changes that are themselves products, not of direct public intervention but of the effects of global resource use . Current trade in some foods fundamentally relies, for instance, on the abundance of cheap oil – a luxury that few would want to count on in the years ahead. Concerns are also rising about global food production capacity. According to the UN, a combination of drought, deforestation, industrial agriculture and climatic volatility is responsible for the loss of 250 million acres of fertile soil each year, undermining the food security of 1.2 *billion* people in 110 countries. The Intergovernmental Panel on Climate Change has estimated that if just one-sixth of the West Antarctic ice sheet melts, the resulting one metre sea level rise will cause 30 percent of the World's total cropland to be swamped. In addition, depletion of water reserves accompanied by the impact of global warming and desertification will intensify water shortage in many parts of the world which currently supply the first world with fresh food. This includes the Southern Mediterranean, north Africa, east Africa, South Africa, and California.

These issues are likely to lead to a shortening of supply chains anyway. It is essential therefore that, quite apart from the effects of our engaging in carbon reduction policies, we consider the impact that these market factors will have on the export economies of developing countries. That moral and political duty is the more specific because of these countries have long been encouraged by international lending agencies and the IMF to adopt agricultural models geared towards export, often at the expense of their domestic food security.

We need to develop a robust analysis of the true value to developing countries of adopting such an agricultural model . Is it the case, as Ethiopian Environment Minister, Tewolde Egziabher, believes, that the export model creates vulnerability and food insecurity? Minister Egziabher's view is echoed by Davison Budhoo, a former IMF economist, who said recently that export orientation "has led to the devastation of traditional agriculture and the emergence of hordes of landless farmers in nearly every country in which the Fund operates".

4.11.9. Improving diet and health

Our health and wellbeing are intimately connected with our diet. It is a much quoted cliché, but 'we are what we eat'. A joined-up food and farming policy must focus on the role of diet in promoting both physical and mental health.

For too long public health has been a poor relative of other funding priorities within the health economy[99], and has often disappeared off the edge in the face of overwhelming acute care needs which absorb health promotion and public health budgets. Dealing with these problems requires a stronger political will than currently displayed, and for public health and the promotion of preventative strategies to be put centre stage in health policy. The Wanless report into the future funding of the NHS in 2001 recognised this by spelling out how investment in public health would not only produce better health outcomes but would save the NHS a projected £30 billion a year by 2022[100].

Research by the Food Standards Agency in Newcastle-upon-Tyne, published in 2004, found that good quality fresh produce was consistently available only at multiple supermarkets and department stores and that people who shop at local and convenience stores, and to a lesser extent discount supermarkets, appear to be the most disadvantaged with respect to availability of food items. However, other reports have shown that fresh fruit and vegetables are cheaper in street markets than in supermarkets and are very important to the diet of the poor where street markets still exist.

[99] Lang. T., Rayner. J. (December 206) Overcoming policy cacophony on obesity: an ecological public health framework for policy makers.
[100] Wanless report

Access to healthy, fresh food at a good price should not be limited to those who can afford to travel to large supermarkets, or those who live in more affluent areas. People who need to shop locally due to mobility or transport difficulties often face limited choices in the food they buy.

Providing information that is clear, helpful and non-contradictory is an important part of enabling food access, about all aspects of food culture as well as nutrition. Improving the quality of food supplied to schools and hospitals is another priority.

Section 4.12. The Mechanisms

Some of the policies required to fulfil the vision set out in Part II go beyond the scope of a report on food alone, and are handled elsewhere in the Conservative Policy Review. The final Chapter of this Report considers the development of international and domestic climate change frameworks which can lead markets – including the food market – to price in the real cost of carbon. Likewise, effects on the least developed countries of increasing food localisation and of increasing transport costs (as well as of threats to global food production capacity from climate change) have been considered by the Globalisation and Global Poverty Policy Group.

In the following pages we consider the issues that need to be addressed and levers that are available in order to achieve our vision of a sustainable, low carbon food supply chain which delivers a vibrant food and farming sector within the UK.

- Section 4.13. The Common Agricultural Policy
- Section 4.14. Reducing the Burden of Regulation
- Section 4.15. Public Procurement
- Section 4.16. Multiple Dividends from Sustainable Food
- Section 4.17. Rebuilding the Local Food Infrastructure
- Section 4.18. Balance of Power in the Food System
- Section 4.19. Standards, Consumer Information, Labelling and Education
- Section 4.20. Food, Diet and Health

Section 4.13. Transforming the Common Agricultural Policy

An essential first step in ensuring a healthy agricultural sector in an era of climate change uncertainty and increasingly liberalised international trade, is the transformation of the Common Agricultural Policy (CAP) and its delivery within the UK.

In the post-war years, development of the Common Agricultural Policy was driven by a need to prevent the shortage of food experienced across Europe in the aftermath of war. The CAP was also the cornerstone of EU collaboration and designed to help bind the early member states together. Recognition of the need to support farmers' livelihoods and encourage co-operation led to the creation of a heavily subsidised single market for agricultural products, which today is still regarded as vital by some member states. Even when Britain was outside the Common Market, the UK's parallel agricultural subsidy system met the same needs.

However, the relationship between the farming sector and the public sector has become the subject of considerable criticism. The current system of support for farming through the CAP has been widely criticised, not least because production levels within and without the EU have meant that there is little public fear of food shortage, whilst the price of support continues to be high.

The drive to stimulate production has also had unintended environmental and social consequences, damaging landscapes, reducing wildlife populations, and diminishing our natural heritage. Individuals and communities have become disconnected from their food supply and even so, many farmers, particularly the smaller family farm, struggle to survive, despite years of this public support.

Labour's 'Vision for CAP' (December 2005) indicated that UK agriculture must be environmentally sensitive, internationally competitive, less reliant on subsidy and rewarded for the delivery of environmental goods only when the market cannot do so. However, 'Vision for the CAP', has four fundamental flaws. First, it makes only passing reference to climate change. Second, and even more crucially, it fails to recognise that the sustainability of a business depends on its being sufficiently profitable to reinvest. Third, it ignores that farmers are restricted in their ability to add value to products where they are commodity producers – not least because their costs are heavily related to the price of oil. Fourth, it does not properly reflect the need of the UK farming industry for a well founded and funded science base.

The experience, efficiency and knowledge of land managers must be preserved and better utilized if we are to cope with the uncertainties of a changing climate and the increasing pressure on the environment and natural resources. Farmers must be part of the solution for alleviating the impact of climate change.

4.13.1. Challenges and opportunities for a new Common Agricultural Policy

The agricultural industry is facing a range of new pressures which present both challenges and opportunities for enterprising farmers and land managers:

- an increasingly global market place – where the EU's agri-food sector is influenced not just by the cost of production and the uncertainties of global yields, but by the demand for food security and the expectation of environmental protection and traceability;
- climate change – both in terms of how it will effect the future of Europe, and its impact on food production in the wider world;
- increasing world population accompanied by population migration;
- environmental factors relating to soil, water, and air quality and the impact caused by modern farming practices; fear, too that farmers are still not doing enough to protect biodiversity and the landscape;

- increasingly diverse demands on the countryside to provide for increased leisure and non-farming economic activity;
- public reaction against long-distance food transport and the encouragement of local and more sustainable production, processing and sourcing;
- the emerging pressure to meet renewable energy targets – bio-diesel, bio-ethanol, bio-mass and waste to energy; and
- the development and exploitation of new technologies for non-food crops, including building materials and replacements for plastics.

The rehearsal of these demands shows why some degree of public intervention in the management of our countryside will continue to be necessary. Many areas of the economy and public life are subject to such intervention, and whilst the original rationale of the CAP may seem less relevant today, agriculture and land management will continue to require a distinctive policy framework in the future, because:

- food is so basic a human need that no government in history, however committed to the free market, has been able to avoid taking a policy stance on agriculture and food production;
- agricultural supply is dependent on increasingly fragile ecological systems and is also subject to other external influences, outside the direct control of individual farmers, that need government intervention;
- the structure of the supply chain, where primary producers are in a weak position relative to the increasingly dominant produce buyers, places policy demands on government;
- food production has a major impact on public health and the growing recognition of governmental role in preventative medicine will reinforce the connection between a good diet and sustainable and local food production;
- agriculture has a disproportionate impact on land use, preservation of the countryside and the wider environment, and animal welfare;
- agricultural production, farming methods and food processing and distribution are a very significant source of greenhouse gas emissions; and
- agricultural trade is a key concern in WTO negotiations. The United States is exceptionally protective and determinedly addicted to agricultural support which makes unilateral action by the EU ineffective not least because such support has an exceptional impact on developing countries, where small scale farmers are among the groups most at risk.

4.13.2. Objectives for a transformed CAP

The transformation of the CAP must have some clear objectives. The reformulated CAP must:

- contribute to the development of a sustainable, low carbon food system, capable of delivering food security and promoting public access to safe and nutritious food.;
- respect the nature and limits of natural resources, combat climate change and be a net contributor to the environment, as an integral part of rural economic development;
- preserve the diverse British countryside and rural environment, whilst facilitating viable livelihoods for the people who continue to live and work in the countryside;
- deliver desirable public (environmental) goods and support for rural communities and their knowledge and skills, essential for land management and sustainable agriculture.;
- nurture local food economies, where fresh food is produced closer to the point of consumption and facilitate the production of quality food for the entire population;
- promote high standards of animal health and welfare, so that consumers can rely on high standards and British farmers are not undercut by those who do not meet those standards;
- limit the impact of EU agriculture on third parties, including the risk of exporting environmental damage to other regions where ecosystems are more fragile than the EU; and

- ensure the proper policing of UK borders, and introduce tougher enforcement of biosecurity measures, seeking similarly tougher biosecurity measures around the EU borders.

Regulation will play a part in achieving these objectives. However, achieving a fully effective balance depends on working with the rapidly developing market for local, fresh, high-quality and organic food, and combining the wholehearted commitment of the agri-food sector with a light touch from regulators. The forthcoming round of EU budget negotiations should be used to build on the CAP reforms of 2000, and to prepare for the next phase. The primary objective should be the decoupling of subsidies from production throughout the EU. This should ensure the integration of farm support with wider rural development objectives including the enhancement of the environment and combating climate change.

4.13.3. Delivery of a transformed CAP

Our starting-point for reform of the CAP is the need for a profitable farming sector free from production subsidy. The level of subsidy that has supported farming for several generations is no longer sustainable. Commercial farming must stand on its own feet and respond to the needs of the market. However, that also means that the Community must accept that, to be competitive, farmers cannot look to the market to compensate them for providing the environmental services and public goods that we increasingly expect them to provide. It must be public policy to pay for the services that the public demands and that the free market will not otherwise provide.

Policy interventions under the CAP are justified only when the market will not otherwise meet these aims and should comply with the following principles:

- Public funding should be provided only to reward the provision of public goods.
- The CAP should be administered in such a way that bureaucracy is reduced to a minimum and the temptation of gold plating is resolutely resisted.
- Public goods should be rewarded at best value to the taxpayer, but must take into account the importance of maintaining improvements in public goods already secured, and reality of agricultural systems that are technically, ecologically, and socially complex.
- Wherever possible, funds must be treated as investment to reduce the need for such payments in future, although the continued management of land for ecological purposes will often imply continuing funding.
- Intervention must not lead to the international dumping of agricultural produce.

The emphasis of the old CAP was to provide funding for farmers through mechanisms such as export subsidies, production subsidies, and investment grants. This has changed as a result of recent reforms but elements of funding remain that fit this category. All are straightforward farm payments to compensate for inadequate farm revenues (termed Pillar 1 in the jargon). The switch of funding from Pillar 1 to the new agri-environment payments (called Pillar 2) must continue with a progressive reduction in Pillar 1 payments.

It is important that this shift should take place in an equal manner across the EU or we shall destroy the level playing field upon which a free market depends, enabling some farmers to undercut their neighbours to the destruction of the common market.

In the UK, the new agri-environment payments (Pillar 2) are being cut and desirable policy objectives undermined by problems with the Single Farm Payment (part of Pillar 1). The House of Commons Select Committee has laid this squarely at the door of recent Ministers and senior civil servants. Indeed, it demanded their resignation as a result. Instead, the budgets for the agencies charged with delivering the environment payments are being cut to pay for the cost of the Rural Payments Agency fiasco. Conservatives should make a commitment to maximise the transfer of funds from Pillar 1 to

the new agri-environment payments in Pillar 2 and also ensure safeguards and auditing are in place to ensure that these funds are used for the purpose for which they were intended.

4.13.4. The new CAP model

The goal of further CAP reform is to shift the CAP across Europe from production-related subsidies (Pillar 1) to a system of paying farmers for the public goods and services they provide (Pillar 2).

With the pressure to reduce the CAP budget, we would anticipate part of the budget being allocated to compensating farmers for a wide range of environmental services – for example, managing water meadows in such a way as to reduce the speed of surface water. Another example might be livestock farmers in remote areas, who should receive direct payments for keeping the hills farmed and also to maintain productive farm animals in these harsh, remote but vital areas where the scenery depends on the grazing of livestock.

The remaining part of the budget would be directed to a range of initiatives designed to stimulate development of sustainable food production systems, and the rebuilding of domestic food infrastructures across Europe. In the UK, this could take the form of investments via the Sustainable Food Trust. This part of the budget would fall over an agreed period of time, as the need for continued investment declines.

This refocusing of priorities within the CAP would therefore include a commitment to maintain the total level of spending and investment at current levels through the transformation stage. Within a system which has phased out all production support in all 27 countries of the EU and thus guarantees a level playing field, we should provide for substantial national and regional autonomy over the mechanisms for spending and investment, to take account of specific local and national requirements. That would, however not serve as an excuse for future UK Governments to disadvantage their citizens by refusing to fund the public goods which the market cannot provide.

Section 4.14. Reducing the Burden of Regulation

The present Government's policies have added considerably to the constraints, red tape, and bureaucracy that prevent land managers and farmers from doing their job. Partly as a result, the relationship between the public sector and the rural population has been allowed to become very strained. Defra's inflexible approach and inadequate communication with farmers and land managers has meant that the current system of environmental support has fallen into disrepute. This situation is exacerbated when regulations introduced by different government departments, agencies or sections contradict each other.

CAP transformation will have its full potential, positive impact on the UK rural economy only if it is preceded by fundamental reform of national policy delivery procedures. The current system is inflexible, process-driven, excessively complex, often impractical and very expensive to run. It entails a mass of inspectors and civil servants who are no longer seen as providing help and advice but as interfering and controlling often from a position of ignorance. The huge payment delays have been the focus for a dissatisfaction that runs much deeper. Conservatives will need to replace Defra's 'bully culture' with a 'can-do' approach, based on empowerment and collaboration.

The delivery system created by Labour needs fundamental reform, including a reduction in the number of unaccountable bodies telling farmers how to run their business. The new system must be designed to motivate farmers and land managers to make better decisions and create the kind of co-operation that alone will enable farmers to provide the public goods and play their part in combating climate change. Policy should be based on principles of trust between the public and private sector. Farmers need to have greater confidence in those who create the policies, if they are to deliver the outcomes that society rightly requests: better soil management, water harvesting, energy production, protection of bio-diversity, and an enhanced landscape. The policing of farmers in relation to the spending of public money must involve an appropriate level of inspection, more in tune with the reality of rural life.

There are, many practical ways in which the current mechanisms for enforcement could be made more user-friendly and less expensive. A future Conservative government should take on board the recommendations from the Deregulation Working Group of the Economic Competitiveness Policy Group, and institute a full review of regulatory burdens so that, together with representatives from farmer organisations, it can reconsider all current agricultural regulations and make them less onerous, more realistic, and better attuned to the circumstances in which they are implemented.

Trust is fundamental to the implementation of this policy. It must be assumed that farmers will do what they agree to do. Those that break the rules must be heavily penalised, with fines, public shaming and legal sanctions. A model for this could be the current system of self-assessment that is used for taxation – taxpayers who mislead HM Customs and Excise are heavily penalised. Farmers must be similarly treated, trusted to do what they have committed themselves to do, and penalised if they do not. However, if the spirit is one of confidence, co-operation, and empowerment, peer pressure and local expectation will deal with a very high proportion of the problems before they get to the stage of retribution. Where clear transgressions do occur there should be no question of anything but the most stringent penalties. In arguing the case for trust we are not unmindful of the few exceptions whose activities can be thoroughly deplorable and should be treated as such. The new system must focus on outcomes, rather than complex processes and assume the best of our hard-working farmers instead of expecting the worst. We must trust farmers to be better land managers than civil servants however well-meaning.

With these concerns in mind, more consideration should be given to the following options:

- **Competitive Funding.** We should focus funding on outcomes not expectations, in a more flexible framework with clear objectives that are designed to be understood and implemented

by farmers, with less government and agency supervision. This could include the concept of competitive tendering for limited funds, so that the best devised schemes are funded and the selection made by local peer groups not remote officials. Allocation of funds should be based on a business case in order to justify public investment.

- **Self-Regulation.** We should base as many environmental payments as possible on existing farm assurance and management evaluation schemes. Members of schemes run by accredited organisations would qualify for payment for delivery of agreed outcomes. Schemes like LEAF are already in place and these could provide self-regulation, as organic standards already do. With standards imposed by appropriate existing bodies, Defra and its agencies could outsource a good deal of inspection and regulation. It offers real incentives – payments for environmental outputs, status as an approved farm, and less regulatory intervention. Such schemes could also co-operate with government in providing mechanisms for meeting new environmental requirements.
- **Self-Management.** A specific extension of this principle might be applied to the management of watersheds under the Water Framework Directive. An incoming Conservative government should insist that the Environment Agency cease directly to control watersheds. Instead the EA should fund farmers' groupings to employ the watershed manager. The grouping could then work with other stakeholders to meet the environmental requirements set by the Directive. The EA would then be called in only where standards were not being met or it could give expert advice. This pattern of combining voluntary effort with some financial support is much more likely to get the support of the community than present bureaucratic methods.
- Farmers and landowners organisations should be encouraged to work with government to find other opportunities for outsourcing the environmental schemes and climate change programmes so that they become co-operative endeavours in which farmers take ownership of the aims as well as the funding. This should form part of a clear commitment to reduce the pervasive impact of state intervention in agriculture.

A shift in approach along these lines would raise standards, farm efficiency and would go some way towards rebuilding trust between the regulators and the regulated. The regulatory burden currently placed on farmers would dramatically lessen. In return adherence to high standards would be expected. Where that trust is abused, the farmer would be subject to heavy regulation again, and loss of Assurance Status, which might in turn lead to loss of contracts with the retailers.

This approach would, of course, not be ultimately sustainable unless informed by high quality research and development. The constant cuts in the agricultural research budgets have left the UK at a considerable competitive disadvantage and our demand for a more sustainable agriculture will require more, not less, input from the scientists. The low carbon economy requires a significant input from our centres of agricultural and food research which still have an enviable reputation round the world. We therefore propose that a future Conservative government should review our research budget in this area with a view to making it sufficient for the UK to maintain its competitive edge and provide the tools for a sustainable agriculture.

In particular we propose a commitment to long term investment in plant biology where Britain has considerable, world-leading, expertise but is losing out because we have not the resources being devoted elsewhere. As the ability to use plants to provide renewable raw materials is likely to be the key to a low carbon future this is a serious failure. Being able to grow locally in salt and water-stressed parts of the world will be vital if we are to feed our growing population. Britain's environmental leadership must include creating the technology that makes low carbon agriculture possible. We have the intellectual ability and the institutional structure to make this contribution. We need a committed fund over a secure period of at least a decade to deliver and we therefore propose that an incoming Conservative government should provide that dedicated resource of £20 million a year for the competitive funding of research into plant biology.

Section 4.15. Public Procurement

> 'If we are what we eat, then public sector food purchasers help shape the lives of millions of people. In hospitals, schools, prisons, and canteens around the country, good food helps maintain good health, promote healing rates and improve concentration and behaviour. But sustainable food procurement isn't just about better nutrition. It's about where the food comes from, how it's produced and transported, and where it ends up. It's about food quality, safety and choice. Most of all, it's about defining best value in its broadest sense'
>
> *Unlocking Opportunities: Lifting the Lid on Public Sector Food Procurement (2003) Defra*

Public procurement is recognised as a powerful tool for achieving real sustainability within the food supply chain. It can provide a secure and valuable local market for farmers and small producers, bringing a much-needed boost to the rural economy. It can play a vital role in providing nutritious food to some of the most vulnerable members of society – whether children, through the school meal service, patients in hospitals, or the elderly in care homes. It can help developing countries through the sourcing of fair trade products.

Harnessing the food purchasing power of the public sector, valued at £1.8 billion a year[101], not only achieves a range of policy objectives, but can demonstrate real willingness by government to lead by example. This in turn can encourage the private sector similarly to deliver sustainable food – in staff canteens, in retail outlets, and within the catering sector.

Every year the NHS procures over 300 million meals to the value of £500 million:
250,000 litres of orange juice
12.3 million loaves of bread
62 million litres of milk
1.3 million chicken legs
Healthy and Sustainable food for London (2006): London Development Agency

Figure 4.3. Annual spend on food by the public sector and estimated total spend

Sector	Annual spend on food	Annual spend on catering overall
Schools	£600 million (estimate)	£1,000 million
NHS	£300 million	£500 million
Armed Forces	£135 million	£225 million (estimate)
Prison Service	£43 million	£94 million
Total	£1,078 million	£1,819 million
Estimated total public sector	£2.2 billion*	£3.5 billion

*£1.8billion is the value of public sector food quoted by Defra in the PSFPI, which was sourced from an independent study conducted in 1998. The National Audit Office extrapolated this to £2 billion in 2005, and more detailed figures, scaling up a national estimate from a regional study, estimated the total at £2.2 billion in 2005[102]

[101] There are various figures valuing the potential of public food procurement, £1.8billion is the most often quoted (from Defra – PSFPI (2002) Sourced from an independent study conducted in 1998

[102] Rimmer, M. (2005) *Public Sector Catering in Berkshire, Buckinghamshire & Oxfordshire: the potential for sustainable food.* Oxford Brookes University Business School

EU Competition Law

This is often perceived as a barrier to local procurement as specifying local or UK food is regarded as a barrier to trade. Actually, this is the lazy man's excuse. Within existing rules, it should be possible to encourage local food by specifying: freshness, seasonality and frequency of delivery; foods produced using recognised methods of production and processing e.g. organic products and other appropriate standards for farm assurance, including environmental standards; nutritional levels such as levels of fat, salt or protein; and

Although the current Government has recognised the potential for public procurement to achieve a variety of policy objectives and has developed a Sustainable Procurement Task Force National Action Plan, real results are slow. Food was one of the first procurement areas to receive attention through the establishment of the Public Sector Food Procurement Initiative (PSFPI) in 2003, and by recognition of the role it can play in delivering the Sustainable Food and Farming Strategy. However, a lack of tangible targets, a fragmented and under-resourced delivery approach, and institutional reluctance and incapacity to change ingrained practice, have made progress negligible. One observer has characterised examples of good sustainable food procurement as 'islands of best practice in a sea of mediocrity'[103]. Acquiring an accurate picture of progress is difficult, as there is very little monitoring or means of measuring of success; but recent figures show that only an estimated 2% of Government-procured food is currently sourced locally[104]. Only 2% of poultry and 3% of lamb used in the armed forces is sourced within the UK, while all gammon and bacon products are imported [105].

An enormous opportunity to achieve a range of public benefits is not being realized, and a renewed effort to increase actively the amount of seasonal, local and fairly traded produce used in the public sector can only reap dividends for sustainability. The creation of local partnerships can ensure that the supplier meets the standards required as part of a contract that is entirely conforming to EU rules.

[103] *Re-localising the Food Chain: the Role of Creative Public Procurement* (2002): Morgan, and Morley.
[104] NFU Public Procurement Strategy 2006
[105] Parliamentary Questions, Hansard 1st Feb 2007; 15th Jan 2007.

Figure 4.4. Complexity of public sector catering provision within three neighbouring counties: Buckinghamshire, Berkshire and Oxfordshire[106]

Schools	• Oxfordshire catering managed by County Facilities Management, a direct service organisation. A small number of Oxfordshire schools have opted out and operate an individual school catering service. • Berkshire: each Unitary Authority has a separate agreement with contractors (different contractors for each authority) • Buckinghamshire: each school is free to make its own contract arrangements.
Higher Education	• Oxford University and University of Reading directly operate their own catering services • Oxford Brookes University catering services are contracted out to Scolarest
Hospitals	• Catering has both directly operated and contracted out provision. For example, in Oxfordshire the largest trust is contracted out to Medirest, but another large trust directly operates its own catering services. Overall, just less than half of provision has been placed with contract caterers.
Prisons	• Currently catering services at one of the counties' six prisons are contracted out, the rest are operated directly.
Ministry of Defence	• Operated 'in house' within the three counties considered, but in other areas of the country there have been high profile Private Finance Initiatives with contractors. The MOD also has a sole supply agreement with 3663.

[106] Rimmington, R. (2005) *Public Sector Catering in Berkshire, Buckinghamshire & Oxfordshire: the potential for sustainable food.* Oxford Brookes University Business School

Section 4.16. Multiple Dividends from Sustainable Food

The opportunities presented by the £1.8 billion worth of business delivered by public food procurement are so numerous that they have been referred to by one commentator as 'the multiple dividend'[107]. In addition to fulfilling the immediate responsibility of feeding clients and staff members, public sector food procurement can contribute to:

A greener food chain:

- reduction of carbon emissions;
- reduction in food miles;
- reduced traffic congestion from food-related freight;
- improved water usage;
- less waste;
- less use of pesticides; and
- improved bio-diversity.

> Northumberland County Council undertook an exercise which showed that if they were to increase their food budget expended locally by 10%, it would result in an increase of £34m for the local economy and result in £9.5m annual efficiency gain.
>
> *Public Spending for Public Benefit (2005) New Economics Foundation*

A prosperous economy:

- supporting farmers and the rural economy;
- delivering a fairer price to suppliers;
- supporting small and medium enterprises;
- supporting the local food infrastructure;
- local economic development/regeneration; and
- providing outlets alternative to the supermarkets for the major food producers (eg public procurement).

Public Health:

- raising nutritional standards in all public sector food;
- improving health outcomes for patients in NHS;
- delivering improved school meals;
- achieve reduction in childhood obesity targets;
- providing opportunities for learning and raising awareness about food and health and re-introducing cooking into the curriculum; and
- reduction in all diet related health e.g. coronary heart disease, cancer, diabetes etc.

Development Goals:

- Fair trade purchases will ensure a fairer price for suppliers from developing countries.

By not acknowledging both the upstream-downstream effects of smarter public sector food procurement, we diminish the importance of food and by not choosing to prioritise sustainability objectives we paying many times over for the impact of poor food choices.

[107] *Re-localising the Food Chain: the Role of Creative Public Procurement* (2002): Morgan, and Morley.

4.16.1. Costs and benefits

Sustainable food need not cost more: case studies

Local meat sourcing: Four primary schools in Braintree, Essex, worked together with East Anglia Food Link to contract local meat producers. The schools have seen reduced unit costs and achieved an improvement in nutritional quality.

Fair Trade: The Defence Catering Group selected a fairtrade option when looking for a supplier of 100g jars of coffee, saving £15,500 a year on the previous supplier.

Reduced packaging: The Navy worked with its supplier, 3663, to reassess and reduce packaging, resulting in savings of £15,000. This has also resulted in reduced waste.

From Smarter Food Procurement in the Public Sector (2006) National Audit Office

The automatic assumption is that sustainable food will inevitably cost more. However, it does not have to – immediate savings can sometimes be made. Lambeth Council, by separating its school meals catering from its wider services contract, raised the nutritional quality of the meals, enabling more fresh food to be served. The take-up of meals increased, allowing the extra revenue to be spent on better quality ingredients, while the overall budget/cost to the LEA remained the same. Through the Cornwall Food Programme, the Royal Cornwall Hospital Trusts are sourcing 83% of their food from suppliers based in Cornwall – before 60% of the budget was spent outside Cornwall. Overall the programme has cut annual food miles by 67%. Previously food was travelling 164,042 miles to reach patients, by switching to local suppliers that has been reduced to 53,596 miles. National surveys show 37% of patients leave hospital meals because they look, smell or taste unappealing. In contrast, 92% of patients served through the Cornwall project describe the food on offer as 'very good' or 'excellent'. Consumption of fish-cakes, previously made from frozen, compressed fish trucked from Grimsby (described by one patient as 'hard and tasty as a hockey ball') has risen dramatically since switching to locally-caught fresh fish and local potatoes. Actual fish content also increased from 30% to 40%. All of this and more has been achieved without increasing costs overall, keeping within the Royal Cornwall Hospital's budget of £2.50 per day – showing local, fresh and organic meals could be served up by the NHS UK-wide. ("A Fresh Approach to Hospital Food – The Cornwall Food Programme pioneering tasty, healthier and more environmentally friendly hospital meals", The Soil Association, 2007).

There are, in fact, reasons for supposing that public procurement food costs can frequently be reduced by purchasing directly from farmer co-operatives. The NFU estimates that currently UK producers only have a 2% share of the public food procurement market[108]. These UK producers do not have market power comparable to that of public purchasers. Where modern internet-based techniques and co-operative arrangements are used – as in the above box – direct purchase can cut out wholesaling costs and reduce overall purchase prices for the public sector.

Accordingly, if direct purchase were use of more extensively this could contribute towards fulfilling the NAO's assessment of the large potential savings from reduced pricing in public food procurement – and could also help to increase take-up of meals in schools and colleges which (as the NAO point out) could produce substantial economies.

[108] NFU Public Procurement Strategy 2006

Figure 4.5. Estimated cost savings possible through increased efficiencies and reduced environmental impacts in public sector procurement

Assessment of potential savings[109]	Other public sector catering	Schools and local authorities
Reduced prices for the same or better quality food products	£40 million	
Improved transparency and oversight of contract caterers' charges	£30 million	
Aggregating demand to reduce procurement costs and increase purchasing power	£1.8 million	
Total	£80 million by 2010-11	
Improving catering capability and professionalism	£40 million by 2007-08	
Increased take-up of meals		Additional £33 million
Reducing environmental impacts and costs, e.g. energy and water efficiency		Just under £1 million by 2007-08
Total	£224 million by 2010-11	

4.16.2. Benefits to UK farmers of local food procurement

As noted elsewhere in this Report, the NFU estimates that currently UK producers only have a 2% share of the public food procurement market.[110] While farming subsidies from the Common Agriculture Policy fall in the coming years, developing this market and ensuring that a healthier share goes direct to the farming community is vital.

The NHS in England and Wales purchased over 53,000 tonnes of food in 2001. 16,000 tonnes of this was made up of five primary products which can all be sourced direct from farmers in the UK (milk, eggs, potatoes, fresh fruit, and fresh vegetables)[111]. Scaling up this figure for the whole public sector gives an estimate of 116,000 tonnes a year for these five products, which represents £23.84 million a year that could go to UK farmers from selling these commodities direct to the public sector, based on farm gate prices. Even so, this figure of £23.84 million is only 1.1% of the £2.2 billion total spend.

This potential gain to the farming community does not take into account the potential of adding value through processing and preparing (i.e. cleaning and cutting carrots and potatoes etc) which could bring additional revenue directly back to the farming community. A recent Sustain project estimated that if 20% of the food spent in London's 69 hospital trusts was spent on local and/or organic food (the project's target for 2013), this would represent an additional value of over £3 million per year for local farming and food businesses in the South East[112].

A market for cheaper cuts of meat

Tastes of Bedfordshire Meat Co-operative, set up by online farmers market Big Barn in 2005, has 4 farms supplying meat to 11 local schools. Previously schools were paying over £4 a kilo for freeze flow mince from Holland. The farms in the co-operative supply mince to the schools at £3.80 a kilo, selling a good quantity at a reasonable price. Before setting up the cooperative it was difficult for the farmers to find a market for the cheaper cuts of mince, once the prime cuts were sold. This often meant selling at below-cost price. Now the partnership has provided a new and secure market for the farmers, and the schools are paying less for a better, local product. Children now complain when there aren't Bedfordshire beef burgers on the menu!

Conversation with Anthony, Big Barn

[109] Figures from *Smarter Food Procurement in the Public Sector* (NAO, 2006).
[110] NFU Public Procurement strategy 2006
[111] *Material Health: Mass Balance Ecological Footprint of the NHS* (2004) Biffaward http://www.biffaward.org/downloads/projectfiles/1635a-00299.pdf
[112] *Getting more sustainable food into London's hospitals Can it be done? And is it worth it? An interim report* (2005) Sustain. http://www.sustainweb.org/pdf/hfp_lowres.pdf

4.16.3. Public Procurement and Public Health

Public sector procurement is providing over 1,000,000 meals every year, not including meal provision for staff and visitors. This represents an enormous opportunity to provide nutritious food to some of the most disadvantaged people in society.

St Luke's School, a secondary school in a deprived part of Portsmouth, has been focusing on healthy eating as part of a holistic approach to its educational role. School meals catering was taken back in house and standards were raised and healthy food without additives was sourced.
Mark Pearce, the school's Bursar said "Five years ago we were seen as a failing school and we were nearly shut down. Only four percent of students were gaining five A-C passes at GCSE. Now it's 45 per cent. It has been a process of rapid improvement."
http://www.schoolfoodtrust.org.uk/stacker_detail.asp?ContentId=284

Many children from low-income families will rely on school meals as their main source of nutrition on a daily basis. Four out of ten older people are malnourished when they are admitted to hospital, and six out of ten will get worse during their stay[113]. The NHS employs over a million members of staff, 45% of whom are earning less than £15,000 a year, putting them at risk of poor nutrition. Ensuring that food consumed in these settings is providing the best possible nutritional benefit to those most at risk of the effects of a poor diet, is a social duty, and a waste of public money if not addressed.

Although there has been much attention given to the standards of school meals, and improvements introduced, over the last few years, the spotlight must also be shone on the current low standards in other public sector settings – the NHS, the Prison Service, nurseries, care homes, meals on wheels. Improved nutritional standards should be applied to all food served, in public settings, and where subsidies support affordable meals in canteens or community cafes for those least able to access good food, they should be directed only to the healthy options.

In addition to the impact of diet on our physical health, there is a growing body of research demonstrating its impact on mental health and wellbeing, linking the way a person feels and acts to the food they are consuming. Research has shown that people deficient in certain nutrients have a higher risk of developing schizophrenia, ADHD, depression and dementia. As numbers of people suffering from mental health problems increase, the problem is costing society £100 billion a year.[114] However, despite this evidence, the benefit of good nutrition in both preventing and helping treat problems is not recognised in current mental health policy.

Anecdotal evidence and research by the University of Hull in schools shows that when improvements are made to school meals, behaviour improves. Research undertaken in prisons has shown that improved nutrition can reduce the incidence of violent and anti-social behaviour by up to a third. In a society struggling to cope with the wide-ranging impacts of anti-social behaviour – including over-crowding in our prisons, shootings on the streets, disruption in schools – would do well to look at the

Crime and Diet
Research has shown the importance of introducing good nutrition into the diets of offenders, and those at risk of offending/anti-social behaviour. A project undertaken at HMYOI Aylesbury showed that behavioural incidents reduced by one third among prisoners when given nutritional supplements. Although this evidence has been recognised by the WHO, and the Dutch Government, it has yet to be recognised by the UK Home Office. The Dutch Ministry of Justice has estimated that addressing nutritional deficiencies is potentially so cost effective that it would allow them to improve services while achieving an estimated 18% cost saving. The Economist (29 June 2002) estimated that taking this approach in the UK would cost 0.2% of the money currently spent on custody.
Evidence from Bernard Gesch & Natural Justice, March 2007

[113] *Hungry to be Heard* (2006) Age Concern
[114] *The Economic and Social costs of Mental Illness* (2003) The Sainsbury Centre for Mental Health

role nutrition and diet can play in helping address these problems through improvements in public sector food standards across the board.

There is too a moral issue here. Parents know from their own experience how important their children's diets can be. How can a civilised society defend dealing with its most vulnerable members in a way which it would scorn were it dealing individually with its own children?

4.16.4. Understanding sustainable food

The PSFPI has defined sustainability in food and farming as systems of production, processing, marketing, distribution, and catering which meet the following aims:

- raise production and process standards;
- increase tenders from small and local producers;
- increase consumption of healthy and nutritious food;
- reduce adverse environmental impacts of production and supply; and
- increase capacity of small and local suppliers to meet demand.

For procurement officers used to procuring simply on the basis of best economic value – in other words, the cheapest – understanding the term 'sustainability' can be confusing. Even for those who think they understand the concept, it can still be difficult to recognise what is truly sustainable and what is not. We should develop effective sustainability training programmes for public procurement to help those involved in making these choices

Section 4.17. Re-building the Local Food Infrastructure

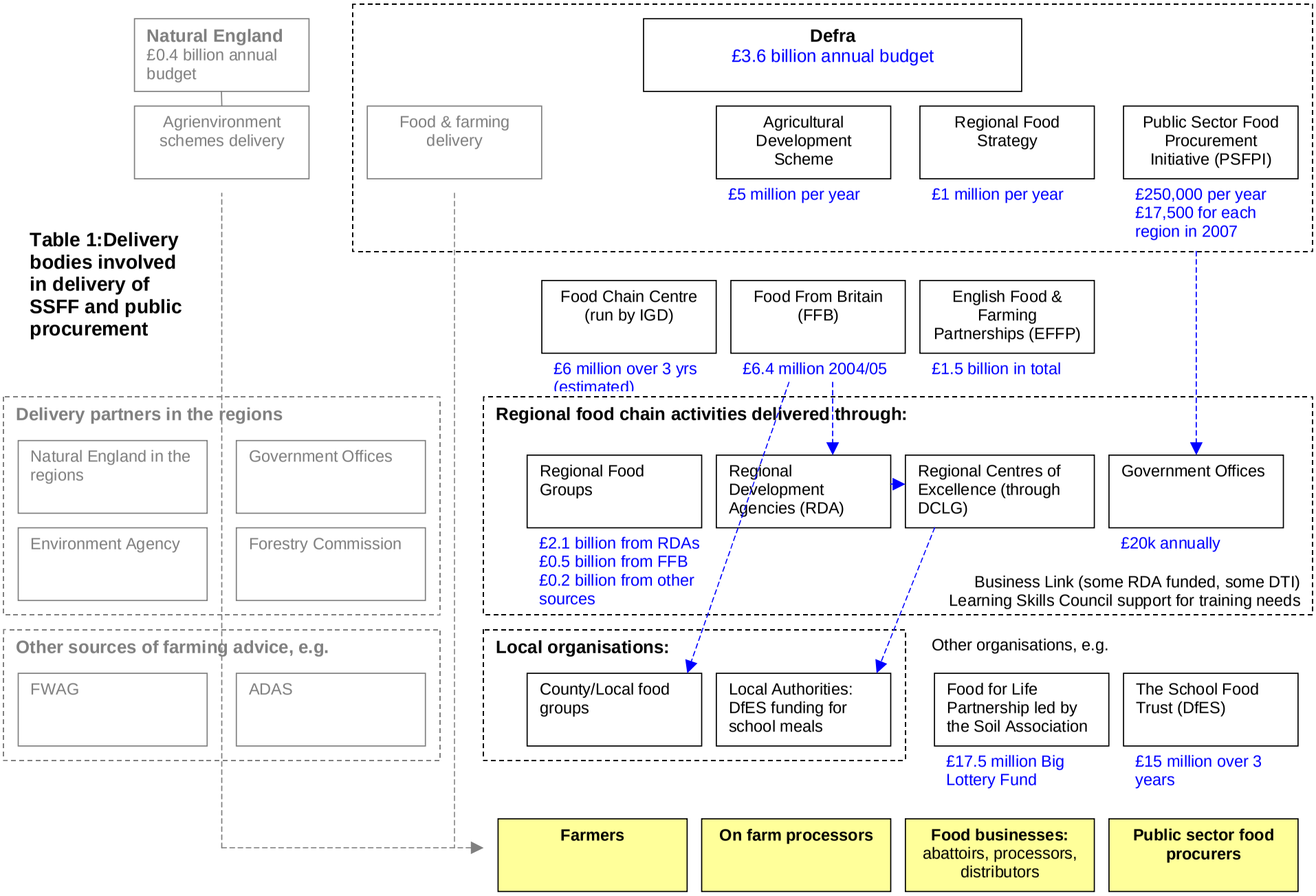
Pushing up demand for local and sustainable food requires attention to be focused on building up the supply side. Although there is a huge interest in revitalising local food systems in the aftermath of recent food and farming crises and local food activity is thriving, currently it is restricted to the margins of the supply chain, and regarded as a niche market, with much variation from region to region. The infrastructure for local food that once may have existed has all but disappeared with the advent of the centralised supermarket distribution and supply systems. Abattoirs have shut down, wholesalers have gone or are teetering on the edge of extinction, processors and small independent food shops such as butchers, greengrocers, village shops, and convenience stores are on the decline. A thriving local food economy depends on all the different 'rungs of the ladder' being present. Without this infrastructure a renaissance of local supply chains can only be an aspiration and fulfilling sustainable public procurement objectives will be difficult. Measures need to be in place to strengthen what remains of the existing infrastructure and encourage novel solutions, such as food distribution hubs.

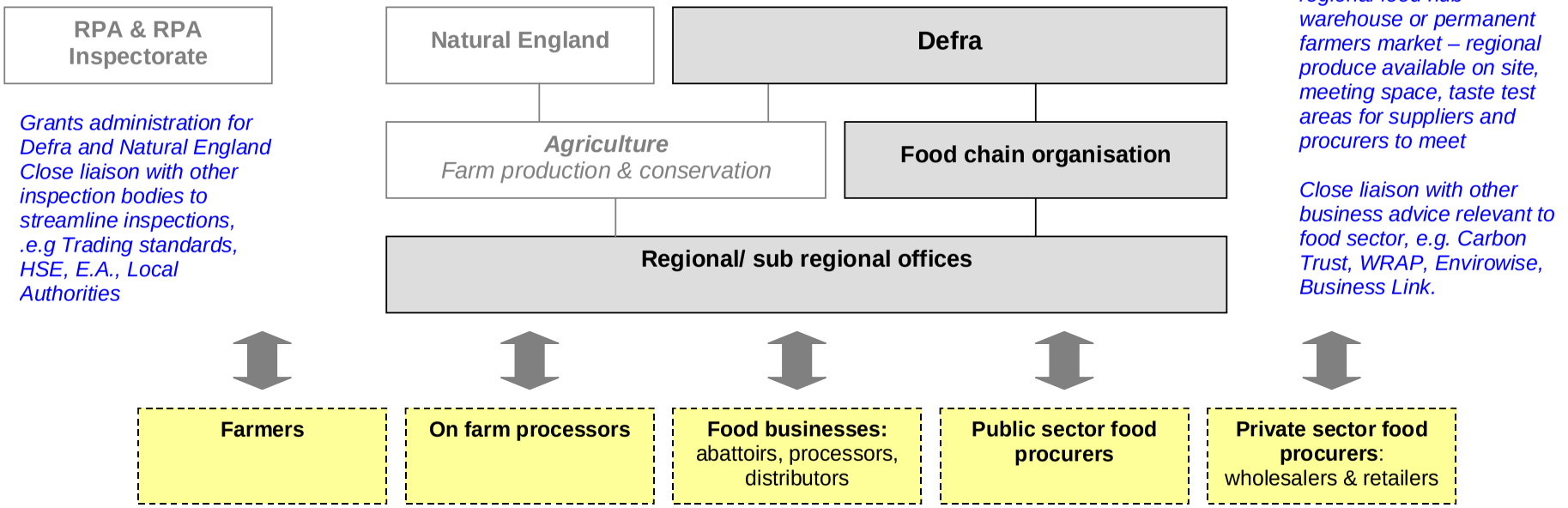
4.17.1. Delivery of Sustainable food and farming post Curry

The delivery bodies for the current Government's Strategy for Sustainable Food and Farming (Table 1) fulfil a variety of diverse functions, and often work in isolation, disconnected from key strategic partners. Too many organisations are playing a bit part in delivery, from the Regional Development Agencies and the Regional Government Offices to the Regional Food Groups and the Food Chain Initiative. This fragmentation and lack of a joined-up approach is hindering development in sustainable food procurement in both the private and public sectors. Inevitably we suffer from the varying levels of understanding and expertise in different organisations and it is far from clear where to go for advice. Even Defra's website with its case studies is of limited use. Clearly an easily accessible, one-stop shop that brought together all the elements of the local supply chain would help facilitate an increase in sustainable procurement.

For the sake of clarity we have shown how the present structure could be simplified even if all the present players remained in business. Elsewhere, we are proposing a much larger reorganisation of government which would have the effect of further simplifying Table 2.

Table 1:Delivery bodies involved in delivery of SSFF and public procurement





Food chain organisation areas of activity

Food chain advice	Advice for farmers on direct supply, access to local markets Contact management and relationship brokering for food chain businesses Organising 'meet the buyer' events
Financial Services (profit making)	Rural Development Bank: loans Small business hubs/start ups Incubators Mentoring & partnerships
Promotion	Administering local/regional food labelling schemes Consumer awareness Activities outside of region e.g. Promoting regional food to wider audience
Capacity building to support the regional food chain — **Education & training orgs. Skills councils. Research bodies**	Encouraging skills sharing and training, e.g. apprenticeships support Directing/supporting regional research to ensure it meets the needs of the regional food chain Transferring best practice within the organisation and to other regions

Table 2: Model for streamlined food chain delivery and advice organisation

A one-stop shop for farms & food chain organisations to improve access to local food markets

4.17.2. A one-stop food supply chain service

We propose a new model that streamlines and brings together the various delivery bodies (see Table 2). There would be a one-stop shop for farms and food organisations in order to improve access to local food markets. This would bring together the needs of customers and producers, improving understanding and communication, and thereby ensuring more efficient delivery. Although operating out of Defra at a national level, the new service would be sited at regional, and even sub-regional levels, as appropriate. The Supply Chain Service would be accountable through Defra. It is not proposed that this new service should add to the cost of the current structure but that it would use resources more efficiently, reducing the confusion and the overlap.

4.17.3. The Sustainable Food Trust

Part of the restructuring should be the founding of a Sustainable Food Trust (SFT) based on the model of the Carbon Trust. A public-private profit-making partnership, it would have the task of unlocking the financial, commercial, and technological instruments for local production and sourcing. Like the Carbon Trust, it would invest in innovation and take a share in the profits. It would also produce revenue through selling advisory and training services to both the public and private sectors. Funds would largely derive from a shift in CAP funding from Pillar 1 to Pillar 2 (see The New CAP Model in Section 4.13).

4.17.4. Food Distribution Hubs

One of the first jobs of a new Supply Chain Service should be to undertake a thorough analysis and mapping of the current food infrastructure – including processors, wholesalers and abattoirs – in order to identify where capacity building in the food chain should be focused. This should inform the SFT to develop 'food hubs' - essentially local food distribution networks, which link the different components of the food supply chain together in particular geographic areas. These hubs will be essential to reduce 'food miles' but also to make it possible for government agencies, local authorities, food service businesses and retailers, large and small, to access local food, both artisan and commodity. Food hubs can be both physical spaces where one or more components of the supply chain are located, e.g. an abattoir and a meat wholesaler, or they may be 'virtual' hubs linked to a logistics business – where all the essential components of the supply chain are within a certain geographical proximity to enable good communications and operations.

4.17.5. Community food initiatives

In recent years, there has been a resurgence of interest among people in gardening and growing vegetables, and local authorities often have long waiting lists for allotments. These initiatives, coupled with community gardens, local market gardens and community farms, form a valuable tier of a local food system, as they are often the first point of contact between children and the food they eat. They present opportunities for learning, as well as often providing families with fresh and environmentally friendly food.

As competition for land use, particularly within cities, grows, we must ensure that we protect such productive green spaces from development. New housing developments should include statutory provision of allotments, and planning processes should specifically protect allotment land.

4.17.6. Planning

It is essential that the planning system supports, and even prioritises, the development of the local food infrastructure. Local food requirements (e.g. food hubs, street markets, farmers' markets, farm shops, independent shops and abattoirs) should be embedded in local plans and local development frameworks in the same way that transport and housing are considered. Small scale food businesses should be favoured over other light industry needs, particularly in rural areas and on farm premises.

Section 4.18. Balance of Power in the Food System

A healthy and vibrant food system features a range of diverse players, starting with the farmer and ending with the consumer, all of whom have an equally important role to play in the delivery of a sustainable food chain. Unless each element in the chain receives a fair price for the goods or services they provide, the whole food supply chain will eventually suffer. Price control, however, cannot work as it stultifies the system and makes innovation difficult. What is necessary is a means of ensuring that the supply chain is not artificially limited by the distorting power of one or more elements.

4.18.1. A diverse retail sector and consumer choice

Local food economies should be able to accommodate successfully a variety of different retail outlets serving different purposes and providing a range of shopping opportunities for the consumer – including street markets, local shops, supermarkets, farmers markets. Because of the current and growing dominance of the multiple retailers – the four largest supermarkets now control 75% of the retail market – retail provision in many towns has lost this diversity and small independent shops are closing at a rate of 2,000 a year.

> 'The erosion of small shops is viewed as the erosion of the 'social glue' that binds communities together'
>
> *High Street Britain 2015: All Party Parliamentary Small Shops Group (2006)*

Of course, it would be foolish to try to turn the clock back. Supermarkets have been successful because they fulfil a real need. People are voting with their feet and the retail revolution has done much to improve quality and choice, particularly in urban areas. This is not to say that all the factors which have led to supermarket success are about customer choice and there is no doubt that the huge dominance of a particular form of retailing with its integrated sourcing makes the operation of alternative modes more difficult and may deter a significant amount of innovation. Therefore, where diversity exists, efforts must be made to maintain it, and where it does not we should seek the opportunities to re-create it. Above all, we should be careful to maintain alternative routes to market.

The current planning system favours the development of the superstore over alternative retail outlets. The proven model of a Sainsbury's or a Tesco's offers to the local authority the prospect of a lucrative Section 106 agreement, through which it can obtain resources for capital expenditure. This is a perfectly proper price to charge. Such a development puts new pressures on the community for which the developer should pay. However, other retail offerings cannot support such a tax and local authorities have positively to discriminate in favour of alternatives in order to give equal weight to all retail outlets, so that the street market is regarded as being equally as important as the superstore even though there is no prospect of a Section 106 agreement. Indeed, communities should be free to decide that they want a street market rather than the superstore because of their judgement of the interests of the locality. This is a proper part of the Conservative localism agenda.

This is in part a response to the growing anxiety among members of the public at the amount of power and control concentrated in the supermarket retail sector. A recent poll showed that 71% of consumers[115], while acknowledging that supermarkets make shopping cheaper and easier, are concerned that they are too powerful, squeezing suppliers, limiting consumer choice and driving smaller shops out of business. Perhaps most important is the effect of this dominance on the existence of wholesalers and the availability of outlets for small manufacturers, innovative start-ups, and home producers. There are also particular practices that can have very serious effects on small retailers and their suppliers, not least the selling of product below cost.

[115] Guardian/NOP Poll November 2006

We must take seriously the 'emerging thinking' (23 January 2007) of the current Commission of Enquiry into the grocery market. It is concerned lest the power of supermarkets is such that their less powerful suppliers may be inhibited in speaking out against unacceptable practices. It wants to ensure that there is no anti-competitive below-cost selling and price flexing by the biggest supermarkets which might push out small retailers and hence their links with local farmers and the supply chain. It recognises a real concern about the loss of local competition and lack of choice of type of retailer. It also recognises the fear that land holdings are used to reinforce a dominant position and that there might be a situation in which Tesco could emerge as a winner-take-all. These concerns may well be modified in light of later evidence, but they reflect a widespread view which we cannot ignore.

4.18.2. A strengthened, legally binding Code of Practice

The current Supermarket Code must be strengthened to remove the vagueness of the wording, which depends on interpreting what does or does not constitute 'reasonable' behaviour. This would make it easier to prove a breach of the Code. The original proposal for a code in 2000 provides a good basis for a strengthened code and compliance would be expected by retailers with a market share of 8% and over. It should also be applied to overseas suppliers with equal force as to UK suppliers.

Additional requirements may be added to the Code, within competition law, to provide a framework for driving up standards in supply chain relations – for example, in reporting and transparency. Corporate accountability, an area in which the supermarkets are rapidly moving ahead, could be brought under the Supermarket Code to ensure a standard approach is used between retailers so that like can be compared with like – for example, in reporting environmental and social performance. The Code would need to ensure that any costs, e.g. of increased measuring and reporting, are borne by the supermarkets themselves rather than the producers and suppliers.

Comparison of different wording between 2000 proposed code and the current code, showing use of 'reasonable' and 'unreasonable'

In the 2000 recommendations:
Retailers should not request suppliers to contribute to retailers' costs of buyer visits; or to contribute to the retailer's costs of artwork and packaging design; consumer or market research; to the costs of store refurbishment or opening; or to provide hospitality.

In the 2004 code, this became:
No obligation to contribute to marketing costs
A *Supermarket shall not, directly or indirectly, unreasonably require a Supplier to make any Payment towards that Supermarket's costs of:*
(a) buyer visits to new or prospective Suppliers;
(b) artwork or packaging design;
(c) consumer or market research;
(d) the opening or refurbishing of a store; or
(e) hospitality for that Supermarket's staff.

And, in the 2000 recommendations:
Retailers should ... not require suppliers predominantly to fund promotions.

In the 2004 code, this became:
Suppliers not predominantly to fund Promotions
A Supermarket shall not, directly or indirectly, unreasonably require a Supplier predominantly to fund the costs of a Promotion.

Information from the Agribusiness Accountability Initiative [1] and UK Food Group [2]

France. French competition law provides for a ban on selling at a loss, as part of its measures to limit retailer buyer power and to protect small shopkeepers from the competitive pressures of large retailers. Article L. 442-2 of the Code de Commerce expressly prohibits below-cost selling and related advertising, and to break this attracts heavy fines. The cost price is defined as the unit price listed on the invoice plus transportation costs and applicable taxes. The result is that retailers cannot set retail prices below the invoice price for the goods and justify the practice by reference to off-invoice discounts, and especially co-operation agreements.

Following investigation by the European Commission and the French authorities of the Carrefour/Promodes merger in 1999, Carrefour agreed to adopt a code governing its relations with small and agricultural suppliers. There is also a retail industry commission in France which can issue non-binding opinions on the legality of certain commercial practices.

Germany. Paragraph 20(4) GWB directly bans below-cost selling. The provision states that the practice amounts to unfair hindrance of SMEs where an undertaking with superior market power sells below cost price, with the exception of an occasional sale, unless there is an objective justification for doing so. Given that the vague legal terms used in the provision, such as "cost price", have not yet been defined completely through administrative practice and court decisions, the Bundeskartellamt has begun the process of defining the concepts through developing principles of interpretation. These stipulate the limits of permissible price competition in order to prevent intentional predation by powerful undertakings to the disadvantage of small and medium-sized competitors.

Spain. In 1996 a Commerce Law was passed to limit the market power of the major retail groups. Its main provisions included a ban on selling below cost (a specific prohibition under Article 14 of the Retailers Organization Act), provisions to prevent retailers stretching the terms of payment to suppliers and restrictions on construction of out-of-town supermarkets. The prohibition on below cost sales is far from absolute since the article recognizes some exceptions such as sales between retailers and distributors and promotion sales.

[1] Whateley, Judith (2005) Supermarket Practices: The need for EU wide action
Source: the Agribusiness Accountability Initiative's EU Regulating Supermarkets Working Group
http://aai.2rad.net/pdfs/305_Concerns-about-supermarket-practices.pdf
[2] UK Food Group Briefing - EU Competition rules and future developments from the perspective of farmers and small suppliers – March 2005
http://www.ukfg.org.uk/docs/UKFG%20March%202005%20BIICL%20EU%20analysis_fin1.doc

4.18.3. Bans on below-cost price setting

There are examples from other European countries that show a ban on below-cost price setting is possible. A revision of UK competition law should include such measures to ensure that producers do not receive prices below the cost of production, and that products in store not are sold below cost.

4.18.4. A planning process that ensures the best for society

The planning system should prioritise the protection and enhancement of 'town centres' and 'local neighbourhood shopping centres' over and above out of town/edge of town retail development. This is not only in the interest of protecting smaller local shops, but also to maintain the town's economic and social viability, reduce car dependency and promote 'walkability'.

The recent Barker review has proposed removing the needs test for out of town development. We believe that this is wholly wrong, and that the current system provides a good basis for decision-making on such development. However we would propose that the current system is strengthened to incorporate wider sustainability assessments, as well as being applied to town centre development. In addition, local authorities should be given the power to insist that out of town supermarkets levy a car-parking charge. The level would be fixed by the local authority at a tariff no greater than that currently obtaining in the nearest town centre. The proceeds might be dedicated to the provision of public transport, recycling facilities, or other contributions to local sustainability. Clearly any such charge would need to be even handed and levied on non-food stores and food stores alike. Again this would be part of the locality agenda and it would be for the local council to make decisions in this area.

4.18.5. Local development plans

Local authorities should include retail strategies based on retailing needs assessments within their local development frameworks, developed in consultation with the local community, and which reflect their needs. The retailing needs assessment should be carried out independently of similar assessments carried out by the supermarkets. The strategies will include clear guidance on issues such as the amount of floor space allocated to superstore development, including an upper limit cap if deemed desirable by the community, where it is appropriate to site particular types of retail outlet etc. The prioritization of large format stores in town centres should be removed. Local authorities should send clear signals about their planning policy through robust indicators about 'town centre first', diversity and joined up strategies for food, transport, tourism and sustainability.

Section 4.19. Standards, Consumer Information, Labelling and Education

4.19.1. A level playing field

With some few exceptions, farmers in the UK already produce food to high animal welfare, health and safety, and environmental standards. However, as a result, UK farming suffers from intense competition with imports both from within the EU and from further afield and which have often not been produced to the same regulatory standards. Such imports are often cheaper and more attractive to the retail and food manufacturing sectors than domestic produce, and are a particularly tempting source of supply in manufactured products where the provenance is less easily identified. An example is pigmeat from the American-owned companies, imported from Poland with no guarantee that the industrial production methods meet the standards which UK producers are expected to reach. The effect is that we are often merely exporting the lower standards that we have stopped in the UK to other countries and consequently undermining our own producers. UK farmers are therefore not operating on a level playing field.

It is illegal under the WTO to put up barriers to trade. However, in the interests of UK farmers, we need to work to raise standards internationally. More immediately, we need to ensure that we have a labelling regime that allows consumers and public sector procurement officers to avoid products that are not of the standards expected of our own producers. With an adequate labelling regime – one that is honest, transparent and robust – consumers will also be able to apply formidable pressure on the large retailers to favour sustainable produce.

4.19.2. Learning about food

Labelling is the means by which consumers can make the best possible choices about the food they eat – whether that is from a nutritional or an environmental point of view, or the desire to support British farmers. It is also one of the key tools for creating a sustainable, low-carbon food supply chain, enabling consumers to use their purchasing power to drive up standards and practice. However, it must be acknowledged that labelling has become such an issue in recent years largely because of a breakdown of trust between consumers and the food industry and between the food industry and the Food Standards Agency. It is essential that this trust is rebuilt. The food sector must regain the confidence of the customer in the standard of food that it produces and ensure that, without exception, it meets the most stringent safety and quality requirements. The FSA has an important role in maintaining the scientific standards set by Professor John Krebs and being seen as the independent arbiter, standing above industry interest or campaigning fashion.

4.19.3. Clear and honest labelling

There is a proliferation of different labelling schemes for a variety of different purposes – traceability, provenance, nutrition, carbon use, method of production. Sometimes a product can have as many as a dozen pieces of information for the consumer, including a variety of different assurance schemes. This is confusing and unhelpful and in danger of hindering the kind of food choices that need to be made for health and sustainability.

The rules and regulations about what is mandatory and what is voluntary, what can be set at a national level, and what is EU responsibility, what can be said that does not contravene competition law – is also confusing for the industry, and in particular smaller producers and manufacturers.

There is a need for leadership and clarity from government on these issues, and if necessary changes in the law at EU level need to be made to simplify the different regimes. As a first step, the FSA, the

Food and Drink Federation (FDF), and the Institute of Grocery Distribution (IGD), under an independent chairman, should establish a high-level group to clarify the issues, identify solutions, and isolate those concerns which can only be addressed by Government or EU action. This British Food Information Council (BFIC) should strive to come to industry-wide solutions and only seek government action where the voluntary process has proved impossible. However, the government should be willing to come forward with legislation where the industry has come to an agreement but needs statutory backing to provide for free loaders. The producer responsibility legislation would be our example here.

4.19.4. Provenance Labelling

The issue of provenance – and country of origin – is probably one of the most confusing labelling problems – and yet it is often one of the most important pieces of information that the consumer requires, and indeed is essential in order to create sustainable food chains. Currently certain products – notably meat, fish, fruit and vegetables – are required by law to label country of origin, but not processed foods which may contain them. The place of origin of a food can also be interpreted as the place where it last underwent a substantive change – hence sausages which have been processed in the UK but with pork from industrial farms in Poland can be labelled as British. The new BFIC should produce recommendations for provenance labelling designed to give customers accurate information to enable them to make sustainable choices in packaged food as well as in fresh produce.

4.19.5. Nutritional Labelling

Nutritional labelling is currently voluntary and there are various different schemes operating within the UK. This is unhelpful to consumers and unlikely to achieve the desired result of improving healthy eating outcomes. The BFIC should review the state of nutritional labelling, and agree on a scheme that benefits from the experience gained in the two schemes now in wide use. Their solution should be applicable to all food products, both processed and fresh. Ideally, this would then be agreed on a voluntary basis but the Government should make it clear that it would legislate to make it mandatory if the voluntary scheme was not universally accepted or was avoided by importers.

4.19.6. Eco-labelling

We welcome the decision to pioneer a carbon labelling regime and recognise that it goes far beyond food. We recognise the efforts being made to ensure that such a scheme has a respected methodology and will be applicable universally. We also praise the Carbon Trust for providing the platform upon which such a scheme can be developed in such a way that it could be used across the EU and beyond. Although carbon labelling concentrates upon only one aspect of sustainability it is an objective measure as long as the methodology has been well worked through. It has already gained considerable support from Tesco, Marks and Spencer, Asda, Pepsico, and others and has the potential to provide a proper comparator within the food industry and also beyond. As carbon footprinting becomes the norm and travel and energy companies express the carbon cost of their products, the carbon cost of food will be able to be compared with the cost of other human activities. In this way we will increasingly see carbon as a currency which needs to be spent wisely.

Clearly such a labelling system will reflect the more sustainable footprint of locally produced food and food produced with low inputs and least fertiliser. There will be those who want to build further on this and emphasise other aspects of sustainability, including such things as animal welfare or water use. This is more properly the province of the specialist labels and it is desirable that existing assurance schemes, e.g. the Red Tractor, include or improve the role sustainability within their criteria.

4.19.7. Small producers and manufacturers

For the smaller food producer, requirements to provide labelling and other information are often onerous and expensive. Smaller businesses should not have to provide more than the minimum amount of information required by law, particularly in situations where the owner or grower can provide the information verbally (e.g. at farmers' markets, farms shops or by telephone). Smaller businesses must be supported in this area through the funding of assessment tools and data sets, which would be made publicly available.

4.19.8. Education

Making sensible decisions about the food we eat depends on knowledge. We have to understand what is good for us and what is bad for us. We need to know about basic nutrition and its relation to health and nutrition. We also should know how to cook a meal. We have to understand why eating locally produced food can be better for us and for the people who produced it. We have to understand about fair trade and organic food. We have to understand the connection between what we eat and the environment, locally, nationally and globally. But there is a serious knowledge gap. Bridging this gap is vital, both for consumers and armers. The first step is to educate the next generation – and their teachers. Government has a role in co-ordinating food education initiatives across departments and in helping provide an education gateway to the many other educational projects. There should be one government department with over-arching responsibility for education connected to food, farming and the countryside. (See our recommendation for a Public Diet Institute in Section 4.20.5). The teaching of cooking should be restored as a core part of the National Curriculum. There is, after all, little that is as essential to life as food. All the evidence now suggests the strongest of links between diet and health. It would seem common sense to make sure that young people can chose and cook healthy food.

4.19.9. Standards for non-food crops

We recognise the important role of biofuels in helping to provide a transition to a low carbon economy. However, it is important not to overstate this role. For many UK farmers, biofuels may present a real opportunity for diversification, perhaps ranging from on-farm self-sufficiency to supplying the wider commercial market. But production of biofuels needs to be carefully considered alongside the requirement of land for food production, and wider issues such as biodiversity, and their production must be managed to ensure the maximum greenhouse gas (GHG) savings. This requires robust verification and certification processes that take a whole life-cycle view of GHG effects, including any emissions associated with land-use change and the manufacture, transport and application of fertilisers.

There is an important role here for government in the verification of origin of biofuels, a role that the present Government has failed to assume adequately. The value of biodiesel or bioethanol as a replacement for mineral oil varies enormously. Whereas, at its best, the use of biofuels can cut the carbon effect by nearly 100%, at its worst biofuels can be responsible for 20% more emissions. British production can also be subject to competition from palm-oil form plantations responsible for the destruction of the rain-forest and the loss of carbon sequestration and the increase carbon emissions which accompany tree felling or from fuel manufactured in the Far East, carried across to the United States, mixed with a minimum 1% of mineral oil, and then re-exported having gained the very considerable US subsidy. That process not only destroys the competition but produces a biofuel with a bigger carbon footprint than the mineral oil it replaces.

In the UK and the EU, our support for biofuels must avoid the mistakes of the US and ensure that the origin of biofuels is properly traceable and the support given only to those that make a significant

reduction in the carbon emitted. That is right in itself but it would also make sure that British production was not disadvantaged and that British farmers benefited to the maximum.

Such standards could, in a specific area, have a double advantage. Since, rightly, we have banned the use of animal fat in animal feed, a lucrative source of revenue for waste fat collectors has been denied. To ensure that there is no temptation to cheat, this fat should be collected and used for bio-diesel. We therefore recommend that it should be part of the annual inspection of cafes and restaurants that they should demonstrate an efficient fat-trap preventing fat getting into the sewers and a current contract with a collector to take away this waste material. This system, at present used in Canada, would be of great help to those responsible for sewerage, as anyone will know who has seen the huge lumps of fat appearing in the drains that serve some fast food outlets. Present legislation has proved inadequate to deal with the issue from the sewerage point of view. This change could well mean that farmers would contribute a further 200,000 tons of biodiesel from the waste from their meat products sold into restaurants.

Section 4.20. Food, Diet and Health

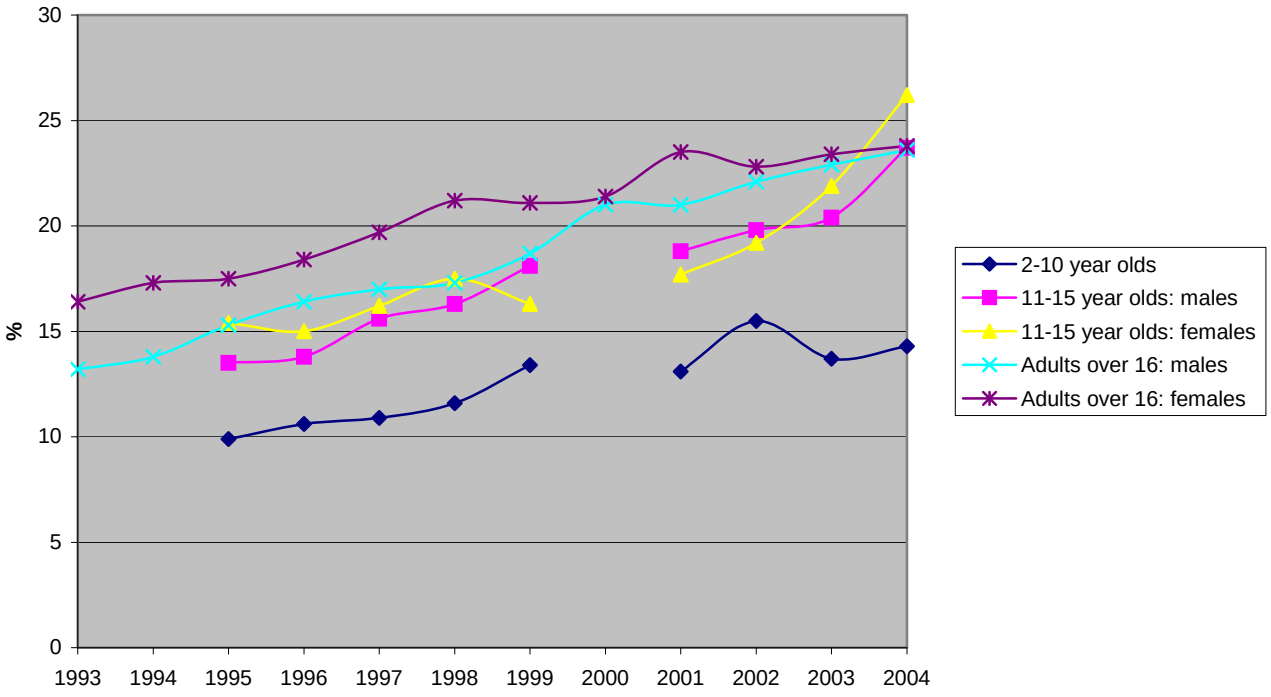
Our health and wellbeing are intimately connected with our diet. That much quoted, but nonetheless true, saying 'we are what we eat', reminds us of the importance of a joined-up food and farming policy that focuses on the role of diet in promoting both physical and mental health. The market is currently failing to deliver; too much of the food we eat is high in saturated fats, sugars and salts and, despite high profile five-a-day campaigns, we are still not consuming enough fresh fruit and vegetables. Although we want to minimise government intervention, the costs to society of a poor diet are too great to be ignored.

4.20.1. Diet and ill-health

The statistics are bleak. It is estimated that a third of all deaths from heart disease and a quarter of all cancer related deaths can be attributed to poor diet[116,117]. One in four of us is now obese, costing the NHS £990-£1,125 million a year[118] and the crisis has been referred to as a 'time bomb' by the Government's Chief Medical Officer[119]. Diseases associated with obesity include Type-II diabetes, hypertension, cancer, respiratory problems and gout.

At the 2003 conference of the Royal College of Paediatrics and Child Health, delegates were told that children are 'eating themselves sick' with poor diets and unhealthy lifestyles. Post-war rationing was better for children than the current 21st Century fast food snack culture. Youngsters today are experiencing nutritional ill health that is the equivalent of Victorian rickets and scurvy[120].

Figure 4.6. Obesity in England – percentage of population (BMI>30)[121]



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[120] Morgan, K. (2004) School Meals and Sustainable Food Chains: The role of creative public procurement. The 2004 Caroline Walker lecture. Royal Society, London, 3 November 2004 http://www.cf.ac.uk/cplan/downloads/kjm-lecture.pdf
[121] Department of Health (2006) Health Profile of England www.dh.gov.uk

Figure 4.6. shows the rising levels of obesity amongst different groups of the population. The Government's target to stop the year on year rise in childhood obesity by 2011 is in danger of not being reached. According to a recent report from the National Audit Office (NAO), red tape and a lack of leadership are hindering efforts to improve children's diets, leading to one headline '*children grow fatter as the experts dither'*[122]. The NAO has identified five Government departments, dozens of quangos and hundreds of local bodies, all with responsibility for implementing the current strategy.

The future of our children's health is under severe threat, with life expectancy figures falling for the first time in several generations, and with the very real prospect that parents of the current generation may outlive their children.

A concern for social justice should lead us to note just how closely these figures relate to socio-economic groupings. In general, obesity increases with deprivation. We need to recognise this in the work we have proposed for the BFIC and we also need to be very aware of opportunities to ensure that good, fresh, locally produced food is available to all sections of the population and not just to the articulate and fortunate few.

4.20.2. A mental health crisis

Mental health problems affect more than 25% of all people, and are on the increase. There is a growing body of research demonstrating the long-lasting impact of diet on mental health and wellbeing, linking the way a person feels and acts to the food they consume. Research has shown that people deficient in certain nutrients such as folate, other B vitamins and polyunsaturated fats (omega 3 oils) have a higher risk of developing schizophrenia, ADHD, depression and dementia[123]. However, despite this evidence of the links between diet and our mental health, the benefit of good nutrition in both preventing and helping treat problems go largely unrecognised in current mental health policy.

4.20.3. Diet and behaviour

There is also growing evidence linking diet to anti-social and criminal behaviour, as we have seen previously. Teachers and parents have noticed that recent changes in school food – improvements in school meal standards, providing a range of more healthy drinks in vending machines, and offering snacks which are lower in sugar, salt, and saturated fats is having a marked effect on children's behaviour and ability to concentrate and thus to achieve better results.

4.20.4. Eating habits

Figures in 2003 showed the UK to have the highest consumption of ready meals in Europe, with a 42% share, France was the second biggest consumer at 21%. Some 30% of the adult British population eat ready meals more than once a week compared to just 16% in France[124]. A recent survey by the Royal Society of Health[125] showed that a lack of cooking skills and knowledge of food preparation and what constitutes 'healthy' on both the part of young people and parents, was the most frequently stated barrier to healthy eating by health professionals (24%); many young people highlighted their own inability to cook and identified this as a barrier to healthy eating.

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[122] The Times, Feb 28 2006

[123] For example, summarised in Sustain (2006) *Changing Diets, Changing Minds: how food affects mental health and behaviour* and the companion report from the Mental Health Foundation (2006) *Feeding Minds: the impact of food on mental health*

[124] Mintel (22 February 2003) Ready Meals in Europe http://www.mrweb.com/drno2k/news2192.htm

[125] Royal Society for the Promotion of Health (March 2007) Let's Get Cooking Consultation Report http://www.rsph.org/policy/LetsGetCooking/LetsGetCooking_ConsultationReport0207.pdf

Children were more than twice as likely to 'cook' by heating meals up in a microwave or by putting frozen chips in the oven, than their parents' generation.

> "*Since home economics was taken off the national curriculum within schools very few secondary schools teach this subject. Therefore pupils have lost the ability to be encouraged to cook using fresh ingredients.... As adults they turn to convenience foods to feed their families. These are often high in salt and fats...*" (a parent, commenting in the Royal Society of Health survey[126]).

Food Standards Agency figures show that although more people appear to understand healthy eating messages they are not necessarily changing their food buying habits accordingly. Awareness of the 'Five a Day' guidance on fruit and vegetable consumption has increased from 43% to 67% since 2000, and in 2005 more people claimed to be eating more fruit and vegetables. But the actual number of people eating more had risen only 4% since 2000 from 26% to 30%. The percentage that ate no fruit or vegetables at all remained static at 8% between 2004 and 2005[127]. Figures also suggest that increases in fruit and vegetable consumption are mainly of pre-prepared and chilled fruit and vegetables (requiring refrigeration and packaging), and Mediterranean 'ratatouille' type vegetables (requiring glasshouse production or imports)[128].

4.20.5. Public Diet Institute

Responsibility for the relationship between food and diet in general must be streamlined, with the formation of one overall body, a Public Diet Institute, taking lead responsibility for implementing the integrated promotion of good diet and nutrition across the board. The current drastic crisis requires intervention that is both speedy and direct. We need, nonetheless, to try to achieve our ends by co-operation rather than compulsion. We must find ways in which people can take ownership of the ideas and responsibility for themselves and their families.

For too long public health has been a poor relative of other funding priorities within the health economy[129], and has often disappeared off the edge in the face of overwhelming acute care needs which absorb health promotion and public health budgets. Dealing with these problems requires a stronger political will than currently displayed. Such will cannot be generated by continuing to allow dietary concerns to be a subsidiary topic of the Food Standards Agency which should confine its activities to its role as a science based regulator. Public health and the promotion of preventative strategies must be put centre stage in health policy.

[126] Royal Society for the Promotion of Health (March 2007) Let's Get Cooking Consultation Report
[127] Food Standards Agency (2006) Consumer Attitudes to Food Standards Wave 6 http://www.food.gov.uk/multimedia/pdfs/casuk05.pdf
[128] Food Climate Research Network (2007)
[129] Lang, T., Rayner J. 'Overcoming policy cacophony on obesity: an ecological public health framework for policy makers', December 2006.

Chapter 4. Part III. Marine, Coastal and Fisheries

Section 4.21. The Crisis in Our Seas

4.21.1. Entering uncharted waters

We face a crisis in the marine life of our seas and oceans that no previous generation has ever had to confront. Recent research has predicted that the world will run out of seafood species to fish by 2048, and the associated loss of marine biodiversity will destroy the oceans' natural ability to adapt and self-repair. The evidence is bleak:

- 70-80% of the world's marine fish stocks are fully exploited, overexploited, depleted or recovering from depletion.
- 15 out of 17 of the world's largest fisheries are so heavily exploited that their reproductive cycles cannot guarantee continued catches.
- Each year more that 80m tonnes of fish are caught globally; total marine production peaked in 2000 at 87m tonnes and has declined since.
- The world's human population has doubled since 1960 and is expected to reach 6795 million in 2010. Demand for fish in 2010 is expected to reach 110 million tonnes, outstripping supply.
- Many of the world's poorest people rely on fish as their most important source of protein and the shortage of stocks has meant that the rich are increasingly laying claim to the resources of the poor.
- The global crisis is mirrored in UK waters. According to WWF's most recent 'Marine Health Check', of 16 key marine species and habitats, all but two are in decline in our waters. More than 22% of the UK sea bed has been affected by marine activities, such as trawling.

4.21.2. Global warming

The impact of climate change gives starker urgency to resolving this crisis. The damage inflicted on our fisheries is perilously exacerbated by the simultaneous impact of climate change and acidification, to which the marine environment and its ecosystems are acutely sensitive. At the same time, it is essential that these systems are fit and able to act as a global 'lung' for processing carbon dioxide. We need to harness the oceans' potential for renewable energy and seabed carbon capture. We also need to address the impact that rising sea levels will have on our coastlines and coastal communities.

4.21.3. Institutional failure

In our democracy, the sea belongs to us all. Everyone in Britain has a right to expect that it will be managed in the best interests of society as a whole. Yet for too long the sea has ended up being managed on behalf of the few, which has ultimately benefited no one in the long-term – not even fishermen. Society and its institutions, and European institutions in particular, have been slow to grasp the extent of the crisis, and reluctant to solve the special difficulties that fishermen face in reconciling the massively increased catching power available to them, with the ecological and commercial realities of threatened fish stocks. The relevant institutions are currently not structured in a way that reflects the diverse and integrated nature of marine, coastal and fisheries interests, and which can provide the inclusive solutions that are required.

4.21.4. The power of fishermen

There is an institutional disconnect between fisheries and the wider marine environment, with fisheries traditionally tending to "trump" the latter. Conflict between the Common Fisheries Policy, which is within the competence of the EU, and environmental policy, which is shared between the EU and member states, does not help this situation. Fishermen have faced declining fish stocks but have earned increasing incomes. The stocks have been over fished simply because technological advance has made that possible and demand has made it profitable. All of us have a real concern for the fishing communities who have been caught in this situation. Theirs is a hard and dangerous life. As hunters, they naturally resent the restrictions placed upon them and as businessmen, they want to take advantage of the increasing value of fish by increasing their catch.

Yet, the plight of the UK fishermen is shared by almost every other fishing community in the rest of Europe and much of the world beyond. Even so, it is all too tempting to take a narrow attitude and blame the problem on other local fishermen, boats coming from other parts of the UK, or, even more attractive, foreigners. However much force these arguments have, they are hugely outweighed by the simple fact that the efficiency of modern methods of catching and the huge market demand for fish, mean that stocks have to be protected or there will be no fish for anyone in the future. That's why we have sought to provide a policy option that meets both the fishermen's legitimate local concerns and the wider challenge that chronic over-fishing presents.

4.21.5. Nature conservation

We have to recognise, as did a Government-funded review, that the laws of the sea are not fit for the purpose when it comes to the conservation of species or habitats – whether it is the conservation of dolphins taken as by-catch, endangered migratory species such as bluefin tuna or fragile ecosystems vulnerable to trawling or scallop dredging.

4.21.6. Sea angling

Some of the interests that could actually lead to a way out of the crisis we are facing have actually been excluded from the table in the councils of the European Union, the most significant, perhaps, being recreational sea anglers. With around 1.1 million households in the UK having at least one member who goes sea angling, compared to around 12,500 involved in commercial fishing, this is a knowledgeable group which deserves to be heard. It is part of the political crisis we face that at present the views of those who use the sea for leisure are seldom included in the debate. There is a compelling argument – provided by the example of the resurgent American striped bass – that managing some fish stocks primarily for recreational purposes could have major economic and social benefits.

4.21.7. Aquaculture

Aquaculture currently provides 43% of all fish products sold globally. The UK is the EU's leading producer and Scotland is responsible for about 80% of our industry. It is an important contributor to the Scottish economy and it will be increasingly important globally for the provision of protein. It can be undervalued by politicians and given less weight than its undoubted importance to our diet warrants. Conversely, the environmental problems it causes have yet to be wholly or adequately addressed and a strategy is needed to guide its future development.

Section 4.22. The Vision

4.22.1. A common resource

The sea belongs to us all. Yet, precisely because it has never been 'owned' in the way that the land is owned no-one has been wholly responsible for its protection and conservation. Nonetheless, we all feel we have a right to expect that the sea will be managed in the best interests of society as a whole. Of course, the concerns involved are diverse and often conflicting. The sea is a source of food and must satisfy the interests of consumers, commercial catchers, and processors. It is a growing leisure resource and must provide for anglers, beach lovers, divers, and yachtsmen. It has importance for transport – shipping and pipelines. It provides oil and gas and aggregates. Increasingly, we look to it for marine renewables and aquaculture. Our direct dependence on the sea is much underrated. So too is the deep emotional attachment of so many, particularly in coastal countries, to the sea and to those who work on it.

It is not surprising that fishermen feature so widely in our patriotic songs and literature; or that the lifeboats and the Navy matter so much to an island nation.

4.22.2. A universal problem

Yet Britain's special relationship with the sea must not blind us to the fact that the ecology of the waters that immediately surround our islands cannot be protected without reference to what happens beyond the 200 mile limit. The sea may be a national concern but it is also a global problem. The issues which we find so difficult are just as difficult for our immediate neighbours and increasingly they are the same issues that confront every coastal nation from New Zealand to Norway and Mauritania to Mauritius.

Restoring and protecting the ecological and economic health of our seas and oceans is one of the most challenging tasks of our times. It should be high on the agenda of any incoming government.

4.22.3. A serious challenge

Our challenge, therefore – and it is one of the most challenging tasks of our times – is to create a regulatory framework capable of restoring and protecting the ecological and economic health of all our seas and oceans. The current crisis makes it essential that this task is put high on the global political agenda. The task was clearly defined at the WSSD in Johannesburg and through the Convention on Biological Diversity. The decline in marine biodiversity must be halted by 2010 and fish stocks restored to sustainable levels by 2015. These deadlines are not just about rescuing ecosystems from collapse, though this is the critical priority. They are also about food security, nutrition and, securing a future livelihood for fishermen and fishing communities, as well as providing for all those other interests that are dependent upon the sea.

4.22.4. Regulating for diversity

To have the best chance of restoring and protecting the ecological and economic health of our sea and all those whose livelihoods or interests depend upon it, both for this and future generations, we need a regulatory system that reflects the diverse and integrated nature of marine, coastal and fisheries interests, and the inclusive solutions that they fundamentally require. It must have at its heart an ecosystem-based management of fisheries developed through sound scientific advice.

4.22.5. The necessary focus

There are three key areas where improvements in the present EU and national regulatory systems should be focused:

- A strong science and ecosystem-based analysis should be paramount to all future CFP and devolved decision-making, which takes account of wider marine and sustainability issues – both within and beyond EU waters.

- Bold political leadership which, whilst delivering a top-down strategy internationally, must allow for effective devolved decision making through a 'shoreline-out' strategy within the UK and other Member States.

- A clear strategy for implementing a coherent network of fit-for-purpose marine protected areas (MPAs), including areas off-limits to all extractive use should be established in UK and EU waters.

4.22.6. An integrated approach

Successful implementation in these three areas will provide an effective framework for ensuring that related problems, for example the long-term interests of coastal and fisheries-dependent communities, can be addressed. There is no perfect model anywhere in the world but there are examples of best practice that can be used not only from EU experience but from countries around the world, particularly Iceland, Sweden, Australia, New Zealand, Canada, and the USA. In every case the claims for success have to be carefully assessed because many of the most widely held opinions about the superiority of other jurisdictions turn out to be only partially correct and often much disputed by serious commentators. Nonetheless there are many lessons to be learned and these should be implemented within the UK and elsewhere in Europe.

Section 4.23. The Science – Implementing an Ecosystem-Based Approach

It is not easy to convince fishermen of the validity of the science. This should not be a surprise to anyone as it is rare that the scientists bring good news. There is therefore every incentive to find another explanation for the situation of the stocks and the complexity of the factors involved encourages this. Fishermen see only their part of the game. Their communities are, by their nature, often isolated and share similar vantage points. Anecdotal evidence from their shared experience is therefore liable to outweigh the view brought by the scientist. This is precisely what happened as the stocks in the Grand Banks collapsed. Scientific warnings conflicted directly with fishermen's immediate experience.

This basic source of conflict is further exacerbated by the fact that the science is usually mediated to the fishermen through politicians whether national or in the EU more widely. Ministers, too, are torn. Anxious to defend their own fishermen and voters, they try to reconcile the imperatives of conservation with the immediate demands of the electorate. It is not surprising that fishermen get mixed signals. Experience has therefore taught fishermen that, however firm their Minister, the Commissioner, or the Council may be to start with, they soon descend to a round of horse-trading after which they claim that they have *both* satisfied the demands of their own national fleet *and* met the long-term interests of conserving the stock. Fishermen of one country see those of another lobbying their Minister and believe they will lose out if they don't do the same. So short is the stock that any advantage gained by one nation is at the expense of another. Whereas fishermen as a whole may well be willing to act in a way that will reflect the science, they are not prepared to do it unilaterally. Ironically, the present EU institutions make common long term decision making very difficult. That said, common decision making outside the CFP would be significantly worse.

However, things are improving, as more and more fishermen come to accept the reality of the crisis. The first step in overcoming the distrust of the science is to involve fishermen more closely at EU, national, and local level. There has been a sense in which the science appears to be handed down from on high and both fishermen and politicians resent that. There have also been times when news of the latest scientific assessment of stocks has been passed out to the fishermen, leaving the public or other concerned bodies – leading to the discussion being about fishermen's "pain" rather than the abject state of the resource. Greater involvement of the practitioners, however, well before recommendations are made, together with a real effort to agree a common position on the science, nationally and in the EU as a whole, would be a first step in improving the system.

The proposals we have for localizing control wherever possible should also increasingly engage fishing communities in the local implications of the science and the expanded Sea Fisheries Committees would be expected to encourage this. However, on the overall issues, where shared fisheries are being consistently overfished and the science consistently ignored, we would propose a radical change. We believe that where TACs, quotas or any revised system of control allows fishing significantly out of line with the scientific advice, the final decisions should not be made by the Fisheries Council but by the Environment Council. Technically, of course, all Councils are the same but the threat of having to explain and justify a rejection of the scientific advice would provide considerable pressure to keep within the science and therefore avoid losing control.

There are also some specific changes that ought to be made to make the science clearer and better understood and to reinforce priorities.

We should seek urge to provide for the EU Heads of Government to re-establish that the requirements of the ecosystem, based on ICES advice, should be paramount to the decision making process. They should commit the Fisheries Council to reform of the annual process of horse-trading. To that end the

UK should seek the introduction of improved sustainability indicators that more accurately reflect the state of principal fish stocks as well as wider marine biodiversity.

In the UK we need a better mapped inventory of our marine resources in order to inform marine spatial planning approach and we should ensure that our research institutions undertake sufficient biology-based research. All research effort should also achieve significantly closer collaboration with the fishermen themselves so as to incorporate their detailed practical and local knowledge. At the same time we need to strengthen our socio-economic analysis.

The UK should lead the EU in ensuring an increase in the work done both here at home and in the rest of Europe on key research issues, of which the priorities are:

- impact of climate change on marine, fisheries and coastal management;
- interaction between fisheries and marine ecosystems;
- management of mixed fisheries and multi-species issues;
- location and characteristics of spawning and nursery areas; and
- impact and management of existing and new deep water fisheries.

Section 4.24. Top Down Decision Making

The present system is not participatory but involves scientists advising the Commission and EU Ministers on the state of the stock so that, at the end of each year, they can fix the Total Allowable Catches and divide up the available catches into national Quotas. It is inevitable that these ministers are much more affected by the fishermen than by the state of the stocks. As a result, if there are not enough fish to provide what Ministers feel is an adequate national quota, then they are invented and the scientists ignored.

Contrary to the popular image, the problem with the CFP is not that it involves too much interference from 'Brussels', it is that national interests are all too often interpreted as 'getting enough quota for my country, irrespective of the effect on future stocks'. In that, the UK has, over the years, failed to show the environmental leadership that it should. This is particularly true in our dealings with third countries. We have been so pleased that we have been able to divert the fishing efforts of other member states to southern waters that we have failed to insist upon the policing that should be an integral part of any agreement between the EU and other maritime states, particularly those with exiguous control resources.

The result of this top-down decision making is that fishermen, although they actually exercise such influence on national Ministers, do not feel involved in the conclusions reached and inevitably assume that others have done better than they have. Europe-wide, they do not feel that this is their system designed to protect their future livelihoods but the creation of politicians and bureaucrats; an incubus and not a help. Reform of the CFP is therefore a matter of reconnection with the fishing industry, those concerned with conservations, the marine communities, and all those other people who rely on the sea for their recreation and their livelihood.

4.24.1. A cohesive policy

We will, nonetheless, continue to need institutional arrangements which deliver the necessary co-operation to address the international dimension of fisheries and marine resource management. The emphasis should be on the effective use of international mechanisms such as the CFP and the new European Marine Strategy, their future evolution, and improving Europe's input into high seas and Regional Fisheries Management Organisations. We must ensure a bold and robust implementation of the CFP's recently reformed remit and responsibilities. At the same time, we must recognise that "what we have is a broken system". We must therefore ensure that as soon as possible and, in any case by the next reform of the CFP in 2012, that system is substantially mended – for the sake of the fish, our fishermen and all other marine interests.

4.24.2. The broken system

The Common Fisheries Policy has been driven largely by the immediate demands of fishermen and not primarily by the condition of the fish stocks. This is not the result of its multi-national nature but is all too common a feature of all kinds of jurisdictions. Fishermen have votes: fish do not. The collapse of fishing on the Grand Banks in Canada happened despite a single national control system. Politicians, there as here, were unwilling or unable to promote effective policies in the face of the demands of fishermen, unconvinced by the science.

No-one should doubt the complexity of the problem. Fishing communities are tight-knit and intensely loyal. They face real dangers every time the boats put out. The rivalry between communities, even along the same stretch of coast, is significant. The fishermen of Aldeburgh have different interests from those of Southwold and both distinguish themselves utterly from their near neighbours in Lowestoft. Those differences are magnified once there is competition for stocks between fishermen

from different parts of the country – from the East and West coasts of Scotland, between Scotland and the men from Newquay and the South West, between Britain and Norway, the Netherlands, or France.

Such rivalries are inevitable because most stocks are shared, whether between communities or nations. That sharing has always given rise to conflict but the decline in the stocks has exacerbated those conflicts enormously. Recriminations are inevitable. It is the indiscriminate fishing of the other man – be he from Lowestoft, Peterhead, Falmouth, the Baltic, or the Basque country – that is to blame. Before we criticise the fishermen or their leaders we should recall once more that these are men who do a tough and dangerous job without any ownership of the resource that is their livelihood. Fish have always been a common resource and when they were plentiful that hardly mattered. Now that world stocks, let alone North Sea stocks, are on the verge of collapse, it matters hugely.

Nor should we forget how quickly all this happened. In the early years of the 19th century, a cabin boy wrote, 'we were held in port in the Baltic for three days, so thick were the shoals of fish'! The riches of the Dogger Bank and the Grand Banks were the commonplaces of the teaching of geography in Britain during the post-war years. It was only as modern technology made fishermen so much more productive that, in meeting rising demand, they began to take more than the stock could sustain. Bigger, safer, and more powerful boats, radar, and now GPS – all these made it harder for the fish to escape.

4.24.3. The devolved principle

In recognizing the importance of an overarching framework for fisheries in the EU and accepting that even the most local of fisheries can fail properly to safeguard their own futures, it is still important that fishery management should be as devolved as possible. There should be a strong presumption in the CFP that catch, management and related decisions are, as far as possible, pushed downwards to relevant regional and/or lower level bodies. Although particular circumstances sometimes dictate otherwise, every exception has to be justified. The EU and Member States have to provide co-ordination, audit, and oversight but they cannot properly reflect regional and local circumstances or timescales – for instance, where an area needs to be closed because of a concentration of juvenile fish. When decisions are made from too distant a stance they are resented and resisted. Ministers should seek to restrict themselves to setting the overarching policy while devolving its detailed implementation.

4.24.4. A proper tension

In that proper division of function we cannot ignore the fundamental tension that is a constant in fisheries' policy. There is *both* an absolute necessity for local detailed decision making and *also* a need for a sufficiently robust overall policy to ensure that localism does not degenerate into a series of convenient populist decisions that add up to the depletion of stocks. For that reason the nature of the local structure is of considerable importance. Best practice is often most in evidence where management decisions are devolved to regional, area, or local initiatives and mechanisms that have a balanced participation of all relevant stakeholder and community interests. Such regional, area, and local decision-making bodies and initiatives should be actively endorsed, supported, and enabled by ministers and officials.

4.24.5. Localism

We look therefore to the kind of localism that is self-limiting and that properly balances the varying interests.

4.24.5.1. Regional Advisory Councils (RACs)

We need an enhanced role and funding within the EU structures so that RACs can undertake more independent research in order properly to function. Their role, remit, and stakeholder balance and diversity must evolve. "They need space to grow wings" and could become effective regional management vehicles with the right delegated authority, proper resources, and the ability to commission their own science and skills. RACs could also play an enhanced role of direct data collection and monitoring at sea (e.g. 'Sentinel Fisheries'). The scale of RAC sea areas should be reviewed and revised where relevant.

4.24.5.2. Sea Fisheries Committees (SFCs)

We should seek to improve the effectiveness of SFCs – which manage inshore waters in England and Wales. (Scotland has emerging inshore management committees). They too need to be able to balance the various interests in that part of the marine environment for which they are responsible. We should therefore immediately introduce in each SFC an executive committee accountable to a wider body of interested parties. SFCs should then be prepared so they can transmute into a new common structure. They would become Area Marine Committees with reconstituted representation incorporating all local interests including elected councillors with powers extending out to 12 nautical miles and a consultee role on decisions made beyond that limit by EU, UK, and devolved Ministers. Together, these 12 AMCs would be co-ordinated by the National Marine Agency (NMA) – a group that would bring together UK fisheries research, the marine activities of the Environment Agency and Natural England, the marine licensing responsibilities of Defra, and the marine regulatory activities of the Crown Estates. The intention would be to have one organisation, instead of overlapping jurisdictions, responsible for Britain's inshore seas. It would be constituted so as to recognise the inherent tensions between the interests of commercial fishing, leisure, and sport, the winning of aggregates, oil, and other resources, shipping, dredging, and, above all, biodiversity. It would need also to ensure the proper representation of sea-anglers and other groups that rely on a healthy marine environment.

4.24.5.3. Recreational sea angling

Anglers represent a large group, with around 1.1 million households in England and Wales alone having at least one member who goes sea angling. The interests of this community need to be addressed alongside the interests of the 12,500 commercial fishermen, which are currently not in the counsels of the EU. The economic value of sea angling in England and Wales has been calculated by Defra at £538 million. This is hugely greater than the value of the fish caught and hugely greater than the value of the commercial landings of the species on which anglers depend. There is therefore a strong argument that sea angling can provide a better return than commercial exploitation when it comes to some stocks, such as the bass. And a glance across the Atlantic at the resurgent striped bass, once in decline, shows the potential that exists for growth in the use of this resource, if it were managed wisely. The annual revenues from striped bass for sport fishing are estimated at $2 billion a year in the United States. With larger fish, achieved by stipulating larger mesh sizes for commercial nets, some of these benefits could be achieved here too. There are considerable commercial opportunities arising from recreational fishing. Thought should be given to making some species largely or wholly recreational.

4.24.5.4. Specialist groupings

Area and local multi-stakeholder initiatives, such as Invest in Fish in the South West, should be encouraged and their experience used to guide future marine and fisheries management.

4.24.6. Local and national leadership

The fact that so many of our fisheries are shared and that our fleets fish in waters far beyond our own make it necessary for us to have a properly constituted CFP. However, we are not carrying out our proper national and local role in the management of fisheries or in the reconciliation of the different marine interests.

4.24.6.1. National leadership

Bold 'shoreline-out' political leadership is needed here in the UK. Ministers currently do not exercise all the powers that are available to them. Indeed, many significant marine issues, both in ecological and commercial terms, are located close to coastlines and are much more often within the scope of national jurisdictions, national measures, and national solutions than ministers are normally prepared to acknowledge. It has simply been easier to disclaim responsibility than to get on and solve difficult problems which are locally contentious.

4.24.6.2. Ensuring effective control

Nonetheless, there are significant steps that should be taken to ensure that national and local control could be more effective. We should work within the EU, to extend Member State 3 & 6 nautical mile (nm) sovereign powers and responsibilities to 12 nm. In these circumstances, the CFP involvement would be restricted to the areas within the 12 mile limit where the fishery is shared between EU nations and then only to the regulation of that shared fishery. Apart from those historic rights, this revised dispensation would make permanent the 12 nm inshore access restriction.

These changes would be designed to increase the scope and efficacy of the implementation of Member State responsibilities subject to proper representation of all with a direct interest in the management of the inshore marine areas. It would also involve an undertaking that UK and other EU Ministers would proactively exercise all the powers that are available to them within the 12 mile limit to conserve both the fisheries and the eco-systems that maintain them.

4.24.6.3. Giving fishermen rights

If the marine environment is to be managed properly it has to be managed in the interest of all the stakeholders. However, fishermen are entitled to more secure rights if they are to take on greater responsibilities. That is why we favour rights-based forms of ownership, such as ITQs. These should be piloted with discrete fisheries within UK waters (e.g. Thames sole). Early candidates for this kind of opportunity might be those fisheries that have already shown leadership in seeking MSC accreditation. Specific consideration should be given to developing community and Producer Organisation quotas that prevent quota accumulation or leakage, guarantee quota access to young fishermen seeking to enter the industry, and help underpin the viability of fragile coastal communities.

4.24.7. Marine planning

National and bespoke legislation is needed to drive more efficient regulation of all activities at sea both to protect the marine ecosystem and to ensure the sustainable use of marine resources. This would be a system operated locally by the Area Marine Committees (AMCs) and would cover all marine areas and include local marine planning.

4.24.7.1. Local marine planning

A locally devolved planning system – Local Marine Planning (LMP) – signed to reduce conflict between different users, reduce adverse cumulative impacts, and facilitate developments that are sustainable. This would enable us to integrate and simplify the present marine licensing system and introduce Strategic Environmental Assessments (SEAs) where areas of the sea are under particular threat and Environment Impact Assessments for new projects including fisheries or significant new fishing methods.

We need to develop an intelligent devolved local planning capability for the marine environment which will enable coastal communities and marine interests to take ownership of the resolution of marine problems. It would have to operate within the broad international parameters laid down by the CFP and the UK national framework. Nonetheless, neither of these should be prescriptive and the business of management should become locally determined while still providing technical advice, research, and science from the centre.

4.24.8. Achieving sustainable practices

We need to develop, through grants available under the CFP, the design of more selective, "smart" fishing and shellfish harvesting practices and reduce levels of "discards," especially juvenile fish, and by-catch through the wide-scale use of selective gear, area restrictions and onboard observers.

We should promote certified standards of sustainability where they exist, such as the Marine Stewardship Council's, including standards in tropical aquaculture produce but also seek standards in areas of tropical aquaculture and shellfish which are not yet as developed.

Thought should be given to developing a "marine environmental scheme" for fishing and coastal communities which would create more non-fishing, income-earning opportunities for fishermen unable to fish, for example by monitoring and patrolling marine protected areas.

The remit of the levy-funded industry body Seafish should be reviewed to ensure it includes advising the industry on the latest in sustainable management of fish resources the latest selective fishing techniques.

4.24.9. Monitoring, compliance and enforcement

We need to ensure that we have more effective systems for monitoring compliance and delivering fisheries enforcement. Continued high levels of illegal fishing need to be addressed through:

- improved traceability and surveillance;
- wider application of technology, such as the use of satellite technology and electronic logbooks;
- satellite monitoring of all British-owned commercial fishing vessels (irrespective of length) should be required, wherever they operate, with satellite monitoring information available to the appropriate authorities in real-time;
- greater use of on-board observers;
- examine whether a "days at sea" regime provides a better means of monitoring compliance;
- introduce a new compliance regime for vessels that are 10m and under;
- greater participation in management and catch decisions at regional, area and local levels, involving both fisheries and other stakeholder interests, to help facilitate a culture of compliance and enforcement;
- stronger role for the EC in supervising enforcement by Member States;

- tougher Flag and Port State controls to prevent market access of IUU-caught fish; and
- effective enforcement of protected or closed areas and other no-take zones.

Section 4.25. Marine Protected Areas

4.25.1. The world experience

Global marine reserve data shows that protective measures usually result in rapid recovery of species diversity and associated economic benefits. This should include mechanisms for:

- managing endangered stocks through large permanent closed areas;
- imposing rapid closures of areas in all fisheries where there are high concentrations of juvenile fish; and
- establishing a network of no-take zones in marine and coastal waters for nature protection, some with buffer zones which allow recreational fishing and perhaps selective methods such as creeling or other "multi-purpose" activities.

Currently only approximately 2% of the UK sea area is afforded any level of protection. Furthermore, less than 1% of our seabed is afforded high levels of protection from all human activities. There is only one No Take Zone in the UK and three marine nature reserves.

In March 2007 the Government published the Marine Bill White Paper. It includes reference to the creation of a network of Marine Protected Areas (MPAs). We support Wildlife and Countryside Link's call for the introduction of the bill no later than in the next Queen's Speech in November 2007.

4.25.2. MPAs – a new model

The UK's 12 nautical miles of sovereign waters, would be transformed into an extensive network of Marine Protected Areas . The primary purpose of all MPAs would be to support the recovery and conservation of biodiversity and the ecosystem to ensure its resilience to climate change. However, there would be varying levels of MPAs. The most highly protected would be entirely off-limits to human activity. The 2nd tier would allow recreational fishing and touristic activities where the activities do not damage the environment. The 3rd tier would allow fishing – but in vessels smaller than an agreed size. The 4th tier would allow extraction and industrial fishing, subject to existing or proposed regulation.

4.25.3. Making it happen

The initiative for such determination could come, either from the local AMCs or from the NMA. Temporary classifications would be the responsibility of the AMC on their own initiative or as suggested by the NMC. Permanent or longer term classifications would be primarily a local responsibility but would need to be considered in concert with the NMC in order to ensure that the interests of any without local representation were safeguarded and the national and CFP framework was properly respected. Although the NMC would have a power of veto over permanent or semi-permanent classifications, the intention would be that this should be very much a reserve power.

Section 4.26. Aquaculture

Aquaculture is now a major source of food for the planet's population[1]: It is big business with 59.4 million tonnes of edible seafood being produced from aquaculture in 2004, representing 43% of all seafood sold globally. China is the world's leading aquaculture-producing country, with almost 70% of the world's total production and an average annual growth rate of 12.4%. That can be contrasted with Western Europe which provides only 3.5% of the world's total aquaculture amounting to some 2.1 million tones, valued at £2.7 billion. In Scotland, which has 95 per cent of the Uk's aquaculture, salmon farming supports employment of some 10,000 people, 4,700 of whom live and work in the remote rural communities of the Highlands and Islands.

Growth of the sector is assured globally, as it is likely to be at home in Scotland despite the recent contraction of the industry, not least because of the future potential of new species such as cod and halibut. These species will bring potential both new opportunities and problems, so a sound long-term strategy is needed to guide future development.

All contributors acknowledged that the present regulatory regime evolved ad hoc, in an often anarchic way and that a better one was required. The present regime is complex and falls under the purview of different government departments and different ministers. This will require Westminster to work with the Scottish Executive.

UK aquaculture must remain economically viable, and that means in part that it must be competitive on a global scale, since seafood products are now so widely traded around the world, and internationally sourced by our retailers.

The Scottish aquaculture industry would maintain that it is operating in a more costly regulatory environment than other competing producers, particularly with respect to the salmon sector. These anxieties deserve regular attention.

There are, however, several major sustainability concerns which should be further investigated and addressed, such as:

- Feed. Farming carnivorous fish is dependent on the capture of wild-caught fish, the stocks of many of which, such as the sand eel and blue whiting, have been in headlong decline. The fish oil and meal industry itself has warned that it risks running out of fish oil by the end of the decade. The development of plant-based substitute feeds, to make the industry fully sustainable, are a priority and there is a role for government in driving such developments.

- The role of marine pen aquaculture in the decline of wild salmon and sea trout stocks, particularly in the West of Scotland. Considerable progress has been made in the control of sea lice populations by "fallowing," however not enough. A leading figure in the industry has suggested moving salmon cages out of estuaries with wild migratory fish populations. The potential for doing this should be reviewed and the additional carrying capacity around the coast reassessed, bearing in mind the ecological sensitivity of possible alternative sites.

- The list of veterinary chemicals necessarily used in aquaculture needs to be kept under review as do standards of animal welfare and organic standards.

- Marine pen farms are visible from the shore, and are located in some of the UK's most scenic areas. Further research into objective measures of visual amenity and landscape 'carrying capacity' is justified.

A range of future opportunities, face UK policy makers in any consideration of the aquaculture sector. These include:

- whether or not to advocate and support alternative forms of aquaculture production, such as land-based marine farming, offshore marine farming, or marine or freshwater recirculation aquaculture systems;
- how to encourage the development of sustainable shellfish cultivation around the coasts of the whole UK, whilst balancing the need to maintain biodiversity standards in coastal waters and
- how to balance the competing imperatives of: increasing UK consumption of 'healthy seafood'; improving water quality standards according to Water Framework Directive obligations; minimising the 'food miles' implications of UK seafood sourcing.

We should accept that Scotland must take the lead role in the development of the aquaculture industry and create effective UK wide liaison to oversee its growth. We propose that the Scottish Executive set up an agreed system within their Fisheries' department that would include proper representation from English, Welsh, and Northern Irish interests to oversee UK aquaculture as a whole. This UK Aquaculture Board (UKAB) would be charged with clear obligations to consider all the different regulatory regimes and assess how appropriate each of them are when considered on a cumulative basis, according to the principles articulated in the Hampton Report. Subject to appropriate legal advice, we should empower this oversight body, through subordinate or secondary legislation or other means, to take action to correct any current imbalance in the individual regulations.

This group would advise the UK Government so that it could ensure that our international obligations, particularly adherence to European Directives, are upheld to a level that is commensurate with our national strategic requirements and to ensure a level playing field.

Section 4.27. UK's International Responsibilities and Obligations

We must recognise that the UK's commitment to restoring and protecting the long-term ecological and economic health of our marine, coastal and fisheries interests extends to:

- the important biodiversity attaching to our Overseas Territories, particularly those in the South Atlantic;
- EU agreements that enable EU interests to access fisheries belonging to non-EU countries;
- other relevant EU policies and responsibilities, such as the WTO; and
- additional unilateral or collective responsibilities that the UK has through high seas and regional seas agreements.

The UK must:

- provide greater support and resources for the protection of globally threatened albatrosses and other species in its South Atlantic Overseas Territories. Action must be taken by the UK with those of its Overseas Territories that hold major breeding populations of globally threatened albatrosses and other species;

- address its collective address its responsibility in respect to the environmental and socio-economic impact of EU fishing agreements with third countries, regardless of the consequences for future EU fishing opportunities;

- take action in response to concerns about the sustainability of the unregulated catch by EU fishermen of sharks and rays, and must pursue the drafting and enforcement of an EU prohibition on "finning";

- maintain support for a ban on all deep water trawling on the high seas both in the current UN negotiations and through the regional fisheries agreements to which the UK is party; and

- as the round of WTO negotiations limps onwards, lobby support for the proposal that all fisheries subsidies should be solely used for the purpose of developing and delivering sustainable fishing practices and public goods. Currently, many fisheries subsidies have the exact opposite effect. Globally, subsidies are one of the biggest drivers of unsustainable practices and over-capacity fleets prone to illegal fishing.

Chapter 5. Water – The First Essential

Contents

Section 5.1. Introduction 216

Section 5.2. Water and Life 222

Section 5.2.1. Water and people 222
Section 5.2.2. Water and wildlife 226
Section 5.2.3. Water and land 232
Section 5.2.4. Water and buildings 238
Section 5.2.5. Water and waste 242
Section 5.2.6. Water and government 246

Section 5.1. Introduction

The freshwater cycle is increasingly rushed and unstable. Climate change is one reason. Weather patterns are becoming more volatile, dumping large amounts of rain in short, sharp bursts between long, hot periods of drought and evaporation. Burgeoning domestic demand is another. More single households, power showers and greener lawns put a strain on rivers and aquifers. Parking pressures and a fierce pace of urban development in general have encouraged us to pave over substantial areas of our towns and suburbs. Rain that used to sink into front gardens and playing fields now bounces off impermeable surfaces to swell the deluge in storm drains. Combined sewers that cannot cope with the sudden downpours then overflow into rivers.

Out in the countryside, decades of subsidized land drainage and deep ploughing mean that polluted water and topsoil is washed from farmland into faster straightened rivers and past bunded flood plains to bottlenecks in low-lying built developments. Water pollution continues to present a serious problem, especially the thousands of 'diffuse' sources for which, without realising it, many of us are personally responsible.

Yet we are reliant on water not just for itself but for the way it supports ecosystems - for which both quantity and quality are vitally important. As a uniquely connective resource, we must therefore consider how our decisions relating to water will have an impact on other people and on the natural world. This is not just an environmental issue but a hard-headed recognition that we need to protect ecosystems if we are to protect and enhance our own access to water which itself demands a healthy ecosystem.

Water management has successfully responded to complex drivers such as post-privatisation efficiency improvements and European directives. However, we believe that many of the conventional approaches will not be adequate to meet today's key pressures, to resolve tensions between them, and to deal with a new generation of drivers including the Water Framework Directive.

We therefore advocate a new ethos to underpin holistic, integrated responses, which we have called **Slow Water**. It aims to relieve the increasing pressures on the freshwater cycle by reducing the pace of water's journey from sky to sea. More than simply slowing water down, it also requires that we re-establish the value of this uniquely vital resource, balancing the needs of humans with those of ecosystems.

5.1.1. Objectives

Our objective is to identify ways that everyone, from government and its agencies to private individuals, can help to manage and enjoy water in a more sustainable way through approaches that link together the different aspects and implications of water management.

This means that we need to encourage better understanding of:

- water's natural flow and cycle;
- the value of water;
- the links between human and ecosystem water needs;
- the power of flood and drought; and
- water's place in the wider sustainability picture.

5.1.2. Frame of reference

We need to adopt an entirely new emphasis in direct opposition to the status quo. This present approach might be called 'hard' water management, which privileges large infrastructure and heavy

engineering for the supply, treatment, and disposal of water, and the management of flood risk. This necessary alternative ethos is what we mean by Slow Water.

Although Slow Water implies a preference for decentralised, low energy methods, we recognise that drinking water, sanitation and safety from flooding are essential to our wellbeing. We do not think these benefits should ever be compromised, but simply that they often can be obtained at lower long-term cost to the natural environment, the landscape, and ourselves. We have therefore focused on demand management rather than supply, on managing floods rather than preventing them. In this way we have redressed the imbalances in conventional approaches. Large-scale resource development – reservoirs or more innovative schemes like Managed Aquifer Recharge – may yet be required; but these approaches should not be our first recourse – since this leads to more sustainable methods remaining underdeveloped.

5.1.3. Slow Water

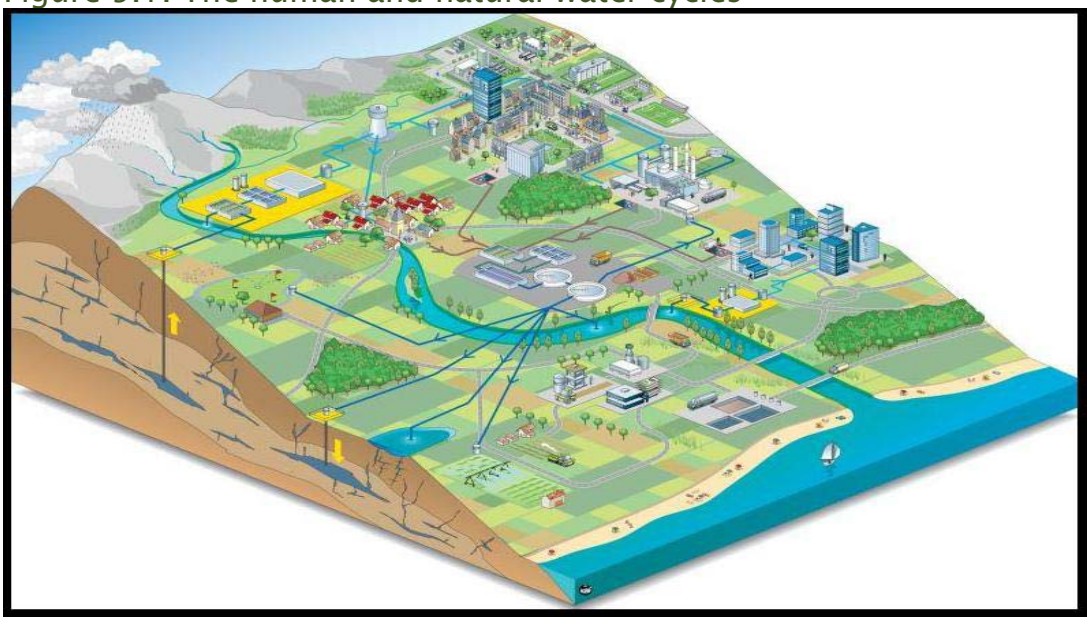
Slow Water is, as it sounds, about slowing water down in its journey from sky to sea. Urban impermeability, changing land use and increasingly confined rivers are accelerating that journey: rain and floodwater have no chance to infiltrate into what is often parched soil. The problem is set to get worse with climate change and demands that the heavier, short duration winter rainfall is retained for drier summers ahead. As one farmer puts it: "we spend six months of the year talking about building the river banks up and dredging the rivers to get the water away quicker to stop the flooding and the other six months wondering where all the water has gone. A little joined-up thinking would help!"[130]

But Slow Water is also about taking time to appreciate water's value. At one level, people do have a ready appreciation of its worth. Clean drinking water ranks highly on our list of essentials for life and we are also aware of the importance of water quantity and quality to the natural world. 39% of Britons rank water pollution as a serious environmental concern.[131] Yet, despite that deep understanding, in day to day reality, water is summoned and dismissed without much thought for where it came from or what it takes with it when it disappears into drains and sewers.

In rural areas, issues of water quantity are often more apparent, but it is still true that the connection between land management and water quality is often ignored. More generally, consumer research indicates that surprisingly few people think about their own water use, even though small changes to routine behaviour can make a substantial difference to consumption.[132] While climate change is a global issue, its effects and their mitigation are both global and local. Nowhere is that more true than is in its effect on water. That is why a better understanding of the natural freshwater cycle, and man's contribution to it should be a springboard to awareness and action.

[130] Jonathan Tipples, Vice Chairman Assured Food Standards.
[131] European Commission, 2005. *Special Eurobarometer: The attitudes of European citizens towards the environment*.
[132] Consumer Council for Water (CCWater), 2006. *Using Water Wisely: Report of Consumer Research Findings and Recommendations for Action.*

Figure 5.1. The human and natural water cycles



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The natural water cycle may seem relatively simple. Rain or snow falls on the land, percolates into the ground, where it can reside for thousands of years or seeps into the rivers. Much is returned to the sky through transpiration - drawn up by plant roots and evaporated through their leaves but increasingly it runs over the surface of the land and then, via tributary streams, to rivers and on out to the sea. Although some of this surface water soaks into the ground most is lost to the salt water until evaporation returns it to the sky for the cycle to continue.

Things get much more complicated when people intervene: abstracting water from ground and surface resources; pumping it to homes, businesses, and industries; polluting it; altering the morphology of rivers and wetlands; reducing the permeable surface through which it can infiltrate; expending large amounts of energy in purifying and treating it for drinking…….

5.1.4. Disturbances and pressures

5.1.4.1. Climate change and energy

The natural pattern of precipitation, deposition, and return has been significantly changed by modern drainage and farming practices, urbanisation, and industrialisation. It is now being altered by the way the climate itself is changing. Despite unpredictable and sudden exception such as the recent summer floods, our summers are becoming generally drier. In much of England, summer soil moisture could be reduced by up to 40% with dramatic effects on crop viability and our need for irrigation. Summers could be up to twice as dry across the country while winters could be a third wetter.[133] As a result the Tyndall centre has questioned the capability of groundwater reserves in parts of East Anglia to support both abstraction and ecosystem water requirements, even by the 2020s.[134]

Climate change must make us more aware of all resource limitations – and no resource is more important to people or the planet than water. We cannot respond simply by developing yet more engineered and end-of-pipe solutions. Instead, sustainable land management must be integrated with

[133] UK Climate Change Impacts Programme, 2002. *Climate Change Scenarios for the United Kingdom: The UKCIP02 Briefing Report*

[134] Tyndall Centre for Climate Change Research, 2006. *Sustainable water resources: A framework for assessing adaptation options in the rural sector*

sustainable water management. Without this fundamental change we cannot hope to handle increases in river and coastal flood risk which will certainly double and may increase twentyfold. By the 2080s, the annual economic damage may rise from the current £1 billion to £42 billion.[135] Exponential increases of this kind would overwhelm a society reliant solely upon engineered flood defences. Our defences have to be of a wholly different order.

Yet, climate change is also, in part, a symptom of the high water use that directly contributes to its growth. The emissions involved in the treatment and pumping of water and waste-water are significant. According to Water UK, "measures adopted to reduce energy use have not been able to keep pace with the growing demands from further treatment".[136] The sustainability of water management must be considered in the round. There are difficult tensions that arise between demanding more and cleaner water and insisting that we should not increase emissions. This must be taken into account when considering the basis of water conservation policy and how it should balance regional water scarcity, fairness, and the resources and emissions involved in water treatment. Even in areas where water is plentiful, the emissions involved in its treatment and pumping are much the same as where water is scarce. One area of dispute has at least been removed by this discussion. Carbon accounting has finally put an end to the idea of a national water grid. Plans for new large-scale water transfer were never sensible because of the expense, energy demands, and ecological implications. They can now be discounted.

5.1.4.2. Increased demand

More people, in more houses, using more water – this summarises the forecast rise in domestic demand. Non-domestic demand is set to fall overall, but not by nearly enough to provide a counter-balance. If over the next 25 years household demand increases by a thousand million litres per day, non-household demand will fall by less than a third of that.[137] Although human demand must be considered against available resources, that is not the exclusive measurement. We need an approach which also takes account of ecosystems requirements. Abstraction must be balanced against environmental flows. In water issues every element is intricately related to every other. Only a holistic approach can hope for success.

Nonetheless, domestic demand merits particular attention not only because it is set to rise, but also because it presents the most obvious opportunities for efficiency gains. The population of England and Wales is set to increase by over 7 million, or 13%, by 2031.[138] Meanwhile the distribution of that bigger population will change in a manner that places disproportionate pressure upon water supplies. The number of single person households could well increase by a third across the Greater South East.[139] Individual consumption is 40% higher in a single person household than its two-person counterpart.[140] At the same time, current trends indicate that we will use more water per person however we are housed.[141] We need a radical, co-ordinated shift in policy and attitudes to check and reverse this growth. In seeking that change we shall have to take into account the fact that the present Government's inadequate target to build 200,000 homes per year[142] focuses on the greater South East, an area with less water per person than Syria or the Sudan.[143]

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[135] Office of Science and Technology, 2004. *Foresight: Future Flooding. Scientific Summary; Volume 1 Future risks and their drivers.*
[136] Environment Agency, 2006. Briefing for the Water working group of the Quality of Life Policy Group.
[137] EA estimates in House of Lords Science and Technology Committee, 2006. *8th Report of Session 2005-06, Water Management.*
[138] See http://www.statistics.gov.uk/cci/nugget.asp?id=1305.
[139] Office of the Deputy Prime Minister 2006 'New projections of households for England and the regions to 2026'.
[140] Butler D and Ali Memon F (Eds.), 2006. *Water Demand Management*
[141] Institute for Public Policy Research (IPPR), 2006. *Every Drop Counts*.
[142] This includes the addition to existing regional planning guidance of the Sustainable Communities Plan and the Barker Review. See ODPM, 2005. *A sustainability impact study of housing scenarios in England*
[143] See http://www.environment-agency.gov.uk/subjects/waterres/1014767/1370506/1401671/1407535/?lang=_e

5.1.4.3. Land use changes: Impermeable surfaces and accelerated rivers

The London Assembly acts as if it believes in building by stealth a car park twenty two times the size of Hyde Park, covering 32 km^2 of the capital.[144] The spread of our built environment seems inexorable. Until the Code for Sustainable Homes becomes mandatory there will be no obligation for the planned 200,000 homes per year to reduce their displacement of permeable surface. A third of those built in the South East will be on flood plains.[145] Every inch of space occupied by impermeable buildings or surfaces redirects and often focuses rainfall, causing flooding and preventing rain from reaching groundwater. The economic effect is significant. Water and sewerage companies spend some £320 million each year on intra-urban flood risk management. Ironically they do it by using yet more concrete and energy to check the damaging water flows that our construction and planning have created.[146] Water management cannot take the short-term view: if the permeability of our cities is not radically improved, and storm water separated from foul water, sewer enlargements will only cover up temporarily the problems of an ageing infrastructure.

It is not just bricks and concrete which are preventing land from fulfilling its natural role as sponge and filter. The floods of 2000 arose after some of the wettest conditions for 270 years. But subsequent investigation found that it was not only the unusually wet spring and autumn that had led to soil saturation and thence floods. "Long term changes in farming practice", [147] had also degraded the soil structure, reducing its infiltration and water storage capacity. Up to 40% of the Severn catchment was probably degraded in this way,[148] resulting in a 0.5 to 12% increase in the total volume of run-off entering rivers in this and other catchments such as the Yorkshire Ouse.[149] Even at the lower end, this is a significant volume of floodwater. Furthermore, for four decades from the 1940s a publicly funded programme actively drained most of the remaining quarter of historic floodplain wetlands in England. The damage done has not been redressed. Washlands and wetlands can also offer surface as well as subsurface storage capacity to reduce the rate at which precipitation enters watercourses. Land management can make a considerable contribution to many aspects of water management, including flood attenuation. The impact of drainage of peat moorlands on climate change adds even greater urgency to the situation. The National Trust believes UK peatland, which amounts to 15% of the world's total, could contain up to 20 years worth of industrial carbon emissions. While wet, peat has impressive carbon-fixing capacity, but when dry it abruptly starts to emit CO_2, at alarming rates.

5.1.4.4. Water pollution

Our determination to clean up our rivers, lakes and streams has led to a focussed attempt to tackle pollution at source. But we must ask whether this end-of-pipe attitude to clean water is sustainable, especially if the myriad smaller sources of pollution go unchecked. This diffuse pollution is not only a threat to our own drinking water supply. Pesticides and nutrients from fields, pathogens in animal and human waste through misconnected sewers, hydrocarbons from roads, solvents from industrial premises, even eroded soil itself – all these incur a heavy cost for ecosystems and the services they provide. Fish-spawning gravels are smothered by silt; nutrients cause eutrophication; biodegradable organic materials take up oxygen; trace metals and endocrine disruptors have potentially long-term but uncertain implications for freshwater.[150]

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[144] London Assembly, 2005. *Crazy Paving: The environmental importance of London's front gardens*.
[145] IPPR, 2005. *Managing Water Resources and Flood Risk in the South East*
[146] Figure for 2003-4, IPPR, 2005. *Managing Water Resources and Flood Risk in the South East.*
[147] Holman, et al., 2005. 'The contribution of soil structural degradation to catchment flooding: a preliminary investigation of the 2000 floods in England and Wales'. *Hydrology and Earth System Sciences,* 7(5) 754-765.
[148] *ibid.*
[149] EN, EA, Defra and Forestry Commission, 2003. *Wetlands, Land Use Change and Flood Management*
[150] Defra, 2004. *Water Quality: a Diffuse Pollution Review*.

The exact meaning of the Water Framework Directive's requirement to achieve ecological 'good status' for all surface waters by 2015 may remain unclear but there is no doubt that diffuse pollution is one of the most significant obstacles. In 2005. the EA's General Quality Assessment scheme found around 1 in 20 rivers were of poor or bad biological status, and a similar proportion were of poor chemical status. Phosphates were at high concentrations in more than half of rivers and 28% had high concentrations of nitrates. [151] Wildlife organisations believe that few of our rivers, lakes and estuaries can be considered certain to meet the Water Framework Directive requirements.[152]

Integrated water management

It is necessary to define what we mean by this phrase, which will be used frequently. In our consideration it means:

"a process which promotes the coordinated development and management of water, land and related resources in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems"

Global Water Partnership

[151] see http://www.environment-agency.gov.uk/yourenv/eff/1190084/water/213902/river_qual/
[152] Opinions from WWF-UK and RSPB, House of Lords Science and Technology Committee, 2006. *8th Report of Session 2005-06, Water Management.* Minutes of Evidence.

Section 5.2. Water and Life

Water issues are difficult to categorise. Our proposals are grouped into Sections to underscore the importance of water in so many aspects of our lives. Although we have Sections called 'Water and People' and 'Water and Wildlife', in terms of sustainability human water needs cannot be entirely separated from ecosystem requirements. The implementation of a Sustainable Drainage System could just as easily be considered in relation to 'Water and Buildings' or 'Water and Land', rather than 'Water and Waste'. The sections we have chosen aim to highlight areas that need urgent attention. We have endeavoured to point out the various overlaps, and it is hoped that the proposals can be considered as part of an integrated whole with overlapping benefits outside their particular Sections.

5.2.1. Water and people

5.2.1.1. Choosing to conserve

Any consideration of the water issues with which we are faced, highlights the urgent need to help people understand the concerns and realise that they can make a personal difference through water conservation and efficiency.[153] Of five barriers to positive change among domestic water users identified by the Consumer Council for Water (CCWater), four can potentially be addressed by improved communication and example-setting:

- Low awareness about how to minimise wasteful use of water and take positive action
- Lack of clear information from a single independent trusted source
- Difficulty in seeing how individual action can make a real difference
- Negative view of the water industry, in particular with regard to leakage

CCWater, 2006, Briefing Note; Consumer Research Findings and Recommendations for Action

The potential for change is there – the same research indicates that people are "*concerned about the environment and accept the need to conserve water."* It must be made clear that it is possible for anyone to make a meaningful contribution to sustainability through water conservation, at minimal cost. The entire strategy of communication must be co-ordinated: from identifying the most appropriate mechanisms at a national level, to choosing a format for individual messages that is easily understood and attractive to the public.

There are at the moment a number of bodies that have done good work in promoting understanding and efficiency. However, they have been seriously underfunded and their impact has therefore been limited. Waterwise has made significant progress, managing a broad range of enterprises on a tiny £300,000 budget. Particularly important has been their pioneering water marque and their efforts to publicise embedded (or virtual) water. CCWater conducts valuable research into people's behaviour and attitudes regarding water. The Water Saving Group provides a link between industry, regulators and other stakeholders, co-ordinating water conservation work and research. However, none of these bodies has the remit or capability to conduct wide-scale communication work. The most substantial report on the feasibility of the kind of work we believe necessary suggests that funds of between £5m and £25m a year would be required for "creating a high profile for water efficiency through PR activities, marketing and advertising".[154]

[153] All proposals in this section recognise the work done so far by Waterwise and CCWater.
[154] EA and Environmental Resources Management, 2005. *Water Saving Trust Feasibility Study: an Options Assessment and Evaluation*.

We therefore believe that we should accept the need for a proper body to carry through this task and that Ofwat should be recast and charged with the dissemination of conservation and efficiency information.

Ofwat should be required to impose a levy on water undertakings to meet the cost of providing this service. It should also give its 'seal of approval' to efficiency-related information from companies and so harness existing means of communication such as customer bills and advertising as well as identifying how to encourage more water conserving behaviour through consumer research.

The Bucketeers: Melbourne's DIY grey-water recyclers

During the Australian summer this year water restrictions imposed on Melbourne encouraged a surge of awareness and ingenuity when it came to water reuse. The 'Bucketeers', as The Age newspaper styled them, appear to be inspired by word of mouth and simple expedience to collect water from showers for reuse in the garden. A variant is to buy an extension hose for the washing machine outlet. The level of take-up may have been driven by Melbourne's acute and chronic water shortage, but it indicates the potential for the public to act to conserve resources, especially when they are getting something out of it themselves - in this case, a legal way round restrictions on watering the garden. The fact that the trend originated spontaneously, rather than at the encouragement of government or water companies, is also important. A projects coordinator at the Centre for Education and Research in Environmental Strategies commented that: "What we're seeing is a whole lot of people acting ahead of government policy. They're taking the initiative themselves." A final point to note is that the Bucketeers' method of direct reuse transferred the emphasis from restricting use (government restrictions) to reducing wastage (of the water that disappears down the drains). Research into the drivers and trends in this kind of behavioural change might be carried out in depth, to see whether they can be better harnessed in the UK.

The Age Newspaper, Australia

At the same time, we would want to see Waterwise's water marque developed into a national labelling scheme for all water fittings and appliances with a view to an EU-wide mandatory system, similar in operation to that now applying to the energy efficiency of white goods. The present institutional hesitation cannot continue. As the House of Lords' Science and Technology Committee reported in its second report of 2007, "It is surprising that the Government feel that the 'technical and legal feasibility' of introducing a mandatory labelling scheme for water-using products has 'yet to be established' – particularly given that a highly successful mandatory energy efficiency labelling scheme is already in operation".

A labelling scheme for water-efficient products would, of course, require an E.U. Directive if it were to be mandatory and we would also need proper co-ordination with the energy labelling scheme.[155] However, we do not see this ultimate goal as an acceptable cuase of delay for a national labelling scheme as an interim measure and exemplar. Water using appliances with energy efficiency labels, such as dishwashers and washing machines, already give some indication of water consumption. This could be made considerably clearer, and should include products which do not carry energy labels. The labelling scheme should be introduced in tandem with our proposed revisions to the Water Supply (Water Fittings) Regulations which would have the objective of phasing out the products most wasteful of water.

It is imperative that government provides a practical demonstration of its commitment. The Sustainable Development Commission found that public sector progress in meeting the water

[155] House of Lords Science and Technology Committee, 2007. *2nd report of session 2006-07: Water Management, Follow-up.*

conservation targets was poor. Only 8 departments had successfully met the C2 target on water use in office buildings, originally established for completion in 2004. Overall consumption on Government property increased by 2%.[156] As noted in the Sustainable Development Commission Annual Report of 2006, "clearly, many of the [government] departments have a considerable way to go in the next 14 years in order to minimise water consumption by 25% against 2004/05 consumption…".

We should look to the public sector to give a lead by accepting that minimum standards for appliances and fittings would be integrated into water efficiency targets for the government estate, retaining the overall framework of setting maximum targets for consumption per full-time employee.[157] An incoming Conservative government should commit itself to reducing the average surface water run-off from government estate holdings, and should conduct a water efficiency audit department by department within one year of the election. It will need Ministerial action if it is to become clear that water efficiency is a central concern and not an optional enthusiasm.

However, there is also a need to ensure that the public feels that the industry is doing all it can to contribute to the reduction in water waste. People find it convenient to avoid acting themselves by demanding that the water companies act first. As it is, only 7% of the 2006 participants in CCWater's quantitative research thought that water companies were doing enough to save water, and 72% felt they themselves would maybe/ definitely do more if they saw more action from companies: "i.e. reducing leakage, investing in water collection and storage and providing help and information on how to save water".[158] It is imperative that Ofwat's review of the economic level of leakage takes proper account of external costs and of the effect of leakage, particularly visible leakage at times of drought, on the wider water conservation agenda. Properly explained, it becomes clear that zero leakage is not feasible, given the nature and age of the infrastructure. Nevertheless water companies must be *seen* to be working harder. Issues of trust also mean that Ofwat would be best placed to increase the 'visibility' of this work. Punitive action against companies that repeatedly fail to meet their leakage targets should be imposed swiftly.

We cannot develop new resources indefinitely, and water-efficient appliances only conserve as much water as their user. Although investment to change attitudes and behaviour offers less certain returns than these 'hard' solutions we cannot ignore it. Water is an area where people can make a real difference by their individual actions, and its conservation is inherently more of a 'local' issue than tackling carbon emissions, which cause a problem on a global scale. However, imagination and subtlety are required to make the messages effective. Talking about reducing water wastage, rather than water use, can help to make the message more palatable. We need, too, to produce new approaches as well as the conventional advertisements and leaflets. CCWater found 57% of people did nothing after seeing water conservation messages while 20% acted on the advice. There is much to be done to formulate the optimum communications strategy and there are undoubtedly lessons to be learned from overseas in how to affect the psychology of water use. "In a world of information-overload, it is not more information campaigns or leaflets that are needed."[159] Communication will also be vital in establishing consumer support for metering, which can all too easily be misrepresented by the media as an attempt to penalise large families (see 'Pricing Water Services Fairly').

5.2.1.2. Pricing water services fairly

The validity of household metering as a demand management option is being recognised. Best estimates for the effect of metering on domestic consumption are savings of between 10 and 15%, with

[156] Sustainable Development Commission, 2007. *Sustainable Development in Government: Annual Report 2006*.
[157] Current targets are: "Reduce water consumption by 25% on the office and non-office estate by 2020, relative to 2004/2005 levels", and "Reduce water consumption to an average of 3m3 per person/year for all new office builds or major office refurbishments." See http://www.sustainable-development.gov.uk/government/estates/targets.htm
[158] Ibid.
[159] Demos and Green Alliance, 2004. *Carrots, sticks and sermons*.

considerably greater peak-time savings from appropriate tariffs.[160] Water company forecasts suggest meter penetration will be at around two thirds of households in England by 2030.[161] It is, however, clear that several companies in the South East are lagging behind regional targets even for the simplest of installations. This is especially worrying because the South East is an area particularly short of water where development pressures are at their greatest.[162]

The Government is currently consulting on plans to make it easier for water companies to obtain water scarcity status, which would allow them to meter households compulsorily in their area.[163] So far, only Folkestone and Dover Water have this status. Sadly the Government seems confused as to what its purpose really is. The consultation document's preferred option is to permit compulsory metering "where it is a cost effective solution to a resources constraint" determined via the water companies' (Water Resource Management Plans for PR09). As IPPR points out in their recent report "metering does not often come out as the least cost option in company plans".[164] The EA has expressed concern about "water companies forecasting low water savings as a result of metering".[165] This Policy Group also believes that insufficient progress will be achieved in this half-hearted way. Intervention will be necessary to require companies in water-stressed areas to achieve full metering by a certain date. It is no longer possible to avoid urgent action.

We believe that water metering should be part of an integrated approach to providing information to help change attitudes towards energy and water consumption. We therefore propose a programme of smart metering for water that would link in with the overall smart metering strategy. Within ten years, smart electricity meters should be installed and programmed, and should be capable of 'talking' to gas and water meters so that they can inform the display in the customer's kitchen or hall, and provide a two-way link to the relevant utility supplier. In this way the consumer can be kept fully informed of tariff adjustments and billing can be more efficient and accurate. Such a programme of metering would be allowed for in Ofwat's quinquennial settlement with the industry, and would be paid from a charge levied on all bills.

Smart metering will enable companies to implement a socially just tariff that would reflect the value of water without penalising the less well-off unfairly. It is a continuing theme of this Report that we shall only be able to deal with climate change if we get the willing consent of the people. That will not be forthcoming if it is felt that the burden is unfairly distributed. At the moment, those who choose to be metered do so because they gain from it. People who use a lot of water in a lowly-rated home would pay more were they to be metered. It was in recognition of this that the Government made metering voluntary even in those areas where compulsory metering had begun. It is time to revisit this decision by linking compulsory metering with a concerted policy of socially just charging.

We do not propose one single system and we recognise that until metering is universal, such tariffs will have to be pretty simple. However, a rising block system could be introduced without universal smart meters. This would provide sufficient water for individual or family need at a standard price and then charge significantly more for consumption above that. Heavy discretionary usage for swimming pools or garden watering would then bear a higher price, properly reflecting the carbon cost and scarcity of water. At the same time the less well-off would not be deprived of necessary water for washing and bathing. Ultimately, as smart meters become widespread, every household will be able to monitor water use and, by avoiding waste, keep their consumption within the least expensive band.

[160] Herrington P, 2006. UKWIR: *Critical review of relevant research concerning the effects of charging and collection methods on water demand, different customer group and debt.*
[161] Environment Agency, 2004. *Maintaining Water Supply.*
[162] IPPR for the Commission on Sustainable Development in the South East, 2005. *Managing Water Resources and Flood Risk in the South East.*
[163] Defra, 2007. *Consultation on water metering in areas of serious water stress.*
[164] Every, L and Foley, J, IPPR 2006, *Every Drop Counts: Achieving greater water efficiency.*
[165] Environment Agency, 2004. *Maintaining Water Supply.*

All this will require a strong lead from an appropriate body to co-ordinate liaison between the different stakeholders and drive through a national standard for all smart water meters, accelerating the smart meter production market. We believe the Department of Sustainable Growth to be appropriate for this role. DSG would also be required to put through legislation to permit discriminatory charging so that the poor would be properly protected.

5.2.1.3. Ensuring affordability in the interim

While smart metering and social tariffs are phased in, affordability will remain a serious problem: by 2009 41.9% of pensioners will spend a greater proportion of their disposable incomes on water than the Government's own sustainability benchmark of 3%.[166] There is currently a vulnerable groups tariff: metered households in receipt of certain state benefits who have three of more dependent children and those with certain medical conditions pay no more than the average charge for their region. Uptake is poor: only some 9,000 bill payers of the 65,000 or slightly more who currently qualify. Pensioners are unlikely to qualify unless they or a dependant have a specific medical condition, although they may be spending up to 7% of their disposable income on water charges.[167] We support the recommendations agreed by the vulnerable groups workshop of September 2006:

- Tariff and associated information should be given more positive branding.
- Application forms and guidance should be simplified and standardised.
- All relevant parties including DWP to collaborate in targeted publicity. [168]
- There is a strong argument for extending qualification, to include pensioners.[169]

5.2.2. Water and wildlife

5.2.2.1. Respecting environmental flows

Virtually no aspect of human water use can be considered without reference to ecosystem requirements. Protecting biodiversity is not just about 'existence value' or stewardship for the sake of nature: it is about protecting ourselves, and about maintaining the natural systems which ensure that human life is sustainable. It is our failure to understand this that has allowed us to create a false dichotomy between human needs and the demands of the water environment. In fact they are part of one and the same necessity.

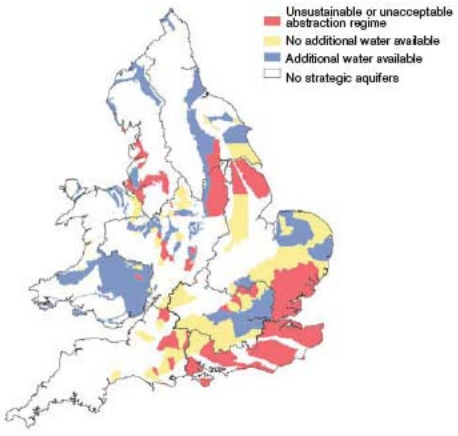
To identify, protect, and restore freshwater ecosystems, we need an abstraction management process that phases out unsustainable abstractions combined with a co-ordinated restoration of compromised freshwater ecosystems. While the Environment Agency's Catchment Abstraction Management Strategy (CAMS) represents a move in the right direction, it is inadequate for protecting freshwater ecosystems from permanent degradation.[170] Its deficiencies include insufficient application of the precautionary principle in favour of ecosystem water requirements; a lack of attention to climate change scenarios and the water quality implications of the Water Framework Directive (WFD);[171] and an inadequate correlation between the economic cost of abstraction licenses (and therefore of

[166] Defra, 2004. *Cross-Government Review of Water Affordability Report 2004*. For government benchmark of 3% of disposable income, see http://www.sustainabledevelopment.gov.uk/sustainable/quality04/maind/04q03.htm.
[167] Based on an average water and sewerage bill in 2005–06 at £400: additional memorandum submitted by the Consumer Council for Water in House of Lords Science and Technology Committee, 2006. *8th Report of the Session 2005-2006: Water Management*, Minutes of Evidence.
[168] Defra, Water Supply and Regulation Division, 2006. *Vulnerable Groups Workshop Report*.
[169] Corr Willbourn Research on behalf of CCWater, 2007. *Deliberative research into consumer views on fair charging for the consumer council for water.*
[170] House of Lords Science and Technology Committee, 2006. *8th Report of the session 2005-6: Water Management: Minutes of Evidence.*
[171] including the definition of 'Good Ecological Status'.

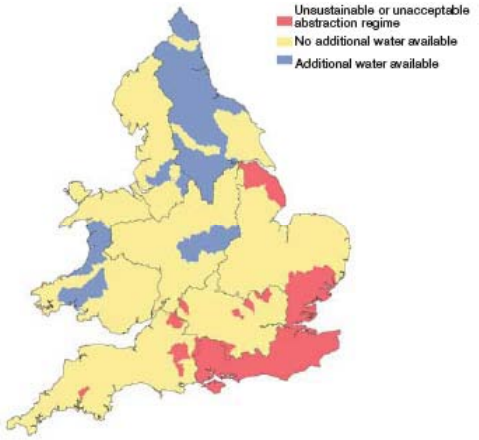
abstracted water) and the environmental cost of abstraction. The EA faces a highly complex task in balancing human and environmental water needs. Figure 5.2. below indicates the overall shortages with which they are dealing.

Figure 5.2. Water resources in England and Wales

Groundwater outlook



Summer surface water outlook



Environment agency (2001), © Crown Copyright, All rights reserved, Environment Agency 100026380 (2006)

5.2.2.2. A programme for action

We propose that an incoming Conservative government should make freshwater ecosystems a priority. They are worthy of particular protection in themselves but they also need protection as linking features within the wider environment and for the diversity of services which they provide. This policy should be effected through a precautionary approach, which would curtail damaging abstractions, together with a co-ordinated programme of restoration. In order to achieve this, the CAMS process will have to be reviewed with consideration given to:

- increasing the protection afforded to freshwater ecosystems, beginning with Designated Areas such as Sites of Special Scientific Interest;
- integrating CAMS better with climate change scenarios and the implications of the WFD;
- increasing the efficacy of the EA's powers to end damaging abstraction[172]; and
- making the cost of abstraction licences reflect environmental costs better.

5.2.2.3. An ecosystem on the edge

English Nature has reported that abstraction is jeopardising 7% of standing water Sites of Special Scientific Interest (SSSIs) and twice that proportion of river SSSIs. 60 SSSIs will require action from water companies to prevent further abstraction damage.[173] Evidence indicates a non-linear relationship between ecological change and increased environmental disturbances, which can include reduced flow or a drop in the water table. An example is Redgrave and Lopham Fen, the largest remaining river valley fen in England. Abstraction of groundwater caused the peat soil to dry and oxidise. Certain parts of the fen community have been prevented from ever returning to pre-impacted status. This highlights the fact that aquifer as well as surface water abstractions can cause real problems. Furthermore, drying peat out severely compromises its ability to retain carbon. Research identified the state of peat moorland as key to controlling Britain's carbon emissions. The National Soil Resources Institute has estimated that up to 13m tonnes of CO_2 are released from UK soil every year. Proper management of upland peat bogs could reduce greenhouse gas pollution by up to 400,000 tonnes per year, equivalent

[172] This may require greater use of existing powers rather than new ones.

to taking 2% of our cars off the road. This will, however, involve the avoidance of over-drainage as well as controlling burning and overgrazing.

5.2.2.4. Restoration

While it should be a priority to prevent further damage to freshwater ecosystems by controlling abstraction better, there is a clear need to restore those ecosystems that have already been compromised. Attempts to protect the remaining fragments of wetland as SSSIs are often cancelled out by man-made alterations elsewhere in a catchment. These prevent regular flood inundation and lower the water table. Some two-thirds of 500 SSSIs designated to protect wetland fragments are under threat in this regard. 85% of England's lowland rivers have been physically modified, frequently by being blocked off from a floodplain.

The benefits of restored river and floodplain morphology include not only biodiversity – most prominently rare species such as snipe and the snakeshead fritillary – but also ecosystem services such as sustainable marsh grazing and outdoor leisure. There are significant opportunities for flood risk management.[174] Yet there is currently no proper programme to obtain these benefits. The Environment Agency should begin a comprehensive programme of restoration for rivers, wetlands, floodplains, and peat moorland from morphology to habitats and ecosystems. This programme should be integrated with flood risk management where appropriate and utilise local interest and expertise through the proposed catchment community groups (see Catchment Scale).[175] Revenue raised from increased abstraction fees could be redirected into such restoration initiatives.

5.2.2.5. Research

Understanding when and how freshwater ecosystems are being compromised requires sound scientific research. The state of knowledge is currently limited, though the efforts of the Research Councils (e.g. ESRC and NERC) to sustain research in this area next year are to be applauded.[176] It is imperative that the Research Councils and the Office of Science and Innovation support UK academic bodies such as the Centre for Ecology and Hydrology in developing knowledge of these highly complex systems. A major and urgently required component of this research will be to identify a coherent definition of "good ecological status", as required by the WFD.

5.2.2.6. Agricultural abstraction

Despite the small proportion of total annual abstractions (1%) for which agriculture accounts, irrigation has a disproportionate impact on ecology because its needs are greatest at periods of natural water stress. The Environment Agency suggests that 7% of the cost of compensating for abstraction licence revocations will involve licences in the agricultural sector.

Meanwhile, the farming community understandably perceives itself as a soft touch when abstraction from a water body must be limited, *"with water companies having a statutory duty to supply water and with nature sites having statutory protection".*[177] We include the argument for greater support for larger on-farm water conservation projects in a later Section – Farming the Flow – and, as part of that, believe that greater funding for farm ponds from Pillar II CAP payment will be necessary to help

[174] English Nature, Environment Agency, Defra and the Forestry Commission, 2005 *Wetlands, Land Use Change and Flood Management.*
[175] Memorandum by English Nature on behalf of the Natural England Partnership in House of Lords Science and Technology Committee, 2006. *8th Report of the session 2005-6: Water Management: Minutes of Evidence.*
[176] See Defra and DCLG, 2006, *Government response to the House of Lords Science and Technology Committee 8th report of the sessions 2005-06 on Water Management.*
[177] Memorandum by the Broadlands Agricultural Water Abstractors Group, in House of Lords Science and Technology Committee, 2006. *8th Report of the Session 2005-2006: Water Management*: Minutes of Evidence.

farmers move from summer to winter abstraction. The advantages include reduced competition for water resources and a more reliable and stable farming sector.

5.2.2.7. Facing up to the concerns

Protecting environmental flows at all costs might jeopardise the water supply on which people depend. We note the concern of the House of Lords Science and Technology Committee that "adequate consideration must be given to security of supply" in relation to reviewing abstraction licences under the Habitats Directive.[178] These licence reviews are causing the greatest concern, because the EU legislation requires that a project likely to affect a Natura 2000 site should be allowed to progress only if it can be ascertained *"that it will not adversely affect the integrity of the site concerned"*.[179] CCWater and several water companies, in their evidence to the committee, raised concerns about the implications of this precautionary approach on water supplies for human needs, especially in the South East.[180] It is an argument that must be faced but it ought not to be allowed to prevail. Just as climate change is a symptom of the way mankind has misused the planet without recognizing the consequences, so in water abstraction management, human requirements have almost always been preferred over environmental ones. As Natural England said to the House of Lords Science and Technology Committee in 2006, "Action to tackle over-abstraction needs to be taken before damage becomes visible. A suitably precautionary approach, based on best available information, must be therefore be factored into strategic planning for water demand".

5.2.2.8. Managing pollutants at source

The number of serious water pollution incidents has been falling but 661 were still reported by the Environment Agency in 2005. These are of considerable concern to the public, particularly as sewage was the source of many of the incidents. The sight and smell of polluted water register at a deep emotional level but the cost is also considerable. Sewage or excessive nutrients from farmland leave treatment processes struggling to cope with algal growth (eutrophication). On the river Tamar in Cornwall this has repeatedly led to significant additional treatment requirements for drinking water.[181] There is a growing worry that water-borne pollutants such as endocrine disrupting and other persistent, bio-accumulative chemicals can have as yet unknown effects on human health.

These are some of the direct effects of pollution that hit the headlines and engage the media. But they must not distort our reaction. Our first priority is to view the potential harm to ecosystems in terms not only of human welfare but that of the whole natural system upon which we humans depend. It is prevention not cure that we need. Happily that is the approach enforced by the WFD – not the construction of expensive and energy demanding solutions.[182] We cannot expect our water and wastewater treatment works to act as the kidneys of the wider freshwater cycle. It is that cycle that has to be restored. The energy and resource implications of the alternative 'treatment' methods make them unsustainable as well as comparatively ineffective.

5.2.2.8.1. Agricultural pollution

Diffuse water pollution from agriculture represents perhaps the greatest obstacle to improved water quality.[183] Considerable progress has been made, such as the Catchment Sensitive Farming initiative that we take as a model for our 'Farming the Flow' recommendations. Nevertheless, while the

[178] House of Lords Science and Technology Committee, 2006. *8th report of session 2005-06: Water Management.*
[179] Habitats Directive, Article 6.3
[180] House of Lords Science and Technology Committee, 2006. *8th report of session 2005-06: Water Management.*
[181] Blueprint for Water Coalition. 2006. *10 steps for sustainable water by 2015*
[182] see e.g. Article 11.3(h) of the Water Framework Directive.
[183] CIWEM, 2006. *Catchment Management: Land Use and Water*.

emphasis should be on supporting farmers and rural land managers in providing us with water management services, this should be done in tandem with the establishment of clear standards to discourage malpractice. Ideally these should be voluntary but our experience of the voluntary initiative for pesticides indicate that additional levers may be required for enforcement.

Ensuring that the legal system is able to address the most negligent offenders is an important part of this. We may need to make some codes of practice mandatory, as we have with the regulation of nitrates in Nitrates Vulnerable Zones (NVZs). The welcome intention to extend these zones should be accompanied by an equivalent system designed to reduce phosphate contamination. All such codes must be rationalized and integrated so that compliance does not lead to increasing the administrative burden on the rural community.

5.2.2.8.2. A pesticides tax?

The last Select Committee to examine the issue of a pesticides tax, in 2005, was frustrated by the lack of "a fully worked-up proposal from HM Treasury on its preferred design for a possible pesticides tax".[184] This, though promised, does not seem to have progressed. There is therefore no alternative strategy should the Voluntary Initiative prove unsuccessful. In 2005 there was "little irrefutable evidence of the environmental benefits of the Voluntary Initiative",[185] although EA data from 2005-06 suggests an impact on water quality, with the levels of pesticides and the number of serious pollution incidents attributable to pesticides use improving.[186] Acknowledging this and the difficulty in obtaining reliable data we do not advocate a pesticides tax. Nevertheless, a fall-back position is needed and we believe therefore that a full proposal should be developed so that it can be swiftly implemented if the Voluntary Initiative were to prove a failure.

5.2.2.8.3. Non-agricultural diffuse water pollution

The recent consultation on non-agricultural diffuse water pollution has clarified the scale of the problem and we propose that the polluters be given the opportunity to demonstrate their commitment to improvement. Some already have codes of practice in place – for example, the Forests and Water Guidelines.[187] All relevant sectors should implement an equivalent code of practice. Manufacturers, retail, property developers and other commercial operations, local authorities and the operators of roads and rail infrastructure are all involved. We need therefore to secure the support of the relevant sectors and make them aware of the extent of the problem. A voluntary approach needs to be given urgency by putting a timetable in place from the start. We can then monitor progress towards the establishment of the 'General Binding Rules' proposed by the consultation document.

5.2.2.8.4. Sewage misconnections

The recent consultation document rates sewage as a priority area for attention. It has been estimated that there could be as many as 3 million misconnected properties in England and Wales, frequently discharging foul water into surface water sewers and thence local watercourses.[188] Greater powers should be made available to local authorities to improve this situation, including monitoring resources and fulfilling their legal responsibility to communicate effectively with householders.

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[184] House of Commons, Environment, Food and Rural Affairs Committee, 2005. *Progress on the use of pesticides: the Voluntary Initiative. Eighth report of session 2004-2005.*
[185] *ibid.*
[186] The Voluntary Initiative, 2005. *Fifth Annual Report of the Voluntary Initiative Steering Group: 2005-2006, Highlights.*
[187] Forestry Commission, 2003. *Forests and Water Guidelines*
[188] Environment Agency, 1999. *Investigation into the impact of wrong connections*

5.2.2.8.5. Household pollutants

The public's contribution to pollution is important. We have to accept that attempts to screen or remove pollutants at wastewater treatment works have a serious attendant energy cost. If they are not removed, the pollution simply changes from being diffuse to being source-point at the effluent outfall. Communication campaigns will play a part in broadening responsibility but there is a need for primary legislation to stop the use of chemicals that cause particular and serious problems. Problems are likely to increase as the solid waste stream is increasingly restricted. Flushing objects down the lavatory is an inappropriate but all too easy way to avoid these restrictions. We propose that two products should be given priority for phase-out: the phosphates in detergents, soaps and shampoos and cotton buds with non-biodegradable shafts; 50% of the phosphates reaching UK sewage works derive from detergents.[189] The main alternative, zeolites, can be obtained at a similar price to phosphates and, while there is phosphate production deficit in the EU, there is an excess of zeolite production relative to demand. The switch could therefore be made at little expense. The EC's Scientific Committee on Toxicity, Eco-toxicity and the Environment (CSTEE) found no threats or problems with zeolites in the countries where they have been used for 15 years. Switzerland and Italy have phased out phosphates from detergents, while Germany and Austria are close behind. Multi-national manufacturers often sell the same product in different countries – one being phosphate-based, another zeolite-based. The EU is planning to evaluate the issues, but this may take some time.[190]

Meanwhile a move to biodegradable cotton buds is the only way to prevent effectively the damage these seemingly innocuous objects cause in wastewater treatment works by bypassing and damaging screens and filters and causing pumps to fail. They also affect marine life by persisting in the marine environment as a significant part of harmful sewage related debris. Despite the 'Bag It and Bin It' campaign the problem persists. Paper-based cotton buds were used up to the 1980s without recorded problems and there are alternatives on the market derived from natural polymeric substances.

5.2.2.8.6. Discharges

Although attention has recently been focused on the diffuse problem, point-source pollution has not disappeared. Progress on eliminating the remaining 5% of sewage discharges in breach of licensed consents has stalled in the past few years. While industrial discharge standards appear to have improved considerably, about 20% of those monitored are still in breach of compliance.[191] There is, furthermore, an issue of how the Environment Agency monitors licensed discharges. It recently closed its consultation on increasing the scope for risk-based approaches in its monitoring regime, concentrating resources on those discharges with the potential to cause most harm.[192] While this may be the most effective use of stretched resources, it will give the impression to those with lower risk discharge consents that they will not be checked. There is also the issue of discharges which are officially outside the scope of the licensing regime – the so-called 'deemed consents'. Established at privatisation to avoid confronting complicated, unlicensed discharges, it was promised that a review would be undertaken by the National Rivers Authority. This never happened. One such discharge on the River Glaze near Manchester is currently the subject of litigation from anglers because of the severe damage done to fish stocks. The Anglers' Conservation Association estimate there could be several thousand such discharges nationwide, lying entirely outside the jurisdiction of the licensing system. The pledge made at privatisation must be fulfilled.

The EA recovers the costs of regulating discharges primarily from discharge licensing. We propose

[189] Wessex Water, 2006. *Sustainability Dilemmas Discussion Papers: Nutrients and Diffuse Pollution.*
[190] UNDP/ GEF Danube Regional Project, 2006. *Clean Clothing, Dirty River.*
[191] Data up to 2005. See http://www.environment-agency.gov.uk/commondata/103196/1183214?referrer=/yourenv/eff/1190084/water/1182267/1182655/
[192] Environment Agency, 2006. *Consultation Paper: Risk based regulation of discharges to water: Encouraging better environmental performance by business.*

that the cost of discharge licences be reviewed to represent the environmental costs better (see Respecting Environmental Flows for a similar proposal on abstraction licensing). In addition to encouraging cleaner discharges this would provide funds to improve the monitoring regime, including perhaps a combination of risk-based and random checks. It would also pay for the review of 'deemed consents' and, thereafter, the replacement licences would pay for their own enforcement.

5.2.2.8.7. Legal mechanisms

Current fines for pollution incidents are not in line with the costs of the damage caused. Of course, some pollution incidents can be an unfortunate result of accepted practice – such as the moderate use of fertilisers – and bad luck such as extreme weather events. At present, private individuals or environmental groups can often obtain damages far in excess of any fines imposed. An entirely inappropriate application of pig slurry in wet weather saw 10,000 fish killed in a Category 1 incident on two water courses in Staffordshire. The EA could only issue a 'formal caution', and it was left to a private suit on behalf of local anglers to recover £15,000 damages. The money is being used for the river's restoration.[193] Although the courts are the appropriate forum in which to decide the level of negligence and responsibility on a case by case basis, we believe that the guidance to the courts needs review and the scope for the EA to prsecute and claim damages should be appropriately extended.

5.2.3. Water and land

5.2.3.1. Farming the flow

The relationship between land and water management is profound and complex. Soil structure, vegetation and crop patterns, and even tractor tramlines can influence this relationship. The production subsidies have existed until recently in the UK and the pressures of increasingly intensive, monoculture farming have disrupted the vital role farmers have to play in protecting and regulating our water supply.

Water needs to be placed once again at the heart of land management. We need a clear policy that recognizes clean, available water as a key product of the farming system – and which supports the role that farming and land management have to play in many aspects of water management, from diffuse pollution to soil permeability, and from flood risk management to environmental flows.

5.2.3.2. The problem

Inappropriate farming practices have decreased the permeability of soil and increased the volumes of water flowing over the surface of the land during rainfall. This has the effect of increasing peak flow rates and flood risk downstream, while less of the water can seep away to be stored as groundwater. Agricultural techniques have also led to runoff conveying large quantities of diffuse water pollutants - whether nutrients, pesticides, or soil.

While annual rainfall may not vary significantly as a result of climate change in the UK, it is likely to come in shorter, sharper bursts. Unless something is done to slow surface run-off and encourage infiltration, sudden downpours will make things even worse. As Natural England point out, "It is therefore likely that under un-managed conditions groundwater sources will become less reliable and rivers will suffer more high flow events, which could result in more flooding of towns and cities."[194] Radical solutions are necessary, not least because it is clear that the parameters of climate and pollution are changing. As risk increases, so does the potential damage, should our defences fail us –

[193] Blueprint for Water Coalition, 2006. 10 Steps to Sustainable Water by 2015.
[194] Evidence from English Nature on behalf of the Natural England Partnership in: House of Lords Science and Technology Committee, *8th Report of Session 2005-06: Water Management*, Minutes of Evidence.

estimates of maximum annual damage reach £42bn by 2080s.[195] The conventional responses of yet more supply-side development, such as reservoirs, or engineered flood defences cannot be continued indefinitely. Nor can we hope to deal with diffuse pollution through water treatment, as if the man-made adjunct to the water cycle could act as filter to the cycle as a whole. Tackling diffuse water pollution involves not only reduced use of fertilisers and other chemicals, but farming in such a way as to keep them, and the soil itself, on the fields where they belong.

5.2.3.3. The potential for success

We cannot hope to avert all climate change impacts, but it is certainly possible to make profound and positive changes to the way land and water are managed together. There is no single land management technique to provide a panacea and achieve 'Slow Water'. What is required is a recognition of the profound links between land and water, in all their complexity. Current research and pilots have identified the benefits of thinking simultaneously about water and land management, at field and catchment level. Defra's *Making Space for Water* project is investigating the potential of land management approaches for managing flood risk. At the same time, the Catchment Sensitive Farming Initiative has progressed the case for on-farm advice to tackle diffuse water pollution from agriculture. Sadly, although the potential for targeted aquifer recharge in suitable areas through land management techniques that improve infiltration is being investigated elsewhere in Europe, it remains underdeveloped in the UK.[196]

5.2.3.4. The framework

It is, first and foremost, essential to use the tools we have. We must therefore expand the primary objectives of agri-environment schemes to include: minimising flood risk, increasing water storage capacity above and below ground; reducing diffuse pollution.

Within the schemes, this will require carefully selected land and water management options in order to guide practical delivery. As a quid pro quo, funds from previously disparate water-management schemes should be brought together to contribute to the agri-environment 'pot'. These might include flood management budgets and water company money, especially where diffuse pollution is a particular problem for the public water supply. The combined 'pot' would also contribute to supporting a network of farm advisers able to integrate water management with other requirements made of the farming industry, including food production, biodiversity, landscape protection and access. This advisory network could well be outsourced and would provide the catalyst for real change. However, in the longer term, responsibility for integrated land and water management – both in terms of monitoring and delivery – should be transferred to groups of farmers and land managers at the sub-catchment level.

5.2.3.5. The Advisers

It is vitally important that any advice to farmers is based on scientific analysis of the hydrogeology and ecology of particular areas. Greater understanding of catchments in general will be instrumental in ensuring that the right advice reaches the right areas. Both the network of advisers and any development of groups of farmers at a sub-catchment level will be able to contribute to this understanding in the long run. Advisers must also be sensitive to the sociological and economic needs of particular farming areas. This will require substantial human capital, but must be recognised as a valuable and essential investment for many different interest groups.

[195] Data from the National Flood Insurace.
[196] Scholer, A. 2005. Concept for a 'functional-pragmatic' development of ecosystems to manage water resources under arid climate conditions.

At present, the England Catchment Sensitive Farming Delivery Initiative (ECSFDI) depends on 40 officers to disseminate advice over approximately 40% of the agricultural area of England – about 50,000 farmers.[197] From their experience, it is clear that only by targeted advice will we get the necessary changes to land management. Even if the proposed scheme is restricted to priority catchments, it will be necessary to increase the numbers giving advice if we are to succeed. There are those who would suggest that farmers should simply be obliged to cease their pollution, without any further help from the community. However, nutrient and pesticide use cannot be eliminated entirely, although it ought to be considerably modified. Nor can good management prevent unexpected storms and the increasing unreliability of the weather. Cleaner, better-managed water is an essential good which society benefits from and should pay for collectively. Meanwhile, causes of flood risk can include climate change, urban development and countless others to which society contributes. Ultimately, we start from the position that it is better to encourage farmers to provide water management as a service to society, rather than point the finger of blame without equipping them with the tools and information they need.

There is currently little assistance for farmers to undertake larger projects with benefits for water management and society as a whole. The combined funding stream might provide grants to farmers for such projects, in addition to the agri-environment framework. It would be possible to limit these to smaller enterprises in areas where the major operators are capable of lining their own slurry pits or building their own farm ponds. The importance of farm ponds is increasingly clear. Currently, limited funding is available from Rural Development Agencies on the basis of regional need. Greater exposure to market forces with the reform of the CAP has already encouraged farmers to diversify into valuable crops like vegetables and potatoes which are also more 'thirsty'. With climate change irrigation needs are likely to increase further.

Another major global issue, embedded (or virtual) water, may also significantly change the water needs of farming in the UK. Currently over 1600 litres of embedded water per person per day are imported in our foodstuffs, often from severely water stressed countries. They may well not be able to continue 'trading' their water in this way.[198] These factors look set to create a greater need for irrigation in the UK, at times when water is already scarce. Moving from summer to winter abstraction by using farm ponds to store water at times of high flow will help.

Furthermore, such advice should not be restricted to farmers. In a number of rural catchments one of the significant summer contributors to diffuse phosphate pollution is the septic tank. Although over the year the largest proportion of phosphates comes from agriculture, in summer the proportion from septic tanks through human waste and household chemicals becomes more significant. Flows are lower and eutrophication more likely. The advisers' remit could be extended beyond land managers to rural homeowners – if a particular problem with the phosphate level is identified in a watercourse, they should be able to recommend investigation of septic tanks in the area and, where appropriate, advise homeowners to repair poor quality tanks or replace them with sustainable sewage systems such as reed bed filtration. Experience will show whether tougher enforcement will require some capacity to offer loans or grants for necessary repairs and renewals.

The funds for this work are already available. The challenge will be to integrate the sources of money and bring together the interests that at present control it. Funding for agri-environment schemes is set to increase from £1 billion from 2000-2006, to £3 billion from 2007-13.[199]

The Foresight: Future Flooding Report issued a stark warning about the funds currently allotted for

[197] see http://www.defra.gov.uk/farm/environment/water/csf/catchments/priority/index.htm
[198] Derived from Chapagain and Hoekstra (2004) *Water Footprints of nations vols. 1 and 2,* in Waterwise 2007 *Hidden Waters*
[199] See http://www.defra.gov.uk/news/2007/070329d.htm

flood and coastal erosion risk management (£601.3 million in 2005-6):[200] "If flood-management policies and expenditure are unchanged, annual losses would increase under every scenario by the 2080s".[201] Rising flood risk must be met with innovative responses. That means using the earliest point at which to manage pluvial flooding – surface run-off. Managing Diffuse Water Pollution from Agriculture (DWPA) *at source* could save £250 million.[202] These costs are at present, largely borne by water companies and their bill payers. Water companies could redirect this expenditure to contribute to the running costs of a farm advice network within local catchments, where the companies sometimes own the relevant land. Changing farmers' behaviour would be a much more cost-effective way of reducing pollution than trying to clean it up afterwards. At the same time economic instruments should be used to discourage damaging behaviour by farmers and land users. Negligent or willful pollution incidents should be seriously penalised. The resources are there, the challenge is to persuade all those involved to look outside their individual remits to the wider solutions that unite them. It will also be important so to change the remit of the water regulator so that he will have the powers not only to permit these uses of water companies' resources, but also positively to encourage them.

Managing land and water in practice

Current agri-environment schemes include some land management options with incidental benefit for water quality (usually biodiversity is the principal aim), such as beetle-banks. The scope for developing these options for more specific water management is substantial.

Conservation Agriculture

The way in which a field is cultivated significantly determines soil structure. The SOWAP project- an EU-funded demonstration initiative- found that a 'conservation agriculture' approach could reduce run-off by 40-69%, and potentially reduce soil erosion across the EU by 50% if it were practiced on 70% of arable land. It also offered opportunity for carbon sequestration: in Canada, no-till farmers in 2005 were offered almost 10 €/ ha to offset greenhouse emissions.[1] It can reduce labour and vehicle emissions costs as it involves fewer operations to produce a seedbed. Conservation agriculture involves:

- minimum soil disturbance through conservation tillage rather than mouldboard ploughing;
- permanent plant or crop residue cover; and
- diverse crop rotations to reduce the need for inputs.

SOWAP found that: "Many farmers cite a 'better quality of life' as a major advantage of Conservation Agriculture. With less time spent on land preparation, land managers are presented with the opportunity to take on additional acreage, diversify their operations or farm under marginal conditions." It should be noted that sustained use of these techniques can lead to soil compaction and greater use of herbicides. As with all land management techniques it is evident that careful adjustment should be made on the basis of site-specific analysis.

Tramline positioning

Tractor tramlines are compacted strips of soil with little or no vegetation cover. Preliminary results from Lancaster University suggest 10-100 times more sediment (often carrying phosphorous bound to soil particles) is carried with run-off via these conduits than down the field slope in general. Contour ploughing, by aligning both furrows and tramlines with the contour of the slope, reduces this effect. But on steep slopes contour ploughing is difficult. In such cases, methods are being explored to disrupt the tramline conduits.

In-field grass strips

By leaving strips within sloping fields, rather than simply buffer strips at the edge, the runoff is obstructed and attenuated, redirecting it into the ground via infiltration. This was just one of several simple mechanisms that a farmer and CSF officer suggested, beyond the scope of water related options currently included under environmental stewardship schemes.

[200] See http://www.defra.gov.uk/environ/fcd/policy/funding.htm
[201] Foresight, 2004 *Future Flooding*, *Executive Summary*.
[202] E.A., 2002 *Agriculture and natural resources: benefits, costs and potential solutions.*

5.2.3.6. Planning for water

The Slow Water agenda also involves improving the sensitivity of the planning process to flood and drought – creating a planning system that respects rather than exploits water, whether as resource or amenity and that considers the long-term impacts of water scarcity, flood, and coastal erosion risk. By slowing down the impact of water on the environment, such a planning system can help to address both flood and drought (which are two sides of the same coin and should be considered together at the earliest stages of planning)[203] as well as coastal erosion.[204]

The Environment Agency has called for radical changes to the way we value our 'hidden infrastructure', which includes water resources, supply, wastewater and flooding: with increasing development it cannot remain taken for granted and hidden.[205] The Royal Commission on Environmental Pollution was direct and to the point, "In our view, flood risk, along with water resources and water quality, should be considered as environmental constraints that should be respected in the planning process and in government policy generally. There are worrying signs that this principle is being overlooked, particularly in parts of the south-east of England".

We need first a new Planning Policy Statement that would set strong guidance and consultation frameworks with the primary objective of discouraging development that failed to take adequate account of water. The new Planning Policy Statement should require consideration, in any development, of water supply and storage, drainage and sewerage, flooding, coastal erosion, water quality and pollution and embedded (or virtual) water.

5.2.3.7. Flooding and coastal erosion

The extent of development that ignores the need to take account of water supply or flood and coastal erosion risk is alarming. In the designated growth area of Aylesbury 11% of new homes will be built in areas beyond the scope of the Association of British Insurer's guarantee of affordable insurance and three-quarters of flood defences there fail to offer a 75 year standard of protection.[206] Although the Environment Agency reported improvements of its relationship with planning authorities in 2005-6, 10 major developments were still permitted by Local Planning Authorities (LPAs) against Agency advice.

The Government's recent Planning Policy Statement 25, on development and flood risk, is therefore very welcome.[207] However, although PPS 25 covers sea flooding, it does not offer specific guidance on coastal erosion – this is covered by the considerably older PPG 20, which requires that a precautionary approach should be taken to land already, or likely, to be affected by erosion or land instability.[208] This has not stopped developments from being built recently despite warnings, either because of a lack of understanding about coastal erosion or simple unscrupulousness. PPG 20 needs to be replaced by a new Policy Planning Statement that definitively resolves – following national debate – whether new development should be considered in accordance with the principle of managed retreat.

5.2.3.8. Water resources

Considerable concern has also been directed at the lack of attention given to water resource plans in the Government's national housing strategy. This specifically applies to the homes over and above

[203] UK Climate Change Impacts Programme, 2002. *Climate Change Scenarios for the United Kingdom: The UKCIP02 Briefing Report*
[204] e.g. in Defra's *Making Space for Water strategy.*
[205] Environment Agency, 2007. *Hidden Infrastructure.*
[206] IPPR/ Commission on Sustainable Development in the South East, 2005. *Managing Water Resources and Flood Risk in the South East*
[207] DCLG, 2006. *Planning Policy Statement 25: Development and Flood Risk.*
[208] Department for the Environment/ Welsh Office, 1992. *Planning Policy Guidance: Coastal Planning.*

existing plans to be built mainly in the South East.[209] Although water companies and the EA must be consulted for both Regional Spatial Strategies and Local Development Frameworks,[210] they do not appear to have been much needed.[211] The House of Lords Science and Technology Committee commented on the Government's estimates of the impacts of new housing that "not only is the methodology flawed, but the findings are produced in such a way that even the Minister with responsibility for water issues misinterpreted them".[212] Under our proposal, the PPS would clarify the responsibilities for consultation and ensure that the methodology used is robust and the appropriate advice heeded.

5.2.3.9. Addressing future problems

The Integrated PPS must clarify the responsibilities for consultation at various stages of the planning process. In the case of flood risk and, increasingly, coastal erosion, this will mean consulting the environmental regulator first. In the case of water supply, both the environmental regulator and the relevant water companies would be the first ports of call. To make provisions for consultation effective, they should be backed by the threat of the 'call in direction' which has been adopted for PPS 25, whereby sustained opposition between the environmental regulator and a local planning authority over a development in a flood-risk area[213] is resolved at Ministerial level.

Following the example of PPS 25, the new Integrated PPS should set clear expectations for appropriate assessment procedures to be carried out by planning authorities and developers with the intention of steering development away from inappropriate areas. It is notable also that PPS 25 endorses adaptive mechanisms such as sustainable drainage systems (SuDS). While it is imperative that such mechanisms are not used to premit inappropriate development, the use of technology such as SuDS, or water storage and re-use systems, is a valuable part of any overall water management strategy and should be commended to planners and developers.

5.2.3.10. Addressing the existing problem

It is estimated that up to four to five million people and assets of £250 billion are at risk from flooding and coastal erosion.[214] Successive Governments have kept flood and coastal defence legislation largely permissive, giving no automatic right to protection, or to any particular standard of protection where it is afforded. Although, unusually for an industrialized country, flood insurance is normally a standard part of buildings insurance, it will not fill the gap increasingly left by government. The insurance industry is increasingly seeing high flood risk areas and vulnerable, undefended coastlines as uninsurable and is engaged in a lengthy battle with Ministers about the appropriate level of sea and flood defence spending. At present insurers are again threatening to withdraw from insuring large areas unless there is adequate provision by government. They are concerned that they are being used to avoid what are national responsibilities.

Nonetheless, the potential ramifications of imposing a duty to defend existing properties are huge. An open-ended commitment to maintain protection against all current risk would be extremely expensive. It would also send the wrong message about the feasibility of further developments were planners and developers to think that such a commitment might be extended to new build. If however, governments

[209] ODPM, 2003. *Sustainable Communities: building for the future* and HM Treasure, 2005. *The Government's Response to Kate Barker's Review of Housing Supply*.
[210] Planning Policy Statements 11 and 12.
[211] Evidence from CIWEM and Thames Water: House of Lords Science and Technology Committee, 2006. *8th Report of the Session 2005-2006: Water Management*: Minutes of Evidence.
[212] House of Lords Science and Technology Committee, 2006. *8th report of session 2005-6: Water Management*
[213] DCLG, 2006. *The Town and Country Planning (Flooding) (England) Direction 2007*
[214] Office of Science and Technology, 2005 *Foresight: Future Flooding, Executive Summary* & National Assessment of Defence Needs and Costs for Flood and Coastal Erosion Management, 2005. *Summary Report.*

continues to maintain defences on a permissive basis, there will remain the issue of compensation for loss. This cannot be avoided, not least because of the legal uncertainties now being raised. Elsewhere in Europe, governments operate a national disasters fund, often derived from a tax on insurance premiums, to compensate those who could not reasonably have known their property would be at risk. In other countries the national determination to maintain the status quo makes the argument much less crucial. Here in the UK it would seem necessary to consider a distinction between flooding or coastal erosion which overwhelmes defences and that which occurs after an conscious act of government. Abandoning defences, as an act of policy should, prima facie, involve compensating those who suffer personal loss as a direct result. It is the recognition of this distinction that has led the Government to be much more careful in its language when considering managed retreat. People whose reasonable expectation over a long term has been that their homes and land would be protected cannot properly be abandoned without compensation simply as a cost-saving exercise.

Funding for flood and coastal erosion risk management is limited. Despite the continually increasing problem, the current Government appears disinclined to increase funding. Even populous areas seriously threatened by the sea have not been able to secure more than emergency help. The cost of reinstatement in these cases is considerably greater because of the failure to act in time. A reevaluation of the cost-benefit effect of such underfunding will be necessary. Currently only risk management projects with a marginal benefit-cost ratio of 6:1 or better are carried out by the Environment Agency. The problem is that the cost of protection falls on the public purse and the cost of the damage upon the owner or the insurer. There seems therefore to be room for a serious debate between government and the insurance industry as to how in future we fund such defences.

5.2.4. Water and buildings

5.2.4.1. Building with water sensitivity

The Slow Water agenda also means minimising the impact of the new housing stock on water by developing outcome-focused standards to obtain new buildings that reduce water consumption and run-off. A key driver of increased demand for water is a larger population living in more, lower occupancy houses.

The Government's analysis of the effect on water demand, and their plans to deal with it, have been seriously questioned.[215] The Government itself admits that, "by 2060 the proportion of buildings built since 2006 will be substantial – perhaps forming as much as one-third of stock in 2060 – and the majority of these will be in the most water stressed areas of the country".[216] Furthermore the additional stock will represent a considerable increase in impermeable surface. Up to 10% of this is planned for flood risk areas where there is a greater than 75:1 chance of flooding, which is the boundary of guaranteed insurability.[217]

5.2.4.2. Setting new standards

To ensure that water efficiency within new buildings (the subject of the previous Section) is matched by water collection and run-off attenuation outside, water conservation and run-off management standards should be set as part of the mandatory Building Standards proposed in our Chapter on the Built Environment for all new housing and construction. This will involve

- for new homes:
    - a whole building standard per capita consumption (PCC) of 110 litres per day;

[215] House of Lords Science and Technology Committee, 2006. *8th Report of Session 2005-6: Water Management.*
[216] DCLG/ Defra 2006. *Water Efficiency in New Buildings, A consultation document*
[217] IPPR/ Commission on Sustainable Development in the South East, 2005. *Managing Water Resources and Flood Risk in the South East.*

    - water consumption standards for key fittings, including high water use items; and
    - peak run-off rate and annual run-off volumes limited by pre-development conditions.
- for new non-household buildings (including residential buildings such as hospitals):
    - water consumption standards for fittings installed for 'domestic uses' of water (i.e. canteens, washrooms etc., not industry processes); and
    - peak run-off rate and annual run-off volumes limited to pre-development conditions.

At the same time, the Water Supply (Water Fittings) Regulations should be amended to enforce minimum standards for key water fittings at point of sale or production, in co-ordination with an advisory labelling scheme which is outlined below in Choosing to Conserve. Compliance with new Building Standards would be verified by the Competent Persons Scheme detailed in our Chapter on the Built Environment. [218]

5.2.4.3. The new standards in detail

While the Government continues to dispute the more alarming forecasts of increased demand arising from new building, even their own conservative estimates admit a likely increase in demand of more than 6% (728 million extra litres) by 2016.[219] The problem is summed up by Professor David Balmforth, in Water Cycle Management for New Developments, "The challenge faced by developers, planners and the government is how to provide the necessary expansion in housing in a sustainable way that does not adversely affect the environment. A particular aspect of that is the potential impact on the water cycle, in terms of water supply requirements… and storm water management".

To achieve that necessary end we need a whole house standard based on per capita consumption (PCC) and supported by minimum standards for key fittings. We recommend a whole house standard based on a PCC of 110 l/p/d. This is advocated by Waterwise as an attainable, but demanding, target. Level three of the Code for Sustainable Homes which sets 105 l/p/d is already to be required for most new public housing.[220] We therefore suggest 110 l/p/d as the most generous figure that the current pressures make possible and we fear that, in the event, future standards may need to be tougher. In any case, regular assessment will be required to decide whether the standards need to be tightened.

Minimum standards for key fittings will entail decisions about which appliances should be covered and what standards should be set. WCs, taps, showers and urinals should be covered as a start. Examples of possible standards would be 12 l/p/m for showers, and 6/4 l, perhaps reduced to 4/2.6 l for dual flush toilets.[221] These standards would not be draconian or prescriptive. They would focus on phasing out especially wasteful products, while leaving manufacturers to find ways of delivering supply at much lower volumes of water use. Power showers can pump out over 75 litres in only five minutes, when the average bath is 80 litres in volume. Yet, by aerating showerheads much the same effect can be produced, with less water use. We recognise that we should wish to introduce a system of dispensations from these standards to meet the requirements for those with certain special needs.

We recommend that an incoming Conservative government should simplify the Water Supply (Water Fittings) Regulations by removing control at point of installation. Instead this role would be performed within the Building Standards system. We also suggest streamlining the process by which owners of high-water use items (e.g. swimming pools or spa baths) are required to notify their water company of their installation and may thereafter be subject to metering. Certain luxury, high water use items could be installed under these Building Standards even though they would push the water use above the

[218] A previous self-certification scheme from the Institute of Plumbing (now the Institute of Plumbing and Heating Engineers) was withdrawn due to unsatisfactory operation. Any new scheme should learn from this experience.
[219] e.g. DCLG & Defra, 2006. *Response to the House of Lords Science and Technology Committee Report: Water Management*.
[220] DCLG 2006. *Building a greener Future*.
[221] Waterwise, 2007. *Waterwise response to government consultation on water efficiency and new buildings March 2007.*

required level, provided that the developer offsets the water consumption (for instance via a grey-water reuse system) in order to meet the overall PCC targets.

The Standard that insists that annual run off volume and peak run-off rates should not exceed pre-development conditions is directly derived from level one of the Code for Sustainable Homes. It is attainable through judicious use of permeable surfaces and other infiltration systems, as well as storage capacity such as rainwater butts. Although the run-off attenuation capacity of rainwater storage devices is limited by how much water they can hold, more sophisticated systems combine the benefits of rainwater harvesting and runoff attenuation. We explore these issues further below in Sustainable Drains.

In non-domestic buildings a consumption target per employee is difficult to enforce because 'domestic uses' of water can be hard to measure where supplied water is also used for processes. We believe that minimum standards for key fittings and appliances are the most appropriate way to reduce water consumption in non-domestic buildings. Synchronising the minimum standards for fittings used in the workplace with those for the home would drive the market for water efficient products faster.

5.2.4.4. Raising the bar

It is important that, having got a system of Building Standards in place, we also produce a mechanism for updating and improving those Standards. The present system of building regulations is deficient in not having such a mechanism. It is important that industry should understand that the Standards will be tightened on a regular basis so that they can plan for it. The link between attenuating rainwater run-off and harvesting rainwater for use is explored further below in Sustainable Drains.

Compliance would be verified by qualified individuals under the framework of Competent Persons Schemes. Detailed guidance documents would be required to assist the construction and plumbing industry in achieving the mandatory PCC levels. The importance of good plumbing cannot be overstated, even the length of pipe used can have an effect on water conservation and a 'dead leg' can cause people to run the taps much longer while waiting for hot or cold water. We therefore propose urgent consultation with the industry with a view to improving the training and qualification of plumbers.

5.2.4.5. The existing stock

We need to facilitate water-efficient behaviour within existing homes where, even with the largest of building programmes, most water will continue to be used. Water efficient retrofits to existing homes can only be achieved through joint efforts of government, water companies and home-owners. The majority of housing to be occupied in the next 50 years already exists and the scope for overall water savings in the existing built stock is substantial. Such savings reside both in water conserving behaviour and in water efficient appliances and fittings. They can be very significant. Per household they range between 14% via retrofit only,[222] and 30% when combined with other demand reduction measures.[223] As the Commission for Sustainable Development said in 2006, "Kitchens and bathrooms are typically refitted every 7-15 years (Mulligan and Steemers 2002). These rooms contain the majority of the water consuming appliances in a house, and offer great opportunity to install water efficient appliances if consumers can be influenced through advice and incentives. The supply chain (for taps, WCs etc) will need to be willing and able to supply water efficient options".

In keeping with the Slow Water agenda, the substantial impermeable surface that existing buildings represent must also be considered. The barriers to positive change include outdated water fittings

[222] Environment Agency, 2006. *Retrofitting sustainability in homes – the financial and environmental benefits.*
[223] Sustainable Development Commission (SDC), 2006. *'Stock Take': delivering improvements in existing housing*

regulations, limited financial incentive to improve efficiency or reduce run-off from existing homes, a lack of clear benchmarks and a tendency to pass the buck among the key stakeholders. In order to overcome these barriers we shall need to involve all these stakeholders – water companies, the construction industry, regulators, and the public in such a way that responsibility is shared with the government and not avoided by any of the players.

To this end, an incoming Conservative government should set national, aspirational benchmarks for household water consumption (in terms of per capita consumption – PCC), indicating that water efficiency is a national concern and an environmental good regardless of how wet or dry a region is. In addition there should be regional variations, established according to the EA's mapping of water stressed areas. The regulator, under his new remit, should establish a Water Efficiency Commitment to oblige water companies formally to undertake demand-side measures. This would use programmes aimed at facilitating specified levels of water saving among domestic users. This would carry through the recommendation of the Royal Commission on Environmental Pollution that said in 2007, "We recommend that the UK government and devolved administrations introduce a Water Efficiency Commitment on water suppliers, along the same lines as the Energy Efficiency Commitment".

The new Building Standards, including both water efficiency and permeability stipulations should embrace extensions, renovations, and conservatories as should the revision to the Water Supply (Water Fittings) Regulations. Homeowners should have an obligation to include cost effective water efficiency retrofits and reduction of run-off flow rates from curtilage and roof space whenever the carbon footprint is increased by an extension. An incoming Conservative government should also look at the possibility of reducing stamp duty or council tax for home owners who have markedly improved water efficiency or demonstrated that they have ensured that rainwater run-off from their site is negligible. To enable tenants to take advantage of this (as suggested for carbon improvements in our Chapter on the Built Environment), landlords should be required to object in writing and with reasons within four weeks of an application by a tenant to make water improvements; otherwise the tenant would have the right to proceed.

In order that the Energy Performance Certificate properly reflects the actual energy used in a building, an incoming Conservative government should require it to contain a water efficiency element, subject to the same arrangements for advice as are provided for the main energy assessment. This two-part certificate would replace the present HIP. In order to encourage the uptake of innovative re-use systems[224], an incoming Conservative government should ask the EA to advise on the establishment of minimum quality standards for sub potable water especially grey water and collected rainwater.

The exact levels of water saving required under regulations or a Water Efficiency Commitment should be treated as a plastic concept, adjustable over time. The efficiency improvements that we propose for existing homes will not be too burdensome and all will be cost-effective. EA calculations suggest homeowners would have a payback period of 22-26 months, and annual savings of up to £41 on an average water and sewerage bill.[225] Given that those bills are set to rise, the actual annual saving will be appreciably more.

[224] It is almost impossible to achieve PCC targets around 80 l/p/d (levels 5 and 6 of the Code for Sustainable Homes) without some form of re-use/ harvesting.

[225] Ibid. N.B. more sophisticated long run marginal costs have been calculated by UKWIR for water companies to compare against leakage and supply side measures in terms of value and sustainability. UKWIR (2006) *Sustainability of Water Efficiency*.

5.2.5. Water and waste

5.2.5.1. Wastewater as resource

We need to identify and implement a sustainable sewerage strategy which helps to balance the resource potential of sewage with public and environmental health needs and the energy and carbon costs involved in treatment. This means maintaining exemplary UK environmental and public health standards for effluent and biosolids; maximising the resource potential of sewage particularly as biogas, effluent for reuse, and sludge for recycling to land as well as co-combustion; and minimising the energy consumption and emissions of the industry.

Such a strategy would demand 25 year sewerage plans from water companies and these should be developed as soon as possible. The present Government should demand such information as part of the periodic review in 2009. The regulator should be asked to find ways of supporting the use of sustainable, ultra low energy micro-sewerage at a sufficient number of new public and private developments to demonstrate feasibility. This might best be done in the Low Carbon Zones proposed as part of our energy and built environment policy.

It may clarify things to frame an ideal. In such a scenario wastewater treatment works would receive primarily organic waste with virtually no toxics such as heavy metals from road run-off and other sources and low levels of nutrients like phosphates. Various stages of settlement and filtration would remove organic matter from the effluent, leaving a residue commonly called sewage sludge. Through anaerobic digestion biogas would be released to be used as a fuel for combined heat and power generation. Further processes might be required to turn the sludge into a low odour, very low-pathogen and transportable resource called biosolids. As up to 40% of this is organic material that has grown during the treatment process, biosolids rather than sludge is a more accurate as well as less provocative name for this valuable resource. Used as a fertiliser, it improves soil structure, permeablity and water absorption capacity and fixes the carbon content. It can also be burnt as a fuel to produce a net energy gain, especially through co-combustion with other biomass.[226]

Although there are difficulties in reaching this ideal we believe it is imperative to seek its practical implementation. Widespread pilots should be encouraged by government and the regulator. Alternative and perhaps even more sustainable technologies such as reed beds or constructed wetlands might also be pioneered at a scale sufficient to demonstrate that they provide, for example, year round phosphate removal from a small to medium population equivalent.

5.2.5.2. The wastewater debate

Water is felt to be too close to the heart of living – particularly rural living – for people to be told by others what is the common good. Instead the government must give them the opportunity to work through it for themselves. Experience of local debate about wastewater is very encouraging. When presented with the possibilities and the challenges, the response is remarkable and wide agreement can be achieved.

The wastewater debate should focus on:

i) **Seasonal Restrictions** (conventionally called seasonal consents). The sustainability of meeting EU standards for wastewater treatment must be considered in the round. The case for greater use of seasonal variation in discharge consents needs to be made and debated by all sides. Such flexibility would, however, have to take a precautionary approach, because of:

[226] Cartmell E. et al (2006) "Biosolids -A Fuel or a Waste? An Integrated Appraisal of Five Co-combustion Scenarios with Policy Analysis", *Environmental Science and Technology*, 40 :649-658

- unreliable seasonal patterns (consent changes might be based on flow and water levels, rather than calendar dates); and
- uncertainty over ecosystem water quality needs which is why we have proposed further research as a priority.

ii) **Direct re-use of Effluent.** Indirect large scale reuse of water has been an unplanned necessity in the UK for decades, where water is abstracted downstream of effluent outfalls. Londoners are in fact curiously proud of the urban legend that their water has been drunk seven times in its journey to the sea. This suggests that public aversion to more deliberate reuse schemes might be surmountable. Nevertheless, such schemes are virtually unknown elsewhere in the UK. Essex and Suffolk Water use UV disinfection and remove ammonia, nitrates and phosphates from effluent (that would otherwise be piped to an estuary) before discharging to a river upstream of their Langford Water Treatment Works. Passing the water through a stretch of river seems to avert public misgivings, although the treated effluent would be of sufficient quality to be pumped directly to a reservoir. As ever, there is a sustainability balance to be achieved, given the levels of treatment required in order to ensure the effluent is safe if it might be used as drinking water. As the House of Lords Science and Technology Committee pointed out, there is also significant scope for the industrial and agricultural sectors to utilise effluent, although again quality standards must be maintained. Any new sewerage strategy must identify opportunities for direct re-use, in keeping with robust climate change scenarios. Such opportunities might be especially evident where treated effluent is currently being discharged to the sea or estuarine waters.

iii) **Using biosolids.** The general consensus seems to be that recycling sewage sludge to land is the Best Practicable Environmental Option (BPEO). It is certainly preferable to disposal to landfill, where it releases substantial quantities of methane under anaerobic conditions. This practice has virtually ended and, in line with the Waste Subgroup's recommendations on biodegradable materials in general, a full phase-out should be effected.[227] Nevertheless, the difficulty with the BPEO persists: it is not usually recognised as such by the public who have deeply held emotions about associating their food and themselves with human waste. For this reason there are concerns that the large retailers have distanced themselves from the significant agreement between Water UK, on behalf of wastewater companies, and the British Retail Consortium, represented by the Safe Sludge Matrix. [228] This is despite the unanimity of scientific support for the practice. As the Chartered Institute of Water and Environmental Managers said in 2001, "CIWEM commends the British Retail Consortium (as lead body for the UK food industry) and Water UK (representing the water utilities in UK) for negotiating agreement on the use of biosolids in agriculture. CIWEM considers this a world milestone. It commends the commitment to continuous improvement in operation and to subjecting its operations to independent audit. CIWEM recommends biosolids recyclers to continue to take proactive measures to build and ensure stakeholder acceptance and confidence". Pressure from large retailers for farmers to avoid using sludge at all has grown, even though the Matrix maintains very strict standards for use of treated sludge on food products. The issue cannot be ducked. 1.35m tonnes of sludge were produced in 2006, which must be disposed of;[229] this is forecast to rise mainly through increased standards, such as for phosphates removal. It must be said that there has been no recorded human health incident linked to the recycling of biosolids to land in the UK. The next-best sustainable alternative may be to use biosolids, through co-combustion with other wastes or biomass, as a fuel. But incineration may attract equal public disapproval. Stakeholders throughout the supply chain of both biosolids and food must be given the

[227] At 1% of the total in 2004, Water UK, 2006. *Recycling of Biosolids to Land*
[228] Evidence from Prof. Joe Morris, Cranfield University. House of Lords Science and Technology Committee, 2006 *8th Report of the House of Lords Science and Technology Committee: Minutes of Evidence.*
[229] Water UK, 2006. *Highlights, Towards Sustainability 2005-2006*.

opportunity to engage with the issue in a positive fashion, while taking a precautionary approach in the light of both public opinion and the scientific evidence on health hazards.

iv) **Dealing with heavy metals.** Some toxics, such as certain heavy metals, can be limited through Sustainable Drainage Systems, disconnecting surface water from the flow which reaches the Waste Water Treatment Works. Others, for example, copper, primarily derive from household water pipes and are less easy to remove 'at source'. Heavy metals, largely retained in sludge, can also be effectively removed through acid thermal hydrolysis and peroxidation.[230] This is, however, a more intensive process than tackling diffuse sources. In relation to public perception it should be noted that levels of cadmium and lead have been significantly reduced over the last 10-15 years, while "it would take 76 annual (typical biosolids) applications to raise the amount of zinc in an average rural soil to the limit values".[231] In the case of pollutants, especially persistent and bioaccumulative ones like heavy metals, the first approach must be to tackle them at source.

v) **Phosphate recovery.** The case for phasing out phosphates from detergents has been made above. However there are the wider issues of the limits of phosphates as a resource. Estimates suggest we have less than a hundred years of mined phosphates available for extraction.[232] The economic sense of recycling phosphates to land is therefore clear. The only issue should be whether it would be better to extract some of the phosphate content of biosolids rather than spreading it somewhat arbitrarily through the application of the biosolids. This would enable the phosphate content to be directed to the chemical industry, while still retaining the rest of the biosolid material as fertilisers. This option compares well economically against the UK dockside price of imported phosphates which also have a high embedded energy cost deriving particularly from their transport – since, apart from Finland, there are no phosphate rocks in the EU.[233] This option may become especially viable if public resistance to the recycling of biosolids direct to land is insurmountable.

5.2.5.3. Sustainable drains

Foresight's Future Flooding Report put average annual spending on managing intra-urban flood risk at £320m, with annual damage at £270m. By 2070 this could be as high as £7.9bn.[234] This flooding arises primarily from storms or sudden downpours, channelled and concentrated by the impermeable surfaces of the urban environment – our roads, roofs, and car-parks. Our subsurface drainage systems can cope with a certain range of flow rates: we cannot expect them to continue to manage the increasing flows that will arise with increased development and climate change.

Shifting urban drainage to a more sustainable basis is a substantial task. It must be implemented at every level, from planning strategy to design guidance. Sewer overflows and localised flooding are the visible symptoms of our present systemic failure. Given the projected rise in the cost of flood damage we have to tackle the problem and we lag behind the leaders in more sustainable approaches to urban drainage. New Zealand, Australia and the U.S. have pioneered overland flood-flow pathways, connected to ensure the water from storms can escape with less danger to property or urban wellbeing. Still more satisfactory is the judicious use of SuDS – which are essentially a set of structures and management practices designed to control surface water flow rates in a manner as close to natural drainage as possible. They permit the management of flood risk; the increase in amenity value from ponds and artificial wetlands; the control of the quality of the water through infiltration trenches or

[230] Dewil R. et al, 2006. "Reducing the Heavy Metal Content of Sewage Sludge by Advanced Sludge Treatment Methods, *Environmental Engineering Science*, 23.6; 994-999
[231] Water UK, 2006. *Recycling of Biosolids to Land*
[232] Driver, J. "Why recover phosphates for recycling and how? *Environ. Technol.* 20; 651-662 (1999)
[233] See http://www.nhm.ac.uk/research-curation/projects/phosphate-recovery/Nordwijkerhout/Evans.rtf
[234] £7,880m, under the World markets Scenario, the one we are most closely following.

soakaways employing natural filtration techniques; and the assurance that more surface water will reach groundwater stores.

We need a clear government policy that ensures all new, replaced, and improved surface water drainage systems are built in the most sustainable way. This would be measured by whole-life costs. We must encourage increased permeability in urban areas wherever the opportunity for improvement occurs. That means we have to remove the barriers to implementation and management of sustainable methods of urban drainage (including SuDS).[235] These approaches are inhibited by the present legislative structure and we need therefore to make a number of urgent changes. They are:

- legislation to entrust management and maintenance of the various components of urban drainage systems to a single competent body – in most cases, the relevant local authority;
- amendment of Section 106 of the Water Industry Act 1991/ 1999 to privilege use of SuDS by removing the automatic right of connection to a surface water sewer; and
- strong promotion of SuDS via all relevant PPSs and the proposed outcome-based Building Standards.

Beyond these improvements in the framework, there are several important policy changes that we believe necessary. Planning guidance and consequent planning permissions must minimise hard standing and require full consideration of permeable paving before development is permitted. Every opportunity within the planning system must be taken to encourage the replacement of existing impermeable surfaces with permeable alternatives. In particular we believe that planning permission should be required for the pavement crossovers to facilitate parking on paved private curtilage, and local authorities should be required to encourage the use of larger rainwater collection and storage capacity in urban parks, both to help flood risk management and to provide irrigation water.

5.2.5.4. Better ways with rainwater

All this is demanded because of the growing risk and cost of flooding, the importance of proper drainage to our overall water management, and the environmental and amenity advantages. However the thing that most concentrates the mind of the public is the visible problem of combined sewer overflows. Just as the 'Great Stink' forced Parliament to act on river pollution so the sight of sewage flowing down the Thames and other rivers should spur us to action today. These occurrence are growing because of the change in the pattern of rainfall and the increase in impermeable surfaces. This means that there is simply too much water and sewers carrying both foul and rainwater are caused to overflow under the pressure of heavy storms.

Some 52 million cubic metres of this unpleasant cocktail are discharged into the Thames and river Lea in London every year. Blamed largely on the antiquated nature of the city's Victorian sewer system, little consideration is given to the way in which that system has been systematically overloaded with the surface water it was never designed to accept. Thames Water customers will almost certainly foot the bill for the £2b Thames 'Super Sewer', a 30km storage tunnel, to alleviate the problems in London. While the capital is not the easiest place to retrofit SuDS, the approach taken implies that sewage is the problem, when the root cause is in fact the peak volumes of surface water entering combined sewers. One wonders how far £2bn might go in reversing London's impermeability. Spent in that way, it would certainly have other significant advantages. All this provides a stark lesson. Failing to tackle the problem of impermeability before it becomes a problem can be extremely expensive.

The cumulative effect of many smaller paved areas cannot be overlooked. The London Assembly found that partially paved front gardens in Greater London represented an area twenty two times the

[235] We are indebted to the Royal Commission on Environmental Pollutions (2007) *The Urban Environment*, in wording this recommendation.

size of Hyde Park, while estimates for the North East suggest 47% of urban front gardens have been more than three quarters paved.[236] With increasing on-street parking fees – particularly for high emission vehicles – encouraging off-street alternatives, the issue of impermeable front gardens is becoming still more important. There are currently no limits on the amount of hard standing at or near ground level for domestic planning,[237] and local authorities have limited means to restrict pavement crossovers.[238] Our recommendations to reduce impermeable surface through the planning control system are aimed at halting the trend.

Germany has taken an impressive lead on issues of rain and surface water. Actively to incentivise the removal of existing impermeable surface, many regions and communities have a component of their water bills charged in relation to impermeable surface. This innovation arose from legal recognition that large commercial buildings, often with substantial car parks, made disproportionate use of the surface water drainage system. The system is relatively complicated in that it requires the total impermeable surface area of a property and its curtilage to be calculated. However, it would be possible to take it on board here in the UK if we began with the largest installations and excluded properties with a lower rateable value.

5.2.6. Water and government

5.2.6.1. A strategic framework for localised catchments

We believe that there ought to be a strategic framework to enable cooperative, integrated water management across different scales of catchment, supported by a rationalisation of different water management cycles. The idea of managing water in a more integrated, holistic localised way through the geographical template of catchments is not a new one. Nevertheless while phrases such as "Integrated Catchment Management" are fashionable there is still no overarching strategy or framework to ensure that all the potential benefits of these approaches are realised.

At smaller scales, innovative projects are evolving the effective delivery of catchment-based water management, while the Water Framework Directive's emphasis on River Basin Management provides a lead at the largest catchment scale. Nevertheless there is still fragmentation and disconnection between:

- geographic scales: from the River Basins of the Water Framework Directive (WFD) to small catchments and even sub-catchment levels,
- sectors: between, for example public water supply, environmental protection, and flood risk management,
- organisations: both between and within organisations responsible for similar or different aspects of water management, and
- temporal scales: in terms of the cycles of water management and planning, and more generally between short and long term perspectives.

The WFD is widely recognised as an opportunity to overcome these problems of fragmentation and disconnection. This opportunity must be seized at all levels and not only on the widest scale of River Basins. Water management can then be synergised across the different temporal, geographical and organisational scales.

[236] London Assembly, 2005. *Crazy Paving: The environmental importance of London's front gardens*, and Royal Horticultural Society (RHS), 2005. *Gardening Matters. Front Gardens.*
[237] DCLG, 2006. *Planning: A guide for householders.*
[238] Innovative methods by different councils are outlined in London Assembly, 2005. *Crazy Paving: The environmental importance of London's front gardens*.

What is a catchment?

There are numerous definitions of catchments. Hydrologically, they might be defined as areas of land from which surface and/ or groundwater drains, collecting in streams, rivers, marshes, bogs, lakes, reservoirs or aquifers. In organisational terms they could be described as relatively distinct geographical units in which the decisions of different stakeholders interact to affect the quantity and quality of water and water flows. It is important to note that catchments vary considerably in size: organisational structures based around them might correspondingly vary from regional level coordination (such as the recently formed River Basin District Liaison Panels) to small stakeholder collectives grouped around small catchments, with non-statutory responsibility for monitoring and carrying out water management activities.

We therefore propose that the Government's England Catchment Sensitive Farming Delivery Initiative should become a national strategic framework to initiate partnerships and engage stakeholders in integrated water management. Catchment management scales will vary from River Basin District Liaison Panels to community catchment groups which would voluntarily bring together local expertise and stakeholders in water issues at a subsidiary level to River Basin District Liaison Panels.. Different phases will need to be coordinated through the framework and would include research, delivery, and evaluation of integrated water management techniques.

Whatever the nature of the arrangements at different catchment scales, any hierarchy created should be two-way, enabling bottom-up contributions to research, implementation, and evaluation of integrated water management as well as top-down coordination. This means that wherever possible, responsibility should be delegated to the expertise and knowledge at a local level. Different phases supported by the framework would include:

- **Research and understanding**. While progress has been considerable, there persists a lack of understanding of the scientific and technical impacts of different aspects of water management, and their interaction. The WFD requirement of 'good status' for all surface waters by 2015 is as yet undefined and the potential impacts of climate change are unknown. At all catchment levels, "Understanding of the detailed water resource requirements of freshwater ecosystems is poor, and the breadth of sound knowledge is limited."[239] While the proposed framework cannot provide absolute certainty, the ambition should be to provide an infrastructure to improve the knowledge base across temporal, geographical and organisational scales, and to input the findings into the development of integrated water management practice. Engaging the people who can achieve this at local and community levels is critical to the success of the framework.
- **Delivery**. If we are going to deliver this programme we must engage all the parties at a local level while at the same time ensuring that information and knowledge are mutually exchanged and usefully coordinated. The framework is intended to achieve a much more cost effective route to meet changing water management obligations such as those imposed by the WFD and climate change. The alternative, of rushing through conventional responses, will be more expensive. Such costs as are incurred in the extension of the remit of the present Defra structure would be met from savings in the programme.
- **Monitoring and evaluation**. The strategic framework should be evolutionary in nature. While it commences with a period of focussed research it will only remain effective if the understanding of pressures and drivers affecting catchments, and the integrated responses to them, are regularly monitored and improved. The localising nature of the proposed framework will be the key to its continuing success.

[239] Evidence from English Nature on behalf of the Natural England Partnership in: House of Lords Science and Technology Committee, 2006. *8th Report of Session 2005-06: Water Management*, Minutes of Evidence.

5.2.6.2. Rationalising water management cycles

There is an impending conflict between the first and subsequent rounds of the WFD inspired River Basin Management Plans (RBMPs), a six year cycle) and Ofwat's Periodic Review 09 (PR09) That's because the RBMP is on a six-year cycle and the PR09 is on a five-year cycle. Defra's failure to grasp this nettle means that, if the first round of RBMPs are to have any impact at PR09, the water companies will have to assume their content well before they are finalised. The confusion does not end there. The Environment Agency, meanwhile, operates its different water management regimes on different temporal and geographical scales, so that Catchment Flood Management Plans, Catchment Abstraction Management Strategies, and the discharge-licensing regime are not synchronised. While these should remain distinct regimes and strategies, it is obviously crucial to coordinate them with the RBMP cycle and to place them on to the same catchment basis.

Ofwat rejected advice from the House of Lords and others to set periodic reviews on a six-year cycle, to synchronise better with the RBMPs.[240] The water industry agreed because it would change their accepted working pattern. However a permanent change would not, as they feared, contribute to regulatory uncertainty or impede long term planning. We therefore propose that the cycles be aligned and that PR09 become PR10 as the pricing and thus the funding strategies of the water industry are key to water management in general. The sense of urgency that ought to characterise the approach to these issues is lacking and a public announcement of immediate changes to get this integrated holistic approach under way would show that the Government was serious.

5.2.6.3. Community catchment groups

The new River Basin District Liaison Panels (RBDLPs) represent a significant step towards catchment modes of organisation, including stakeholders from local and national government to business, recreational, wildlife and farming interests. But the size of the River Basins means the RBDLPs are far removed from the smaller scales of catchment and sub-catchment at which the WFD will be primarily implemented. The Thames district has a population of 13 million, while the area of the Anglian district is 27,890 km^2. The EA and RBDLPs are currently consulting on the ways to ensure stakeholder participation at smaller scales: the option of "creating new forums", subsidiary to the RBDLPs is considered by some of the consultations.[241] However this is not always a designated option and generally "Working through a combination of existing Environment Agency and stakeholder led forums and engagement processes" is preferred.[242]

We believe[243] that both the consultation and the consequent organisational initiatives will exclude more stakeholders than they include. They will give way, once again, to the established interest groups and lines of communication and influence. They will therefore omit recreational users, small businesses, land managers and local flood managers who would not conventionally be part of the decision making process. It may be that we find that we need several 'layers' of catchment organisation to energise all those who ought to play a part but the key 'layer' ought to be at a scale directly below RBDLPs. This would provide for even more local decision making by delegation to still more focussed tributary catchments or even sub-catchment levels. An analogy with Local Strategic Partnerships might be made for these community catchment groups. Such non-statutory, multi-agency bodies aim to provide a platform for liaison and cooperation between public, private, and voluntary enterprises and initiatives.[244] We propose that this structure would then become the basic organisation

[240] Ofwat, 2006. *A Sustainable Water Industry: to PR09 and Beyond.*
[241] e.g. Environment Agency, Thames River Basin District Liaison Panel, 2007 *River Basin Planning: Working Together* c.f. Dee River Basin District Liaison Panel, 2007 *River Basin Planning: Working Together.*
[242] The *Working Together* consultations for the Anglian and Humber regions, for example, do not include a specific option of "creating new forums".
[243] E.A.5, Thames River Basin District. *River Basin Planning: Working Together*
[244] Cabinet Office, *A New Commitment to Neighbourhood Renewal: National Strategy Action Plan*.

to replace the present consultative arrangements of the EA and thus reverse the process at present envisaged. As the House of Lords Science and Technology Committee, said in its 2005-2006 Report on Water Management, "Responsibility for water management is dispersed and unclear. We need clearer lines of responsibility, greater accountability and more effective funding procedures. Water management should be a partnership in which the water companies, the regulators, Government and the consumer can all engage in a constructive dialogue. Stakeholder engagement requires transparency, accountability and a mutual respect for the interests of all participants".

We acknowledge and welcome the consultation from the EA and RBDLPs, where an option of 'creating new forums' is available. Nevertheless we feel that the EA's statement of its preferred option, the total omission the 'new forums' option in some cases, and the overall form of the consultation appealing primarily to those with an established interest or influence in water management will not allow the potential energy and interests of stakeholders at smaller catchment scale to be fully engaged. Initiating community catchment groups on a voluntary basis will provide a mechanism for proactive democratisation and local decision-making, rather than reproducing the present top down bureaucracy. In itself this will serve as a step change in the way that the EA operates. It will need to reverse its present structure so that the centre takes on much more of a co-ordinating role and that decisions are made primarily on a local level. The localisation of environmental governance is an important change which goes much wider than water and is a constant theme of this Report.

5.2.6.4. Reforming regulation

Integrated water management cannot be provided while the responsibilities for regulating its interrelated components remain in different hands. The new ethos of sustainable water management should be co-ordinated and led by a single competent body. This body must have the capacity and skills to regulate the various participants so that the 'goods' of water management can be achieved at minimum cost to the environment, wellbeing, and the economy. It will need to provide clean, potable water for essential human use, including industry and agriculture. It will be responsible for treating wastewater safely and preserving environmental flows by delivering the water requirements of the ecosystem. It will seek to minimise flood risk and protect and enhance water's place in the landscape, while facilitating and encouraging use of water amenities.

Addressing any one of these aspects has inevitable knock-on effects for others. A central aim must be to ensure that these effects are factored in to regulation, policy and action, and to resolve the tension in the current regulatory system between environmental and human needs.

We therefore propose that an incoming Conservative government bring together all the responsibilities for these issues into a new National Water Association whose activities would be built on the local catchment arrangements and where local decision making would predominate. It would take over all the relevant responsibilities of Ofwat and the Environment Agency. It would have sustainability at the heart of all its activities and would be mandated to employ water management to protect the environment and the people within it, at the least environmental, social and economic cost to our own and future generations.

To achieve this end it would regulate water management via catchments, establishing a geographical framework extending from small rural catchments to the river basins of the WFD. It would continue the regulation of the operations of water and sewerage companies but with the much more sustainable approach we have advocated. This would be facilitated by longer planning timeframes and a strong preference in favour of smaller-scale, innovative and less resource intensive approaches. Although the National Water Association would have overall responsibility for these matters, its very title is designed to indicate a different form of organisation. Our conception is that it should be neither an 'Authority' nor an 'Agency'. It should not boss people about, nor should it act as an arm of

government. It is intended to be the instrument of all those who have a direct interest in the good, long term management of water. In voluntary terms, it is more like the CPRE or the Wildlife Trusts whose strength lies in their local organisations, rather than the RSPB or the Red Cross where direction is much more top-down. This should mean that the NWA is a leaner and lither organisation, putting most of its work out to contract with other agencies, NGOs, or commercial bodies – particularly in key areas such as the 'utility services', water supply and wastewater treatment, and leisure and navigation.

The National Water Association will seek to permit responsible bodies such as water companies and local authorities to provide certain services directly or via further sub-contracting. It might, for example, entrust responsibility for Integrated Urban Drainage Management to local community groups or businesses; or responsibility for rural catchment management to farmers or groups of land-users. It would ensure local action and representation at community level by tendering responsibility for establishing catchment community groups. Different bodies could bid for this responsibility: consultants, private companies, local interest groups like the ACA, or NFU, local authorities, or community collectives. Whoever won the contract would have to abide by a charter of local integration which would ensure openness and the representation of stakeholders. It would be these groups who would use the available funds to carry through the management of the catchment or sub-catchment.

They would need examples of best practice and reliable information on climate change, the requirements of the Water Framework Directive, and the scientific insights to inform their work. These it would be the responsibility of the NWA to provide.

British Waterways would be entrusted with responsibility for navigation and recreation in all inland and transitional waterways, manmade and natural. The Port of London Authority would be disbanded and its duties subsumed by British Waterways. The former E.A. responsibilities relating to navigation and recreation would also be transferred to British Waterways. The new British Waterways would nevertheless be regulated as a service provider by the National Water Association in order to ensure that it acted in a sustainable manner and balanced navigation and recreation needs against the other components of sound integrated water management.

In this way we believe that an incoming Conservative government could address the series of interrelated problems that lie at the heart of system of water management in the UK. In the past we have failed to recognise that the management of water has to be dealt with holistically and locally. It has to engage the energy and skills of a host of players. If it doesn't work locally, it won't work at all. Yet, if the national framework is not properly set, local initiative is impossible. That's why we need to overcome the pervading short-termism and lack of innovation on the part of Ofwat and, to some extent, the water companies. This not only creates problems for the development of conventional and substantial infrastructure projects such as reservoirs but it makes it difficult for innovative new approaches such as demand management and integrated land and water management. For this reason the NWA should set the financial parameters over a longer time-frame and on a rolling basis which would provide greater certainty to water companies. In return, water companies should produce integrated water management plans on a 25 year basis.

This new structure would also confront the continuing tension inherent the regulatory role. The duty to ensure sufficient water is available for public supply must be balanced against the need to maintain water levels in the natural environment, not just for ecosystems in themselves but for what such ecosystems provide for humans. Currently the EA has responsibility for licensing abstractions while Ofwat monitors water companies' ability to maintain supply to customers via the security of supply index.

Similarly, the Drinking Water Inspectorate can warn a water company it will be prosecuted if there were an outbreak of chryptospiridium but Ofwat has then refused to allow the cost to be charged to the

customers who are being protected. All this gives rise to considerable confusion, overlap, and tension. Worse still, even within agencies, holistic and integrative thinking is rarely applied: flood risk management is rarely viewed in tandem with water supply: hence traditional approaches of heavily engineered temporary storage are followed by accelerated discharge to the sea. Little effort is made to turn flood risk into flood opportunity by retaining water. A central aim of the overhauled regulatory system will be to resolve these tensions. Nevertheless, we are not so naïve as to believe that combining the regulatory responsibilities will automatically resolve the problems of inter-departmental competition for influence and resources. A strong executive within the proposed NWA will be required to maintain the central vision of sustainable, integrated water management. It is an important mission – as the House of Lords said in the 2006 report entitled Water Management, "There is general agreement that meeting these challenges will require the "twin-track approach"—that is, a balance between resource development and demand management. But this balance will not be achieved until the currently fragmented institutional arrangements for water management are simplified and coordinated".

Chapter 6. Waste – Towards a Zero Waste Economy

Contents

Section 6.1. Introduction 254

Section 6.2. Product Policy and Producer Responsibility 257

Section 6.3. Procurement 260

Section 6.4. Paying the Piper 261

Section 6.5. Making Sense of the Muddle at Local Level 262

Section 6.6. Providing the Expertise 264

Section 6.7. Zero Waste to Landfill: Getting There 265

Section 6.8. Support for Waste Treatment Technologies 268

Section 6.9. Conclusions 270

Section 6.1. Introduction

6.1.1. Our wasteful society

'Waste' is the word we have given to everything for which we have no further use. The economic model that rich countries have constructed not only means that we produce a great deal of waste but that, up to now, we have had little incentive to do anything productive with it. Currently it takes around 20 tonnes of raw material inputs to produce one tonne of consumption and, of the latter, 970 kgs is waste within 12 months – in terms of the products it displaces. Thus we have a doppelganger to our consumption economy – a waste economy which is 20 times as great. The habit of mind that this has engendered is still very widespread but the growing acceptance of recycling and the popular campaigns against excess packaging show that there is the beginning of a real change in public perception.

Nonetheless, we have not yet accepted that it is not only the growth in emissions that we have to decouple from economic growth; it is also the production of waste. The costs of making it in the first place and of getting rid of it subsequently, if expressed in terms of carbon, underlines the extent to which waste contributes to our emissions. Add to that, the impact of methane leaching from the decomposition of organic material which releases approximately 22 per cent of the UK's methane emissions and it is obvious why no serious policy to combat climate change can avoid the problem of the way we use and discard material resources.

However, the welcome and growing emphasis on the carbon agenda rather obscures another, vital, one: that of the resource use itself. We tend to worry about waste because of its impact on the immediate environment and the climate-changing emissions it produces in its manufacture and disposal, but far less about unsustainable resource use, which is less clearly defined but just as real. Global consumption of resources is currently beyond ecological limits, and as the developing world starts consuming and disposing at rates approaching our own, the problem is only going to get more serious. Several authoritative assessments have pointed to the dire state of natural resource depletion and degradation: the UN's *Millennium Ecosystem Assessment* found that 60 per cent of the world's ecosystem services are already degraded. Species extinction is now 100 to 1000 times the normal background rate. Rapid industrialisation in countries like China is already causing market scarcities for some types of material such as copper and wood; again, this is only going to get worse.

Finding things to do with our waste other than put it in landfill to meet a European Directive is not good enough. Like with many other environmental problems, an 'end of pipe' solution is no longer sufficient, and we have to look upstream, to what our waste was before we called it that. And that means looking at products – how they are designed, made, used, and disposed of.

6.1.2. Towards a zero waste economy

The concept of **zero waste** embodies the shift in mindset that we need to make – that is away from least-cost compliance with EU Directives and towards a focus on managing our resources as an asset rather than something to get rid of as cheaply as possible. This means focusing our efforts on preventing waste in the first place: through reducing packaging and tackling poor product design that manifests itself in short life-spans, built-in obsolescence and a lack of recyclability. It involves rethinking our powerful consumer culture that means, for example, that we have come to expect to own a new mobile phone every year. Zero waste gets to the heart of what kind of society we actually want to be. Above all it is important to understand that zero waste is not about gloom and doom – it is an opportunity as well as a threat that represents huge opportunities for the UK to be at the forefront of the next industrial revolution.

6.1.3. What does zero waste mean in practice?

Zero waste is the expression of the desire to move away from the linear model of resource use, where resources are extracted, turned into products, consumed and discarded into a more cyclical model where various instruments are in place to prevent waste in the first place and to maximise recycling. It is an ambitious, aspirational agenda that is sometimes all too easily dismissed as too idealistic and unachievable. But it is exactly this aspiration that makes it so powerful – recognition of the fundamental problem of our current rates of resource use and a desire to do better.

Zero waste is also a concept that is good for business. A number of large companies are already demonstrating that taking a more far-sighted approach to their resource-use is good for the bottom line and good for their relationship with their customers. For example, both Asda and Wates Construction have zero waste policies; both companies are aiming to eliminate waste sent to landfill by 2010. Interface, a global carpet manufacturer and supplier, has a 're-entry' scheme that reuses, recovers or recycles any old carpet they collect, even if it belongs to a competitor. Leading edge businesses do this because they recognise that recent rapid expansion in global demand against finite supply will result in higher cost and reduced competitiveness.

Reuse of waste to make waste a resource is fundamental to the concept of zero waste. Reuse prevents wastage of valuable items such as building materials, clothing, furniture, white goods, and computers and it helps to reduce the demands on new natural resources.

However, resource management is not just – or even primarily – about recycling and reusing materials which have previously been manufactured and entered the waste stream. It is about smarter manufacturing, cleverer distribution, the use of renewable and biodegradable materials, and the minimization of packaging. This realisation is part of the motivation for the Packaging Waste Directive, pioneered by the UK, the End of Life Vehicles Directive, and the WEEE Directive – all of which create pressure directly on manufacturers to change their resource use without reducing the attractiveness and efficiency of their product. Building consumer goods that last and are capable of being repaired; designing out obsolescence; changing behaviour to such an extent that the throwaway society becomes a conservation society – these are the fundamental challenges to our wasteful ways. The efficient use of raw materials is the first priority in any sustainable waste policy.

Recycling is the second priority. Fortunately, the concept has come of age, with local, national, and international trading in recovered materials which can be used again as raw materials for new products. So-called secondary raw materials are now big business and increasingly fuel the manufacturing might of China. The economics of recycling are clear (WRAP Statistics 2006). To meet Landfill and other European Directive objectives and play its part in the mix of waste treatment options available, it is estimated that recycling and composting of municipal waste will need to treble from current levels to c22 million tonnes a year by 2020. The value of this material has been estimated at c£590 million a year, so the efficient achievement of this aim represents a major economic, as well as environmental, opportunity for the UK.

This domestic assessment is paralleled in commercial and industrial waste – which will produce an estimated 35 million tonnes of material a year by 2020, with a projected value of £520 million a year. In the construction and demolition sectors we shall need to use at least an estimated 88million tonnes a year by 2020, with a projected value of £700 million a year.

So across the sectors, by 2020 we should be recycling and composting something like 145 million tonnes of wastes, with a total market value of £1.8 billion a year. Recycling of this material can contribute a greenhouse gas saving of at least 22.5 million tonnes annually from a whole range of materials including paper and card, plastics, metal, and glass packaging. **The stakes are high – the opportunities huge.**

But time is running out:

- We need real **behavioural change** which will affect everyone – householders, businesses, the construction industry, manufacturers, agriculture. It must become axiomatic that we produce less waste, recycle and re-use the valuable components of the waste we do produce, and manage better the residuum left for disposal.
- We need **structural change** to encourage urgent investment in new plant and technology, to collect, sort, reprocess and remanufacture recyclable materials and to otherwise accommodate wastes which were previously landfilled.
- We need **organisational change** to achieve more efficient and user-friendly household collection systems; better regulation and cohesion between national standards and local practice; and enhanced producer responsibility to lessen the environmental impact of manufactured goods.

Section 6.2. Product Policy and Producer Responsibility

At the heart of a zero waste economy is a set of measures known collectively as 'producer responsibility'. In theory, producer responsibility means a reduction in the environmental impact of products as producers change product design, substitute materials, extend product life and undertake other measures to reduce the environmental impact of their products. In practice, the emphasis to date has been very much on the 'end of life', i.e. the collection, management and recycling of waste. This means that producer responsibility has been fairly successful in increasing the collection and recycling of materials but has been much less successful at altering the nature of products from the point of design so that they have less impact throughout their life and are easier to recycle. Furthermore, it has not been successful in ensuring appropriate funds are apportioned back to those left to deal with the waste product, in many cases the local authority.

One of the reasons why our economy has evolved in the linear way it has is that there is no connection between responsibility for managing products at the end of their lives and those individuals and companies that manufactured them in the first place. Ultimately this responsibility linkage needs to be established and inevitably that carries with it financial liabilities which, de facto, become translated back into the purchase price of the product in much the same way as other costs of manufacture. Clearly this is not possible with all products (for example, waste food) but in others it most definitely can be (packaging, batteries, cars and the like). Abstracting and reallocating these costs in such a regime after 200 years of not recognising that liability is, however, a major challenge to established business supply chains – with consequent risks to price stability, commercial viability and customer perception. There is no reason why overall costs should rise – indeed there are clear opportunities for transferring costs from local government back onto product supply chains, for instance – but measurement systems, methods and principles of implementation need to be coordinated, consistent and transparent. Over the last 20 years, the UK has not been successful in achieving those simple objectives.

We believe that producer responsibility should be about more than making sure that the private sector picks up the tab for the environmental impacts of their products.

We need better producer responsibility policies that will actually change the nature of products. This is not a new idea, but it has rarely worked well in practice. Poor implementation, a lack of market development and diluted incentives have meant that a number of initiatives have had very limited success. For example, the 'essential requirements' of the Packaging and Packaging Waste Directive 1994 shifted the onus to producers to establish what the environmental impacts of their products were, and then take steps to address them. This was a potentially groundbreaking step – but compliance with the essential requirements was not subject to monitoring and enforcement has been the job of often under-resourced local authority trading standards officers. At the same time, the emphasis on lightweighting of packaging has had the effect of making packaging more difficult and less economic to recycle.

Furthermore, because the current scope of producer responsibility is based on specific product categories (EU Directives also cover waste electrical and electronic equipment, end-of-life vehicles, and batteries), it represents only 16% of total controlled waste generated.

Recommendations

Regulation and oversight of resource and waste issues is muddled. The duties of the Environment Agency, local government, government departments, government agencies, and the industry itself, overlap. Lines of responsibility are confused. We need a national strategic body which will produce clarity, while reducing bureaucracy.

We therefore propose the establishment of a National Resources Trust[245] (NRT) within the new Department for Sustainable Growth proposed in this Report. The NRT would be charged with establishing a detailed programme to extend producer responsibility legislation to cover a much more significant proportion of the household, commercial and industrial waste streams. Where legislation already exists it would ensure a tougher and better co-ordinated approach. For packaging, for example, the NRT would develop a dramatically enhanced programme for the promotion and enforcement of the existing essential requirements regulations, and help trading standards officers to tackle bad packaging.

Producer responsibility should be extended throughout the material economy

Alongside existing measures covering packaging, electrical and electronic equipment, vehicles and batteries, candidates for producer responsibility measures include pharmaceuticals, paints, construction and demolition waste, nappies, food, furniture, carpets and textiles. The objective is to incorporate all waste streams. Priority products would be those classified as hazardous wastes since they are often manufactured within consolidated supply and retail distribution channels and are already easily distinguishable. The environmental benefit in terms of product redesign in hazardous wastes is also more obvious to the consumer.

Sectoral targets for resource use

These targets would initially be agreements negotiated between government and industry but backed up by the threat of statutory targets if little progress was made against a firm timetable. Voluntary compliance from industry would be rewarded with exemptions from a more prescriptive regulatory regime. Giving lighter obligations to those who were first to take serious action if statutory targets were brought in would discourage free riders.

Product levies and deposit refund systems

A number of countries, including Finland, Denmark, Germany and Italy, have introduced a charge on environmentally damaging products such as non-rechargeable batteries or non-refillable or non-recyclable drinks packaging. In most cases the charge is used to fund collection and recycling schemes, but in some cases the charge is levied explicitly to shift consumer behaviour from these products towards better alternatives – for example, better types of packaging. It could also be used to discourage one-time use, disposable products that currently can't be recycled. Other countries such as the US have made good use of deposit – refund systems for some types of drinks packaging e.g. glass and PET bottles. Such a system could be a popular way of encouraging the public to recycle outside the home where recycling systems are currently few and far between.

[245] Further information on National Resources Trust can be found in Appendix 6.1

What could all this mean…

…for packaging?

- You pay a 20 pence deposit for a drinks bottle that is refunded to you when you return it to a reverse-vending machine in your high street.
- You bring home far less food packaging from your weekly supermarket shop as manufacturers are driven to reduce unnecessary packaging – and the packaging you do have is recyclable or compostable.
- You're encouraged to use refillable packaging in the shop and given a discount when you bring back containers to be refilled.
- Compostable packaging could be exempt from any take back liability as a cost incentive to manufacturers.

…for electric and electronic equipment?

- If you buy a piece of equipment whose components are not reparable or upgradeable, it will be subject to a tax at the point of purchase to persuade you to consider a more durable alternative. Certain products that are designed for short lives would also attract a point of sale tax.
- When for example, your fridge is finally broken beyond repair it is collected by the manufacturers without charge; the reusable components go back into the manufacturing process and the rest of the fridge is recycled.

Further details on extended producer responsibility are referenced in Appendix 6.2.

Section 6.3. Procurement

One of the results of the recent surge in recycling has been the creation of new industries and the adaptation of old ones. For example, all newsprint manufactured in the UK now is made from recycled fibre – old newspapers and magazines. The factories which make this paper underwent massive re-tooling involving investment of many millions of pounds to achieve this. The same principle applies to makers of office and writing paper, tissue papers, glass containers and bottles, plastic packaging containers, and many other products. Much of this re-tooling has been driven by the opportunity for saving money – it is cheaper to make a bottle out of recycled cullet than out of virgin materials because the energy costs are lower. But in order to encourage this market, and find uses for the recycled materials, industry must have confidence that if it does re-tool, the demand for products manufactured from recycled material will be there. In part extended producer responsibility will reinforce and enhance this.

Creating the "pull" for resource efficient products is something the Government and the wider public sector can and should influence, and much stronger government policy and commitment is needed to this effect. More than £125 billion is spent by the public sector in the UK each year. This money can act as a catalyst for the development of sustainable markets for recycled material and closed loop systems, from central government through to parish councils, through conditioning supply chains and making it clear to industry which products and materials will be part of a zero waste future and crucially, which will not be. Furthermore, public sector procurement can foster innovation by creating demand for products not yet on the market, by specifying both their desirability and the fact that there will be a ready market for them should they be developed.

Many of the emerging markets for recyclable materials are fragile and some are even in decline. Public spending should drive the development of markets for recycled – and recyclable – materials that result in reduced impact and contribute to a low-carbon, zero waste economy, driving wider environmental improvements and behaviour. The government should also be an exemplar purchaser for its policies on resources and energy to have real credibility.

Recommendations

- The National Resources Trust should produce a Sustainable Procurement Standard for all public bodies – government departments, local authorities, health authorities, Police and Fire Services – to ensure that they procure supplies with maximum recycled content, greater recyclability and longer life, as part of their statutory requirement to reduce their ecological footprint.
- All public bodies including Government Departments, agencies and local authorities would be required to produce a comprehensive and thorough procurement plan to incorporate environmental and resource efficiency standards. This must be compiled against the standard developed by the NRT and it must include specific and measurable plans to implement the standards. Priority Departments might be heath and the schools new start programme.
- The NRT would publish an annual report on how successfully this Sustainable Procurement Standard was being implemented in the public sector, by Ministry, spend and assessment of carbon avoided.
- The onus on public procurement bodies could be to concentrate on fitness for purpose specifications and to undertake a comprehensive review where any public contract specifications specifically refer to virgin inputs.

Section 6.4. Paying the Piper

Household waste collection has to be paid for. If consumer behaviour is to be changed, there has to be a transparent linkage between waste disposal and its cost. If we, the customers, are to press supermarkets and mail order companies for less packaging and ourselves to limit our personal production of waste wherever that is practical, we need the discipline of the market place. This becomes even more important as the necessary initial investment to meet proper environmental demands drives up overall costs. If communities are to support better recycling initiatives and to demand systems which encourage greater levels of householder participation there has to be a financial driver. Even more is that true if we want to maximise material capture in the most cost effective way. Yet, there are real questions of health and social justice that cannot be baulked by Conservatives.

In order that we can bring about appropriate change without losing sight of the important social dimension we propose:

- That council tax bills should show separately the amount charged for the totality of waste services – collection, bring sites, recycling, and disposal. People will then know precisely how much they are paying for the service.
- That discounts are offered to encourage recycling. The dynamic effect of **not** paying a tax is well documented.
- Set a reasonably generous limit by weight or container for residual waste which would be collected within the standard charge and then allow discounts for households which produced less. Technology allows allocation according to postcode areas, council tax band, or levels of occupancy, so this could be well directed. Indeed, it would enable the incentive to be directed at the community (particularly in areas of high density housing) and applied to the provision of equipment for a local school, park, or sports facility, where peer pressure would be increasingly effective and local communities would be encouraged to lead local campaigns.
- The Municipal WasteDataFlow system needs to be updated and include publicly accessible comparator data for like for like types of authority on a wide ranging series of matrices covering cost as well as operational efficiency. This would contribute significantly to the education and awareness objectives identified later on in this Report.

Section 6.5. Making Sense of the Muddle at a Local Level

Waste is a local phenomenon and getting the local structure right is a crucial first step. So we start with the customer.

Most of us relate only marginally to waste disposal – at work or in the street. It is at home that the relationship can become much more obvious. It's with the bin men that most people start. And it's here too that the confusion starts. Once local councils seek to move away from traditional systems into kerbside collection with some element of sorting, problems arise. The need to recycle complicates matters and, as a result, the public are confused. There is plenty of evidence that most householders want to recycle and for many it is the key environmental behaviour change. This is important because it has the potential for leading them on to other environmental behaviour changes. Recycling makes people feel good – feel they are doing their bit. Sadly, many local authorities have systems which are far from user-friendly and are not tailored to the local housing stock or population profile. Conversely, although the *systems* need local tailoring, the principles need to be universally understood. Anyone who deals with two local authorities knows how unhelpful it is to find that their definition of what can be recycled may be different. What goes in which container needs to become second nature to the customer and not something that requires reference to a list posted on the kitchen door.

If it is confusing to the customer, it is very expensive too. Adjacent authorities with different criteria, often cannot deliver waste in sufficient bulk or to a sufficiently consistent specification to get the best price. If they could only act jointly they could overcome many of these problems of scale. This dysfunction has often arisen by accident but sometimes it is the 'not invented here' syndrome that has made co-operation between authorities impossible.

And that lack of joined-up thinking spreads far wider. Waste is local and yet the rigid demarcation that is too often found between the domestic waste stream and commercial and industrial waste means that in many localities, neither side gets the best return out of their waste, simply because they proceed in an unconnected way. Whilst local authorities deal with household waste, this is only 8% of the total waste arising. Much commercial waste (restaurants, small businesses, etc) is very similar in composition to domestic waste, yet recycling is much patchier. Opportunities for economies of scale and joint use of facilities are lost because business and industry deal with their waste quite separately from the municipal sector. This has a big impact on other related environmental issues in general and unnecessary traffic movements in particular. Regulations coming in in October 2007 relating to the 'pre-treatment' of waste will, it is to be hoped, make some improvements in this regard.

This dysfunction is seen most clearly in the way county councils and unitary authorities exercise their statutory responsibilities as the Waste Planning Authority. They have a duty under PPS 10 to develop waste disposal plans which take into account waste generated from the municipal, commercial, industrial, construction, and agricultural sectors. In developing these plans, county councils and unitaries must take into account national and regional objectives and any underlying European proposals. Yet, in the case of county councils, when they draw up these plans they are responsible for *delivering* only the municipal waste element. Indeed, there are statutory drivers which prevent waste disposal authorities from engaging in participative arrangements with the commercial, industrial or agricultural sectors because of the undue influence these tonnages would have on LATS calculations. This means there is a disincentive to collect commercial waste. (See Appendix 6.3 for further explanation of LATS calculations.)

This approach is now out of date and results in a structure that is not fit for purpose. The county waste strategy is not a matter for the county council alone. There is a necessity for a much wider participation if we are to get the strategic investment in new processing and disposal infrastructure which we need. That co-operation would reduce financial and operational risks and optimise the

recovery and processing of commercial and agricultural wastes. The resulting overall environmental benefits cannot be obtained under the present system. We need, therefore, to provide a way of organising these operations which does not impose the dead hand of bureaucracy nor extend municipalisation but engages the public and private sector to their mutual advantage.

Recommendations

- Local authorities should be encouraged to work together to gain improved economies of scale and clarity of service delivery, guided by the NRT. The pathfinder programmes now being trialled under which the county and districts work together to take costs out of the system would provide an ideal basis for this. This is already happening in some areas as a result of NAO studies (witness the decision by Somerset to form a Single Waste Authority) but needs to become the norm.
- Local authorities should be charged with facilitating the cost-effective collection and recycling of all waste within their areas. It would be rare that they themselves would do the job but by facilitation they would ensure that it were done as cost effectively as possible. To that end they should:
    - look to opportunities for joint collection of municipal and commercial, industrial, and agricultural wastes; and
    - consider if county wide collection or collection in areas that did not coincide with district boundaries would be more appropriate. Thus, in a town whose local government boundaries did not extend over the whole built up area, they might commission collection in such a way that it covered the whole conurbation. Elsewhere, it might be appropriate for a large parish to be responsible for the collection.
- Local authority groupings should be encouraged to optimise performance through designing waste systems which are integrated with recovery, processing, and disposal infrastructure.
- Local authorities should be encouraged to seek uniformity of recycling principles over a wide area, design systems that would optimise results by paying attention to housing type and demographic profiles rather than political boundaries.
- Local authorities should be charged with reducing waste miles and with designing systems that take advantage of local sorting, recycling, composting, and disposal.
- Local authorities should seek opportunities for linking waste management to carbon reduction programmes and biofuel and bio crop recovery, and to facilitate schemes for reuse of clothes, furniture, and electrical goods, both voluntary and commercial.
- Local authorities should be charged with the effective implementation of the regulations on fly-tipping, using, as appropriate, Trading Standards departments, district or even parish councils as their agents.
- Investment needs to be encouraged in information technology and material flow tracking in the form of Municipal WasteDataFlow as without data there is no sound policy or assessment of policy successes.

Section 6.6. Providing the Expertise

The localism agenda demands that the local authorities should be as independent as possible. But there is a need to provide them with expertise and advice on best practice from other local authorities and other parts of the world. We therefore propose that the National Resources Trust should carry out this function. Its role is crucial in the avoidance of duplication, the dissemination of good practice and innovative ideas, and in understanding waste as a resource. The drivers must, however, be local. The National Resources Trust should be the adviser of local authorities, not their master. Drawing always on the experience of the most effective local authorities, it would:

- advise government on waste strategy;
- advise local authorities on waste strategies and plans;
- at the behest of the local authorities, propose necessary legislative or regulatory changes; and
- issue guidance to local authorities on collection of green garden waste within household waste collection schemes.

Section 6.7. Zero Waste to Landfill: Getting There

6.7.1. Zero waste to landfill – the history

Landfill in the United Kingdom has historically been both convenient and plentiful. Measures to reduce our reliance on holes in the ground have to date focused on reducing the production of methane, a potent greenhouse gas, rather than any real concern with resource use per se. This has to change.

Recycling targets imposed upon local authorities by government have been successful in achieving roughly 27% diversion and the figure is rising, but the fact that the targets have been expressed in percentages of waste arisings by weight has had unintended consequences. It has led local authorities to concentrate on collecting heavy materials such as glass, with a relatively low recyclable value, and green garden waste for which the most sensible and environmentally responsible disposal route is home composting.

Thus weight-based targets, whilst generating a good deal of recycling activity, have not achieved one of the essential goals which is to reduce biodegradable waste to landfill and thus cut methane emissions to air. Nor have they prevented the landfilling of valuable materials which are eminently recyclable and on which considerable energy has been expended during manufacture.

6.7.2. Stopping the landfilling of recyclable materials

A phased introduction of a ban on the landfilling of recyclable and compostable materials (municipal, commercial, industrial and agricultural wastes) would send a clear signal to industry that landfilling recyclable materials will not be considered acceptable in the future. Such a ban would be introduced in stages, starting with the materials which can be recycled easily and with greatest environmental gain, for example, aluminium. Aluminium recycling uses only 5% of the energy needed for primary production and, as it can be recycled time and again without loss of quality, it makes no environmental sense to continue to allow aluminium to be landfilled. Nonetheless, currently, only 42% of aluminium cans are recycled in the UK. A ban on aluminium products (where a significant proportion of the product was made of this material) going to landfill could be phased in by 2010.

By 2015, there could and should be a ban on the landfilling of all biodegradable materials – paper, cardboard and organic wastes, such as food waste, – which produce methane. Although they are already being targeted under the LATS scheme, the impact of reduction will be gradual and concentrated only on municipally sourced material rather than ensuring equal treatment of material from commercial sources.

A ban could and should be imposed by 2012 on the incineration of any untreated biodegradable waste (i.e. waste which has not passed through a pre-treatment process). Further details on Landfill bans are explained in Appendix 6.4.

Over a period of some 20 years, we should move to a situation where all materials which could be recycled or composted would be banned from landfill and all recyclable materials would be banned from incineration. Thus we would close the loop and ensure we redesign waste as a resource.

Green garden waste should be removed from the computation of recycling targets, as its collection merely adds to the total amount of waste that is collected by local authorities with the single purpose of adding to recycling to meet targets. Taking this out of the equation would mean local authorities and contractors would instead invest in collection, processing and treatment facilities for increased amounts of dry recyclables such as packaging and food waste. Under existing legislation councils are

able to ban green garden waste from domestic dustbins, and are able to levy a charge for its collection. This legislation should be used properly.

6.7.3. Changing the economics of waste disposal

In spite of recent and proposed increases in the tax, landfill is still an inexpensive option for waste disposal. As long as relatively cheap landfill is available, industry is reluctant to invest in alternative disposal capacity and local authorities are slow to commit to new contracts. The landfill tax was introduced by the Conservatives as an environmental tax with the intention that 15% of it would be returned for local environmental and community gain. But this has been eroded by the Treasury, so that now a much smaller fraction of the original landfill tax is used for environmental purposes and none of the increases are devoted to such local initiatives. The advantage of the original proposition was that it put the decisions on spending into local hands under the light regulatory regime of local trusts. The nationalisation of the system by Mr. Brown has meant that a very important part of the basis for acceptance of landfill costs has been removed.

Recommendations

- Landfill tax should be increased to £80 per tonne by 2015, increasing at the rate of £5 a year thereafter; to be reviewed regularly by the National Resources Trust to make sure that the right signals are given to industry. Except to the extent of any increase in the amount available for local environmental and community gain, this would be a replacement tax and, as with all green taxes, revenues should be used to reduce other taxes;
- A ban should be established by 2012 on the incineration of any untreated biodegradable and recyclable waste (i.e. waste which has not passed through a pre-treatment process);
- A ban should be established on the landfilling of all biodegradable materials by 2015 – paper, cardboard and organic wastes, such as food waste, – which produce methane; and
- The landfill tax should revert to the structure originally introduced by the Conservative government, giving very wide local discretion as to how a proportion of the money raised through the tax should be spent – another example of the Conservative localist agenda, guaranteeing that local communities which host waste management infrastructure will benefit.

6.7.4. Planning for landfill alternatives

We recognise that there is a huge backlog in providing the necessary waste infrastructure to deliver a goal of ‘zero waste’. To deal with this backlog, the planning regime should be adjusted to favour small, flexible and selective schemes rather than large, inflexible and mass-burn schemes.

Recommendations

- a sliding scale of statutory determination periods from submission of planning application which reflect the complexity of the application. Currently, statutory periods are the same for a small scale green waste composting plant as a major waste treatment facility. This means that the statutory periods are largely ignored;
- the right to appeal for non-determination. If an application is not considered within the statutory period, the applicant has the right to appeal for non-determination to the planning inspectorate. The consequences of non-determination need to be significantly less attractive for the local authority than making the difficult decisions;
- a reduction in the lead time for consideration of non-determined applications by the planning inspectorate with priority over appeals against refusal by local authorities;
- statutory periods for appeals against refusal – the planning inspectorate has recently had a lead time of circa 12 months. Time limits also need to be set for the issuing of decisions following the consideration of the appeal as well; and
- local public referendums as an acceptable means of gauging public opinion in presenting community views where incinerators are being proposed.

Further background information is provided in Appendix 6.5.

Section 6.8. Support for Waste Treatment Technologies

It is widely accepted that minimising residual waste through prevention, reuse and recycling is crucial. It is also accepted that, at least in the short term, there will be residual waste that will have to be disposed of in some way.

We have argued elsewhere that the recent government waste strategy should have set far more ambitious recycling targets to drive innovation in the waste and recycling sector. These targets should be aspirational and based on research into what it is physically possible to recycle. We then need a mechanism to ensure that this is what actually happens in practice. As the landfill tax increases, we need to ensure that waste is not just diverted to the next cheapest or easiest option in the waste hierarchy. An incineration tax would ensure that the relative cost of recycling reflects its environmental desirability.

Where recycling is genuinely not an option, we should seek to encourage new technologies which can treat the remainder. Our concern for these wastes is that energy in them should be captured and that their ultimate disposal should cause no harm to the environment. However, there are a number of pre-conditions to our support for energy-from-waste (EFW) to treat residual waste: firstly, we recognise that the term 'energy-from-waste' is a catch-all term for a range of very different technologies. Some, such as anaerobic digestion, can be small-scale and flexible technologies that have proven carbon benefits, whereas others may be large and inflexible technologies that are very inefficient at producing energy. Secondly, we recognise the danger of 'lock-in' to large EFW plants that comes with long-term contracts, creating a situation where *marginal* costs of disposal fall to zero, reducing incentives to increase recycling rates.

We recognise the place of refuse derived fuel as a source of energy and accept that, where maximum recycling and removal of recyclable wastes has been carried out, the combustion of RDF in processes where the RDF genuinely displaces fossil fuels, can deliver environmental benefits. Mass-burn incineration with energy and heat recovery can also be an acceptable means of disposal as long as the efficiency of energy generation is sufficiently high.

Incineration with power generation but without heat recovery should not be considered (see further position statement on waste treatment in Appendix 6.6):

- Exposing incineration which fails to meet the proposed EU efficiency threshold for recovery (i.e. incineration without combined heat recovery and power generation) to a disposal tax or an expanded emissions trading scheme will ensure carbon emissions are offset. Emissions could be offset through the identification and co-location of a heat user on an existing or planned site, by generating carbon credits through other activities incorporated into a revised emissions trading scheme or via the purchase of carbon credits on the open market.
- Facilities that meet the EU's proposed threshold of 0.65 (using their calculations – see Appendix 6.6) but fail to meet a threshold of 0.70 using the same calculations should be exposed to a lower rate of tax
- This will drive planning and investment in heat recovery, which is essential to ensure good use is made of those materials that cannot be recycled and offer the potential to generate power and heat.

Incineration should always be subject to the following tests:

- The method of incineration must not crowd out waste prevention or recycling, so capacity must be made available only for non-recyclable materials;

- There must be efficient energy recovery of at least 0.65% and preferably 0.70 using the EU's proposed efficiency threshold calculations;
- Facilities must meet tough emissions standards and monitoring of emissions must be transparent with results publicly available; and
- Implementing these facilities must always be carried out in partnership with the local community.

Section 6.9. Conclusions

Waste management has a silent impact. It is a service which is carried out day after day, for householders, for industry, for commerce. Most people do not think about it – until something goes wrong.

We can all remember the sacks of rubbish piled in the streets during the 'winter of discontent'. The rats. The smells.

But resource management is a fundamental requirement for human existence. The balance needs redressing.

Zero waste is a goal – an aspiration, something to aim for. It will not be easy, and we will all need to take bold steps and to accept change.

But the zero waste economy presents a major opportunity. Some of Britain's leading companies have already recognised this. Entrepreneurs – in the best run private companies and public services alike – will rise to the challenge.

Extended producer responsibility is central to our proposals. Changing the way we view – and value – resources together with using less of them in the first place are critical in the battle against climate change.

Banning recyclables from landfill and increasing the landfill tax in real terms to match the rates in leading EU countries sends the right signal – landfilling perfectly good resources is, literally, a waste and is no longer acceptable.

The disposable days are over.

Chapter 7. Energy – Low Carbon and Credible

Contents

Section 7.1. General Overview 272

Section 7.2. Measures 275

Section 7.2.1. Emissions, reductions, targets 275
Section 7.2.2. International 275
Section 7.2.3. Domestic financial measures 277
Section 7.2.4. Networks 279
Section 7.2.5. Demand 283
Section 7.2.6. Supply 290
Section 7.2.7. Institutional infrastructure 303

Section 7.1. General Overview

In the past, we have spoken of the four pillars of energy policy: reduction of carbon emissions; security of supply; competitive markets, and affordable heating. In the twenty-first century it has become clear that the need to reduce carbon emissions is not a pillar alongside the others, but the foundation upon which the other pillars rest. Without that foundation they will crumble. We know that the move to a low-carbon economy must be the overriding aim of any responsible government. Yet, we believe that this can be achieved while improving individuals' quality of life and standard of living.

In order to provide a framework for such a revolution, the Government must send a clear, unambiguous message that it is committed to turning the UK into a low-carbon economy. It must not shrink from the challenge and the message must be credible. Net carbon dioxide emissions fell from 592.1m tonnes in 1990 to 540.8m in 1999[246], primarily due to the switch to gas and a decline in manufacturing although the peaking of nuclear capacity in 1998 also had some impact. They have since been rising. By 2005, they were back up to 554.2m tonnes[247]. In the face of this disturbing trend, the time for reviews is over and the time for action is now.

Our core philosophy is that the market is the best determinant of the optimum outcome. Yet it is government's responsibility to set the framework within which the energy market can operate. It is facile to believe otherwise. The Stern Review provides justification, if any were needed, for government to intervene now to ensure that additional future costs are priced into the current market. We accept that the market has not so far been successful in costing in the price of environmental degradation. Stern's insight is that intervention now will pre-empt the need for much more extensive and expensive intervention later.

Our objective is to provide a framework that will ensure the market prices in environmental costs and provides incentives to drive forward environmental technologies. This framework has to be designed to empower businesses to invest and innovate; to provide consumers with the knowledge and price signals to encourage them to make environmentally responsible decisions; and to ensure that local government and agencies are incentivised to implement national policies on the ground. At the moment there is a huge gulf between central government rhetoric and local government delivery.

Although the need to reduce carbon emissions is of overriding importance, we must recognise that energy is vital to our way of life and our quality of life, and so we must ensure that security of supply is also supported by the market framework that we develop. To do that we will have to change the way our economy operates. We have to move from a model where lowest energy prices have precedence to one where the measure is lowest overall bills. Those lower bills will be achieved through energy efficiency measures and associated fiscal incentives.This will require real changes in the way the private sector operates. So, to mobilise the necessary finance, investors will need to have confidence in making reasonable returns for the long term.

Yet the UK cannot be in this alone. There must be a global level of engagement which includes the US. We cannot delay while every country uses another as an excuse not to take action. Nor must we institutionalise delay by yet more processes. The recent G8 meeting merely added an unnecessary programme of work instead of re-energising the UN and Gleneagles agreements. It is the momentum from Kyoto that must be strengthened and continued. Even though the EU ETS is, understandably, suffering from a lack of credibility, that should lead us to a real determination to improve its operation and effectiveness, not to undermine it. Indeed, it must become the bridgehead to a new and expanding global marketplace for carbon.

[246] Table of UK Greenhouse Gas Emissions 1990-2005, released by Defra, 31/1/07. Available at http://www.defra.gov.uk/news/2007/070131a.pdf
[247] As above

This would give a remarkable opportunity for the UK to drive the process forward. In so doing we would attract the investment that will foster innovation, strengthen our competitiveness, and benefit the UK economy overall. For too long, our incoherent and incredible policies have driven away potential investors. Instead, we should aim to provide the best possible access to the most advanced low-carbon economy in the developed world.

Reducing the absolute demand for energy will be critical to this mission. We need to set our standards for the built environment, for appliances, and for efficiency, so that they become the highest in the world. Enforcement of these standards has to be absolute in order to stimulate and drive the technological development and innovation that we need to enjoy a high quality of life, in a low-carbon environment.

We have a unique opportunity to innovate and diversify because of the age of our centralised generating stock and much of our network. That means that, as they come up for replacement, we can enable the necessary changes to be made in the most cost effective manner. Our measures will ensure that barriers to new, smaller generators are removed – encouraging the development of decentralised energy[248]. This will reduce dependency on a few large single sources of energy and will concurrently increase competition and create a more robust and secure supply of energy. More local generation based around CHP and microgen will also reduce emissions.

We must continue to place primary emphasis on developing renewables as the safest and most secure low-carbon source of energy. The necessity and urgency for low-carbon options means that nuclear power cannot be ruled out; and other options – such as carbon capture for coal and gas – should be encouraged .We will also address the woeful lack of attention given to the development of low-carbon heat.

Finally, the present institutional infrastructure, a product of the reforms of the early 1990s, is no longer fit for purpose. It will not support the new commitment to reducing carbon. Conflicting duties need to be reconciled so that the reform of our energy economy is matched by institutional reform.

We set out here, in broad terms, the ways in which we believe that these objectives can be achieved. We acknowledge that, in a number of areas, more work needs to be done on the detail. However, we have concluded that some strong, radical, and long-term policies are best able to ensure the substantial change that we need. It is coherence and consistency that is crucial. That is why we have not suggested that we tinker any further with the inchoate multitude of schemes, wheezes, and knee-jerk reactions that make up the current policy.

[248] Throughout this paper we will use the definition of Decentralised Energy taken from the Government's Energy Review which defined it as the "wide range of technologies that do not rely on the high-voltage electricity transmission network or the gas grid. This includes:
Distributed electricity generation including:
- All plant connected to a distribution network rather than the transmission network;
- Small-scale plant that supplies electricity to a building, industrial site or community, potentially selling surplus electricity back into a distribution network; and
- 'Microgeneration', i.e. small installations of solar panels, wind turbines or biomass/waste burners that supply one building or small community, again potentially selling any surplus; and
Combined Heat and Power (CHP) plants, including:
- Large CHP plants (where the electricity output feeds into the transmission network but the heat is used locally);
- Building or community level CHP plants;
- 'Micro-CHP' plants that effectively replace domestic boilers, generating both electricity and heat for the home; and
- Non-gas heat sources such as biomass, wood, solar thermal panels, geothermal energy or heat pumps, where the heat is used in just one household or is piped to a number of users in a building or community.

We see the issues of affordability and fuel poverty as being of the highest importance. However, neither energy policy nor the fuel poor have been well served by the incoherent duties imposed on regulators or by a series of ill-targeted budget measures. Specific fuel poverty measures are part of our social and benefit policy and will not specifically be addressed here. However, we believe that our measures will benefit the fuel poor as part of an overall improvement in energy policies. Schemes like Warm Front and EEC will easily fit alongside the new measures that we propose.

7.1.1. Key Energy Data[249]

Figure 7.1. Overall Energy

Million tonnes of oil equivalent

	1980	1990	2000	2003	2004	2005
Conversion losses	} 62.1	66.4 {	53.8	53.6	53.3	54.4
Distribution losses and energy industry use			20.7	20.1	20.0	20.3
Final consumption						
Industry	48.3	38.7	35.2	33.7	33.0	33.1
Domestic sector	39.8	40.8	46.9	48.2	48.6	47.0
Transport	35.5	48.6	55.6	56.5	58.2	59.2
Services[1]	18.7	19.2	21.5	19.7	20.2	20.2
Total final energy consumption	142.4	147.3	159.2	158.0	159.9	159.5
Total inland primary energy consumption[2]	204.5	213.6	233.7	232.0	233.4	234.3
Temperature corrected total	206.2	221.6	237.9	236.1	238.9	237.6

[1] Includes agriculture

[2] Excludes non-energy use

The total inland primary energy consumption of energy has risen by 15% since 1980, with a rise of 0.4% taking place between 2004 and 2005. Last year, losses by the energy industry from conversion and distribution accounted for 32% of total energy consumption.

Figure 7.2. Inland Energy Consumption

Million tonnes of oil equivalent

	1980	2005
Renewables and waste	*n/a*	3.9
Primary electricity (mainly nuclear)	10.2	19.7
Coal	73.3	40
Gas	44.8	93.4
Oil	76.2	77.3
Total	204.5	234.3

Renewables and waste accounted for less than 2% of inland energy consumption in 2005. The share of gas has risen from 22% to 40% – mainly at the expense of coal.

[249] UK Energy in Brief, DTI/National Statistics, July 2006

Section 7.2. Measures

7.2.1. Emissions, reductions, targets

In our Chapter on Climate Change it is our judgement that the stabilisation target range for CO_2 equivalent should be 400ppm–450ppm. We have, however, suggested that a final decision should be made by the Climate Change Committee. Our proposed figure is lower than the 450-550ppm, cited by the Stern Report, but we are concerned that only this lower figure will give us the best chance to contain temperature increases to 2°C – the level beyond which climate change may be irreversible. This equates to emissions reductions of 80% by 2050 and should be seen in the context of wishing to be ambitious enough to make the UK carbon-neutral. In any case the energy sector must be a major contributor to this reduction.

The speed at which this reduction can be achieved and the contribution that energy can make are related not only to the renewal of the generating assets but also the willingness of government to take strong action on the demand side. We believe that the measures we outline below will enable the fastest possible development of low-carbon generation, but, even so, this would not be enough to fill the forecast generation gap without strong action on the demand side.

Some of the measures we propose may not be seen as politically palatable but now is the time to start serious consideration of their implementation. The electorate is increasingly aware of the impact of global warming on their lives and trends in recycling and fair trade/organic purchases show that there is at least the beginning of an appetite for changing behaviour to something more ethical and sustainable. Of course, we seek to recommend how these necessary changes might be implemented in the most convenient manner. People would expect that of politicians. Yet, the electorate expects courage too, particularly in the face of a great threat like climate change. We would do well not to disappoint them.

There are many individual issues that are bound to be matters of contention. One of the sharpest is the debate over new nuclear capacity. The reality is that unless demand can be severely contained and carbon capture technology advanced very rapidly, it is unlikely that new low-carbon generation will be able to fill the gap without some recourse to nuclear generation. The degree to which a government is willing to change planning procedures to facilitate the development of non-nuclear low carbon generation and impose severe criteria for energy usage and energy efficiency will ultimately determine how much or indeed if, new nuclear is required. If the government is not willing to implement radical policies on the former, then the likelihood of there being a need for nuclear generation to fill a future gap is increased. Even those for whom nuclear energy poses few problems should be concerned when it is wrongly seen as a silver bullet avoiding the necessity for radical change. In that sense it is another add-on solution, at best inferior to making the fundamental changes which ought to be our first priority. Nuclear or not, those changes have to be made.

7.2.2. International

Ambitious detailed and clear international policies are necessary to address the concern that commitment to a low-carbon economy will undermine economic competitiveness. The international arena sets the framework within which the UK domestic policies have to be judged. We have considered the global implications of this in our Chapter on Climate Change.

7.2.2.1. The European Union

For many years the UK has fought, usually alongside the Commission, to liberalise the EU energy market. At the same time we have tried to preserve national control of UK Continental Shelf (UKCS)

resources. Concerns over Russian energy policy enhance the need for liberalisation and network transparency in order to encourage diversity and therefore enhanced security of supply. Efficient operation will only be achieved with more liberalised European energy markets and greater third party access. The UK must work closely with the rest of Europe rather than operating independently to ensure energy security as this gives us more leverage than acting alone.

European Directives have been the driving force behind many domestic policies on energy conservation and efficiency, but the UK has often failed to comply with its responsibilities. For example, member states had three years in which to comply with the requirements of the EU Energy Performance of Building Directive, which came into force in January 2003. The Building Regulation changes should have been in place in January 2003 but did not come into force until April 2006. The UK must ensure that it complies with the requirements of any Directive in a timely manner and should seek where possible to exceed them.

7.2.2.1.1. EU ETS

The EU ETS, as it is currently constructed, has neither encouraged investment in emission reducing technologies post 2005, nor caused much change in operating behaviour, although it has introduced the concept of pricing greenhouse gas emissions and increased investments in the developing world. Its credibility has been severely undermined by its limited scope, by over-allocation and the resultant windfall profits for many utilities alongside higher power prices for customers. The price of carbon fell to around a Euro as a result of this over-allocation. This undermines investment in low-carbon technologies as well as demonstrating an inability credibly to reduce emissions.

There are many reasons for these outcomes, which have been described elsewhere, but they serve to show how market based policy instruments require careful consideration before they are implemented. This was clearly lacking in the inauguration of the EU ETS and must be remedied in subsequent phases. None the less, it is a beginning and needs positive support rather than superior cynicism.

Phase I is due to be completed in December and Phase II will run from 2008-12 which coincides with the Kyoto Protocol commitment period. Phase II National Allocation Plans are in the process of being approved. The Commission does seem to have learnt some lessons from the over-allocation in Phase I and there is a high probability that Phase 2 of the EU ETS will be far more successful in getting the European facilities covered by the scheme to take definite action to reduce emissions. The UK must work at the EU level to ensure that tough allocations are set.

But after Phase 2, little is, as yet, defined. One of the major lessons from Phase 1 is that it was too short. We should press the Commission to try for a longer Phase 3 – perhaps even to 2025, so as to encourage investment. In addition, although we welcome the Council of the EU adopting the 20% by 2020 target, what is really required is early visibility of the requirements for the traded sector, i.e. those installations covered by the EU ETS. Once this is defined, the markets will start to be able to price the value of allowances post 2012. The question of the allocation of these associated allowances will not have an impact on their price but it will have on who pays for them.

For Phase III and beyond there should be defined targets with a clear trajectory for reduction. Whilst Joint Implementation and the Clean Development Mechanism assist in reducing emissions in developing countries and allow EU states to reduce the costs of emissions, they should not be used as a mechanism to avoid domestic reductions. There needs to be clarity on the validity of these mechanisms beyond 2012 and the proportion of national targets that can be satisfied through them.

On the question of allowances post 2012, we will start from the position that there should be 100% auctioning of allowances rather than free allowances. The UK must take the lead in this process. Free allocation effectively raises the price of carbon without allowing any recycling of revenues as costs are

passed on to the consumer. The case for applying this to installations that are not subject to competition from installations in non-capped regions such as the utility sector is overwhelming. The revenues from auctioning could be used to support additional measures to promote a low carbon economy. In particular, expenditure on low carbon R&D and emerging technologies could be offset against the action payment. Overall net proceeds should be utilised to reduce overall business taxes so that business suffers no increase in overall taxation.

For those subject to international competition, we will examine the magnitude of the relative competitive disadvantage they would suffer as compared to exchange rates or differential labour rates and would encourage our colleagues in the rest of Europe to adopt a similar approach. Only as a last resort would we consider free allocations and then only for a limited period. If this exception is given, then additional measures will be needed to drive energy efficiency, and the UK should push for all European countries to adopt a carbon duty or its national equivalent.

The reason for this caveat is that it is not sensible to penalise industries that are heavily energy intensive, but subject to international competition from companies that are not penalised. For example, the oft-cited aluminium industry should be encouraged to reduce energy intensity, but if over-regulated may simply move abroad to a less regulated market with an adverse effect to the UK economy and probably an increase in emissions due to the transfer.

If allowances are auctioned across Member States, then this will become a major source of revenue for the exchequers of these States. The auctions will need to be coordinated to reduce confusion and volatility and may require a new implementation institution to be created.

Finally, there needs to be more effective and consistent implementation across Europe with greater harmonisation of methods. This will include standard definitions and processes for monitoring and reporting. There should be an end to the practice of changing the baselines against which absolute targets are set and to reduce baseline inflation which was a feature of Phase I. Measurement is a complex area where the methods are likely to remain somewhat subjective. Any expansion of the scheme needs to be carefully managed and there should be clarity around rules for new entrants and closure rules. We need to move to as objective criteria as possible so as to maximise credibility without getting bogged down in too detailed an argument.

At this stage in our work we do not regard it as our role to propose particular annual, or other, targets for energy carbon emissions. We take it as a given that an incoming Conservative government will establish sharply decreasing targets to help us towards the 2050 target. The policies we recommend will enable the UK to optimise the energy contribution to those targets.

7.2.3. Domestic financial measures

7.2.3.1. EU ETS

Regardless of the action taken at European level, the UK should set its own utilities the requirement for 100% auctioning of allowances post-2012. Those utilities will also be subject to the carbon levy (see below). Sectors that face international competition, either within Europe (if this approach is not taken at a European level) or abroad that are not subject to restrictions on carbon, may be given free allowances to retain competitiveness for a short period as specified above. Trading of these would still provide an incentive to reduce usage.

7.2.3.2. Carbon Levy

Whilst most leading UK companies are starting to address the issue of climate change, many are not. There is an urgent need to introduce measures to encourage emissions reductions by companies outside the EU ETS.

The EU ETS will remain at the centre of measures to reduce emissions. However, experience to date suggests that the price signal it provides is not sufficient to encourage the required rate of investment in clean investments. We have seen that the price of allowances is likely to be driven by gas prices, coal prices, and the weather and to be compounded by political uncertainty. As such, investors may be wary of attributing much value to savings released by emitting less greenhouse gases. Similar behaviour is observed in the oil industry. Although oil prices recently touched $70/bbl, few oil companies are developing oil fields that required oil prices in excess of, say $40/bbl to be economic. Perhaps, with time, investors may become more comfortable with the volatility of carbon prices. But we do not have time. Over the next 15 years, we expect over 25GW[250] of new power stations to be replaced in the UK and, unless the 'carbon signal' is strong, the wrong type of generation may be built.

Measures to restrict greenhouse gas emissions need a carbon price signal that is sufficiently robust to encourage a substantial reduction in CO_2 emissions. It is only in this way that a minimal 'carbon penalty' can be established and private sector 'carbon cost-conscious' investments will be made. Otherwise investors will be prepared to live with volatile carbon costs and be reluctant to invest for the long term. A tax is an effective means of imposing this penalty as it enables firms to factor a floor cost into their decision making.

For this reason, the Climate Change Levy should be replaced with a Carbon Levy as discussed in the Conservative Party's consultation document on this issue.

> "*We support reforming the Climate Change Levy to make it a tax on carbon and not energy*[251]*. At present, the Climate Change Levy would tax energy from a carbon capture and storage plant by the same amount as that produced from the worst polluting coal powered station. Clean energy needs to be properly incentivised through a new Carbon Levy."*

When the Carbon Levy replaces the Climate Change Levy, its level needs to be set at the average of the last year's EUA price or a pre-announced and escalating amount, whichever is the higher. Such a 'hybrid' approach would provide an effective floor below which the price of carbon can not fall and we believe that this would help stimulate investments in less carbon intensive assets.

For installations within the UK that are covered by the EU ETS and which do not receive free allowances, the cost of purchasing ETS permits should be offset against the Levy.

The introduction of this hybrid levy would give plant operators confidence that the penalty for emitting greenhouse gases will not fall below the floor. They would therefore be willing to consider investment options, as well as changes in short-term operations, such as fuel switching, to reduce their emissions.

Plant operators in jurisdictions that do not incorporate a hybrid levy or its equivalent would continue to consider just short term options. This would give UK industry a competitive advantage over enterprises in other European countries without such a scheme, as long as the average EUA price exceeds the floor. The scheme would be able to operate alongside the EU ETS. It would also give the

[250] Indeed, the recent Energy White Paper published by the DTI in May 2007, states that: 'Energy companies will need to invest in around 30-35GW of new electricity generating capacity – as coal and nuclear plants retire – over the next two decades, with around two-thirds needed by 2020'.
[251] Conservative Party: *An effective Carbon Levy for the UK: A Consultation,* November 2006

Government some comfort that revenues raised by auctioning allowances will not collapse. As set out in the Conservative Party's consultation document, any reforms should be revenue neutral overall for business. These revenues should be ring-fenced to support low carbon measures.

A number of installations are currently covered by Climate Change Agreements, by which they agreed to achieve reductions in emissions in return for significant reductions in the Climate Change Levy. We believe that, rather than sustain the bureaucracy by which such agreements were negotiated, a far more effective measure would be to ensure that all installations are exposed to the price of carbon, either through the EU ETS or the Carbon Levy. This would be a matter for consideration as the CCAs come up for renewal and then we should enter into discussions with the installation owners with this objective in mind..

7.2.3.3. Personal Carbon Allowances (PCAs)

In theory the attraction of tradeable personal carbon allowances is clear. However, we believe that the complexities involved in such a scheme are huge. Issues such as accurate measurability; IT capability and cost; fraud; infrastructural support; equity across income levels and lifestyles make early introduction a practical impossibility even if it were judged to be politically desirable.

Most personal carbon emissions relate to domestic electricity and heating, car journeys and flights. We believe that individual measures to try and encourage individuals to reduce flights and petrol consumption, combined with stronger appliance standards, and improved property standards through the Low Carbon Zone approach, are a more effective way to reduce personal consumption than individual allowances.

Whilst we consider that from a cost-benefit perspective, the current environment is not suitable for the introduction of PCAs, we do not rule them out in the longer term as technological advance and improved consumer awareness may render them easier to implement at lower cost. The concept of PCAs is attractive; it is the current complexity of implementation that suggests that the funds would, at present, be better spent elsewhere.

7.2.4. Networks

The network infrastructure that supports generation in the UK is ageing and a sizeable proportion is due for renewal in the next 20 years. In June, Ofgem announced that it expected there to be more than £4 billion of investment in Britain's gas and electricity transmission networks alone in the next 5 years in order to connect renewables and gas import projects in addition to the necessary replacement of existing infrastructure[252]. With such massive expenditure forecast, it is essential that the necessary signals are sent to ensure that any investment in the transmission and distribution networks enables the development of a flexible infrastructure. This must be fully able to support decentralised energy and existing and future new technologies as well as the needs of existing generation.

The recent World Survey of Decentralised Energy showed that 24% of electricity output from newly installed power generation plants in 2005 was derived from decentralised energy systems. This share was up from 13% in 2002[253]. The UK needs to ensure that it has the flexibility to ensure that such trends are supported domestically.

[252] Ofgem press release: http://www.ofgem.gov.uk/Media/PressRel/Documents1/14441-r31_26june06.pdf
[253] World Survey of Decentralised Energy 2006, World Alliance for Decentralised Energy, May 2006

7.2.4.1. Performance-based regulation

Network operators provide facilities to allow the buying and selling of energy services. They are currently regulated by measuring the rate of return on capital consistent with the risks as judged by the Regulator. We believe that, beyond 2012, performance-based regulation should be introduced. This would reward operators for the quality of their services rather than relying primarily on the return of assets. Given the high level of existing investment, this form of regulation should impact on marginal investment, through requiring behavioural change, but with most drivers on the existing asset base.

Depending on the form of the measures adopted, Performance Based Regulation (PBR) could also have an impact on their operating behaviour. Networks could be set up either to respond to, or to anticipate, customer demand, whether from providers of energy or users. Investment ahead of demand may well be advantageous, in order to prevent new developments having to wait for many years before connection. Current examples of extended delays to our infrastructure include overhead lines from Scottish windfarms and connections from new Norwegian gas supply sources.

More work needs to be done on the form of performance measuring as it will determine the profitability of the network companies, but the measures might include:

- time taken to provide a connection;
- loss of supply (measured in terms of minutes lost, number of times lost);
- km of overhead lines and comparative cost of undergrounding;
- time taken to respond to queries;
- accidents;
- minimisation of energy losses;
- number of customers;
- energy transported;
- provision of a flexible, network that supports greater competition and encourages emerging technologies thus ensuring that the network is ‘future-proofed’;
- connection of more decentralised energy in a cost-effective manner;
- provision of facilities that would allow suppliers to reward customers for changing their pattern of demand and/or supply;
- stabilisation of the network (in terms of voltage, harmonics, flicker, etc);
- efficiency of the networks and reduction in distribution loss;
- improvement of network security through greater decentralised energy;
- enhanced safety; and
- locational signals for cost-effective connection.

This approach should encourage the networks to be run as providers of the means to allow people to trade energy services. It would reward them for doing it well, in much the same way as customers favour suppliers in competitive markets. It would allow network operators to reward both consumers and energy providers for changing their pattern of production or demand, where that helps to avoid reinforcement. It should also encourage the deployment of decentralised energy. Perhaps more importantly, such a scheme would allow companies to benefit from innovation. The current form of RPI-X regulation has been extremely successful in driving down operating costs, but provides little incentive to innovate. Companies are always at risk of losing the benefits from innovation at their next regulatory review. This was partially recognised when Ofgem introduced two measures in 2005 to encourage DNOs to be innovative in the way that they developed networks; to manage the renewal of network assets; and to increase the connection of decentralised energy. These two measures were the Innovation Funding Incentive (IFI) and the Registered Power Zones (RPZ).

At the highest level, the IFI provides funding for investments that improve the technical ability of the distribution networks to deliver benefits to customers such as supply quality and safety. The RPZ initiative is more focused on encouraging the connection of generation to the distribution network. The PBR approach outline above could be trialled in an RPZ zone. We believe that both the IFI and RPZ schemes need to be expanded.

In addition to PBR, the costs of connection for Decentralised Energy should be admissible in the Regulatory Asset Base for Distribution Network Operators, whereas business as usual expenditure around demand peaks should not be admissable.

These changes will assist in providing a more flexible, network that supports greater competition and allows new technologies to 'plug and play' without barriers to entry. In addition it will provide network companies with the incentive to anticipate changes in the demand for services from customers and thereby reduce connection times.

There is discussion at EU level as to whether owners of networks should be allowed to own energy production or supply. The EC's recent ruling stopped short of requiring ownership separation. Instead it went for legal unbundling as we have in the UK for Scottish and Southern Energy, Eon, and EDF. However, this approach implies a failure in regulation. If the regulation is working well then there is no need to separate ownership. Good regulation should allow customers to benefit from such things as shared workforces. Regulation should be so designed as to prevent disadvantageous practices such as network companies favouring its own generation business when awarding access to the network.

7.2.4.2 Connection charges

We support recent regulatory changes which will spread microgen connection charges across all providers. This will remove one barrier facing the smallest new generators.

7.2.4.3. Balancing charges

The New Electricity Trading Arrangements implemented in 2001, led to a decentralisation of the market. Previously each market participant had to manage their financial 'mark to market' position against the centrally despatched Electricity Pool. Under these new rules, which were subsequently continued under BETTA, everyone is free to self-dispatch but are responsible for differences between the physical position of their portfolio and their contracted position. The trading system favours the larger players with both large generation and demand portfolios which are easier to balance than small ones because more risks diversify and cancel out. We believe that a further detailed study of the advantages of changing the BETTA rules needs to be made so that decentralised small scale generation is not penalised.

7.2.4.4. Smart meters

The issue of smart meters and their introduction has been around for some time now and, despite myriad policy reviews, pilots, and consultations, little change in the existing meter market has been achieved. Provision of all new energy meters is becoming a competitive, non price-controlled activity. However, all the incentives for suppliers are to keep metering costs as low as possible and replacement – of about 5% a year – is done on a like-for-like non-smart basis. The existence of a number of regulatory barriers means that, apart from a small-scale, targeted basis, smart metering is unlikely to take off in the UK without intervention. Ofgem produced a decision document in May 2006 that essentially ruled out all but some minimal interventions, and DBERR and Defra are consulting on possible further action, particularly to comply with UK obligations under the EU End Use Energy Services Directive.

We believe that there should be no further vacillation. There should be a commitment to their universal roll-out as soon as possible. We believe that a target of fitting 90% of homes within 5 years is achievable. There should be a legal requirement for all homes to be fitted within 10 years. The Government has sponsored yet further trials, thus putting action off once again. These are flawed and will be unlikely to bring any benefit sufficient to offset the delay in overall implementation.

Smart metering would reduce costs, cut UK emissions by at least 8%, enable customers to chose lowest cost energy, reduce fraud and theft, and provide more accurate bills. Before all this can be achieved, there is a need for a precise definition of a smart meter. Ofnet (see Section on Governance below) should be given the responsibility of setting minimum standards for meter 'smartness' which encompass functionality and interoperability. We advocate a definition of smart meters that would include at least the following functionality. They should:

- measure the quantity of energy consumed;
- measure the time interval over which it was consumed;
- record 'billing-level' readings;
- support two-way communication;
- store interval-data and transfer it remotely to a data collector/utility;
- store and display consumption and tariff information[254];
- provide real-time displays;
- be capable of connection with future smart appliances;
- allow customers to select payment methods; and
- be capable of receiving and conveying information from water and gas meters on the same property.

The provision of smart meters that meet these functionality requirements would have significant benefits to both suppliers and consumers of electricity, whilst putting in a place a key component of the infrastructure necessary to support the technological advance that will accompany the shift to a low-carbon economy. In general such benefits would include:

- more innovative tariffs and services provided to customers by suppliers. This would also support future revisions to the suppliers obligations;
- enhanced information for customers including more accurate billing supporting more sustainable consumption;
- information necessary to support microgeneration exports and feed-in tariffs;
- facilitation of greater innovation and competition from different forms of distributed generation;
- better data to support more sustainable consumption in local areas through, for example, decentralised energy;
- greater efficiencies in energy supply through a reduction in peak-demand
- reduced fraud and theft;
- reduced the overall costs of metered billing including prepayment meters; and
- facilitation of the introduction of smart networks and appliances in the home.

An 8 year mass roll-out of smart meters would realise logistical and organisational efficiencies, deliver scale-economies, and provide a rapid upgrade of meter infrastructure. Cost savings for consumers have been shown in other countries and it has been estimated that the introduction of smart meters could facilitate energy savings in the UK of 1-3% where 1% would equate to 8% of the domestic emissions target.[255]

[254] Bullets up to this point taken from Smart Meters: Commercial, Policy and Regulatory Drivers, Gill Owen & Judith Ward for Sustainability First, March 2006
[255] As above

Italy has already provided a precedent for such scale economies with customers' meters being replaced by Enel. In the UK such an approach would not be as easy, as meters are the property and responsibility of suppliers. Furthermore, different customers in the same area might have different suppliers. After extensive consultation and deliberation we have therefore decided that the responsibility for this should be given to the distribution network operators (DNOs), who have greater control over local network areas.

In order to prevent a monopoly, which might lead to unnecessarily high installation costs, the DNOs would have an obligation to put meter provision out to transparent disclosable tender. The cost of new meters and installation would be included in the DNOs regulated asset base. In addition, a regulatory change that would remove the requirement for a visual inspection every 2 years would also facilitate further cost reductions.

We believe that transferring this responsibility to DNOs, would enhance competition, by freeing suppliers to focus on developing new tariff structures for domestic, commercial and industrial customers. We cannot foretell what such innovation will bring forward but it might include tariffs that:

- are ideally suited to customers who are out of the house most of the time;
- allow the customer to reduce some of their load when 'asked' by the supplier;
- are specially designed to allow for those who like many pensioners are at home all day;
- increase per unit as energy usage increases – thereby supporting future supplier obligations to reduce demand; and
- allow for charging of electric cars.

Such benefits in addition, to the wider benefits of outlined above, show conclusively that the universal implementation of smart meters must be achieved in the shortest time period possible as it is an essential step in supporting the transition to a technologically more advanced low-carbon economy.

7.2.5. Demand

Reduction of demand for energy is a critical component of reducing carbon emissions and countering concerns over security of supply. It is the most cost-effective means of doing both. Our top priority must, therefore, be to reduce the size of any future 'energy gap' and thus the need to develop generation capacity to fill it. Strong policies are necessary to cut energy consumption in domestic, commercial and industrial sectors.

In October 2006, the European Commission produced an action plan for energy efficiency which it estimated could save Europe some 20% in energy consumption by 2020 and slash its energy bill by more than 100 billion Euros every year[256]. Such a reduction in the UK would make a real contribution to achieving the 80% reduction needed by 2050.

7.2.5.1. Carbon emission reductions in buildings

Existing measures to promote energy efficiency and the uptake of low-carbon technologies in the domestic and business sectors are insufficient and have not led to a reduction in emissions in recent years. We need a radically new approach.

[256] Action Plan for Energy Efficiency: Realising the Potential, Communication from the Commission to the Council and the European Parliament, 19 October 2006

7.2.5.1.1. Low Carbon Zones

There needs to be a single, simple yet radical flagship policy that provides a definitive means by which low-carbon measures can be introduced rapidly. Such a policy would be the test-bed and the precursor of a national roll-out.

We therefore propose the introduction of a 'Low Carbon Zone' programme, whereby specific zones would be identified that would be seed-funded by central government to undertake low-carbon initiatives. They would primarily operate at the local authority level but could also work with a Primary Care Trust or university taking the lead. The zones could also be initiated by public/private joint venture energy services companies.

Within low-carbon zones radical measures to implement energy efficient upgrades to buildings and encourage decentralised energy would be introduced. The concentration on defined zones will sharply increase awareness and concentrate expertise in delivery. They would engage the enthusiasm of architects, engineers, construction companies, as well as planners. Increased volumes at the local level would reduce equipment and installation costs and enable the provision of low cost capital. Low Carbon Zones would be the necessary and practical precursor of a national scheme and would help build the skills and materials supply-chain necessary for nationwide delivery. The zones would also be amongst the first areas in the country in which smart meters would be installed in all properties.

7.2.5.1.2. Competitive bidding

Low Carbon Zones would be chosen through a national competition to take part in the initial pilots. Central government would outline the proposals and accept bids for participation from local authorities and consortia of local authorities and private ventures. Winning candidates would be likely to be those who have a good alignment of finance, environment, and planning functions. They would also prove capability of providing information, advice, and assistance to consumers. The winning 'bids' would be encouraged through the local government grant allocation system and would cover energy rating, street lighting, local CHP and district heating, and as wide a range of energy use as possible. Additionally, private sector investment could be offset against auction or power station waste heat levy payments. The bids could well incorporate existing or future fuel poverty initiatives. Within the zones all new domestic build would be required to be zero carbon emission.

7.2.5.1.3. Building carbon rating

Within these LCZs, the first priority will be to establish the status of the existing building stock. Under the EU Energy Performance in Buildings Directive, buildings will be rated according to their energy performance. All buildings will receive an asset rating, A-G according to the intrinsic energy efficiency of the building. Non-domestic buildings will also receive an annual operational rating based on the actual energy consumption. Asset certificates must be shown on the point of sale for all buildings and also at the point of lease or re-lease for non-domestic buildings. Asset ratings are required for some domestic buildings from August 2007 and for non-domestic buildings from January 2008. Operational ratings for non-domestic buildings will be mandatory from late 2008. The wider implementation of the Energy Performance of Buildings Directive would require all commercial buildings over 1,000m2, bought, let, or sold to have an EPC by 2009. The ratings would be valid for 10 years or until significant renovation is undertaken.

Domestic dwellings are resold on an average of every 7 years and the average lease length for non-domestic buildings is also 7 years, suggesting that 14% of buildings will receive an asset rating each year. Once the scheme is required universally, it can be assumed that one third of buildings in any LCZ will have an asset rating, which will be stored on a national register. All non-domestic buildings will have operational ratings. On each asset certificate, every cost effective energy efficiency improvement that can be undertaken is listed. These certificates will specify the maximum rating that the property could achieve and the measures needed to bring it up to this standard. The details will include information on lighting, heating, and insulation. The system is designed to recognise that some properties will not be able to achieve the highest ratings. So, whereas 1930s suburban developments should offer carbon reduction opportunities, Victorian terraces without wall cavities or 1960s tower blocks are much more difficult. Within LCZs, such certificates will be required for all properties that wish to benefit from low cost carbon reduction installation and consequential tax advantages.

7.2.5.1.4. Fiscal incentives: seed corn financing

Once properties have been rated, a series of incentives should be introduced to encourage property owners to bring their properties up to the maximum rating. We believe that the creation of the right fiscal regime will encourage the market to deliver drastic carbon cuts. The following incentives should be offered:

- Domestic occupants should be given discounts on council tax if their property has achieved all cost-effective energy efficiency improvements. Where improvements increase the value of the building, the occupants should not subsequently pay a higher rate of council tax or business rates to reflect this.

- For rented or leased domestic property, asset performance would be under the control of the freeholder or landlord and not the tenant. Incentives based on council tax would not impact the freeholder or landlord, and so they may have to be incentivised to make improvements to the entire building when the first premise lessee chooses to sell the lease. Domestic landlords should be required to make improvements under landlord and tenant legislation at the termination or surrender of a lease, so that no property could be leased or rented until it achieved the target rating standard.

- Non-domestic buildings should pay differing levels of business rates according to their annual operational rating. This should be designed so that the overall business rates burden is neutral. The operational ratings relate to the building operation rather than the industrial processes and so this approach should not penalise 'naturally' energy intensive SMEs. In addition, these operational ratings would be benchmarked against peer building types so that small hotels would be graded against similar establishments.

- For domestic properties, there should be discounts on stamp duty land tax (SDLT) rates based on whether the building has achieved its maximum asset rating.

- For non-domestic properties, SDLT should be applied in an absolute manner to asset ratings. Thus, regardless of whether all cost effective measures have been undertaken, the rate of SDLT is dependent on the final rating. This would open up a value differential between the best and worst performing stock, such that G rated buildings will never be of the same value as C rated.

- Discounts to council tax and business rates should also be allowed for the introduction of approved micro heat technologies such as biomass boilers, micro-CHP and ground source heat pumps. This would not apply to microgeneration of electricity which should be supported by feed-in tariffs as we detail below.

These fiscal incentives are designed so that they could be rolled out at a national level and not confined to LCZs.

7.2.5.1.5. Financial incentives

If property owners do not have the time, skills, or access to sufficient financing to make the necessary changes, incentives alone will not be enough. We must provide access to low-cost capital to provide the necessary upgrades.

Low-cost capital would be available from two main sources:

- **ESCO model** – under this model the energy supplier, financial intermediary, or other third party will estimate the cost of introducing the measures and the percentage of the energy bills that will be saved. The EPC will show what basic set of carbon reduction measures would bring the property up to the desired standard. If the owner agrees to proceed, the third party would upgrade the property and then would recoup the cost by adding the estimated annual savings percentage to the energy bills for that year. The lender will be able to take security as an energy reduction charge on the property which would rank after any first mortgage. The property owner will continue to pay this premium until the capital is paid back at a low disclosed interest rate. If the property owner does not change behaviour this should result in no net increase in bills assuming constant real energy prices. Most 'pay backs' should occur between five and fifteen years. If the owner sells the property before the 'carbon reduction' loan has been paid off, or changes supplier, then the loan should be paid off or converted into a mortgage as a charge on the property. We believe that the equipment and installation cost

reduction and high take up rates associated with the zonal approach will make ESCOs commercially attractive for the first time. Where funding is provided from suppliers, the resultant energy savings would count towards their EEC targets

- **Salix model** – Salix lends interest free funds to the public sector for energy efficiency improvements, which are paid back using energy savings. The Salix grant is matched by funding from the recipient, enabling the impact of a grant with the rigour of a market mechanism. Salix could be expanded to act as a 'fund of funds', lending funds to local authorities to lend out to private building owners on the same basis. LAs would administer the funds. Over time, Salix could recycle the funds from LCZ to LCZ. This measure could be introduced alongside or instead of the ESCO model.

The two models are not mutually exclusive. Experience of a pilot scheme has shown that for low-cost improvements – typically £250 of insulation – building owners who did not want to lock into a long-term energy contract but preferred to pay for improvements outright rather than incur a debt. Only 7% of respondents accepted lower cost financing. For high cost improvements of many thousands of pounds and with longer payback periods, only Salix has been used. As costs come down and feed-in tariffs make microgeneration more viable, such funding might also be used to provide low cost capital for purchase and installation.This would make the ESCO model providers more interested in larger loans.

LCZs operated at the local authority level should be set specific decarbonisation targets.

7.2.5.1.6. Local low carbon heating

To encourage the development of low carbon heating, local authorities would be mandated to develop a local energy strategy for heating. This should specify what type of energy distribution network is appropriate for a given district. In areas with sufficient heat density, this would be district heating which would use the heat demand in public sector buildings to underpin its development. Planners would be given the power to insist upon district heating, local CHP, and other forms of decentralised energy, including microgeneration, in granting permission for developments. Funding might well be provided in the early stages of the development of heat networks. This could be sourced from S.106 agreements or be offset against auction allowances or the power station waste heat levy. At the same time, any new build in the area should be designed and built to the new passive building standards introduced by the BSA that will significantly reduce the need for heating and cooling.

7.2.5.1.7. National roll-out

We anticipate that there will be strong competition for the establishment of the zones and believe that the early zones will act as exemplars of good practice. The capacity of the installation industry will, however, be limited. Nonetheless, as property owners' attitudes change, we expect considerable pressure to extend the zonal incentives nationwide. We hope that the scheme would be rolled nationally within 5 years of the evaluation of the first 3 schemes. In this way, these simple measures combined with an awareness/engagement programme and the clear programme for national roll-out should ensure that all buildings are brought up to a high standard of energy efficiency within the shortest time period. Again, the principle upon which this is based is one of engagement. By harnessing the interest and enthusiasm of a whole range of people locally, we can develop the kind of scheme that will change behaviour and expectation nationally.

7.2.5.2. Appliance standards

Absolute energy consumption for appliances is still on the increase although the energy efficiency of households and appliances has improved by about 2% a year since 1970[257]. Although gains in energy efficiency have been made for many individual appliances, the resulting energy savings have been more than offset by the increasing *numbers* of appliances. In fact, between 1972 and 2002, electricity consumed by household domestic appliances doubled from 44TWh to 89TWh and is forecast to rise by a further 12% by 2010[258].

Existing policies – such as the EU energy label (A to G); Government funded awareness and advice campaigns around the Energy Saving Recommended brand; and subsidies for high efficiency products by energy suppliers as part of the Energy Efficiency Commitment – have achieved significant gains but they have been limited to particular sectors. The most success has been with white goods where EU standards have removed from the market all cold appliances (refrigerators and freezers) labelled D or below. Ironically, as most cold appliances now achieve the highest standard, the lack of further differentiation reduces incentives on manufacturers to continue to innovate. It also makes it difficult for consumers to make a more sophisticated choice of the most efficient products.

Furthermore, these policy instruments do not generally cover other appliances such as computers and TVs, hobs, microwaves or vacuum cleaners. Although energy use per device is often small, total use is large and growing. Kettles alone account for 30% of total cooking energy consumption – some 4.5 % of household electricity usage[259]. However, no labelling scheme exists for them. The lack of standards represents a failure in the market to deliver and we need to ensure that high standards force technological innovation. This will transform the market so that only the most efficient of appliances are available in the future.

Standby power consumption currently accounts for 2.25% of electricity production and this wasteful usage is set to increase as it is introduced into an ever widening range of electronic equipment. Priority should be given to developing a standard that requires all new electrical items to include a function that switches them off. We do not believe that the current emphasis on developing standards for low consumption on standby go far enough e.g. the 'One Watt Initiative'[260]. The mobile phone charger averages around this 1W consumption, but if every one of the country's 25 million mobile phones chargers were left plugged in and switched on they would consume enough electricity (219GWh) to power 66,000 homes for one year[261].

The EU single market means that EU legislation is the main driver of product policy. Historically the process has been too slow and cumbersome to allow effective setting and updating of labels and standards. As a result, current standards are lower than other countries such as America and Japan. The UK should lobby for new EU standards that:

- are maintained in the top 3 in the developed world;
- cover all significant energy using appliances;
- ensure new labels contain two ratings – the first to define the appliances' performance in relation to its class e.g. all refrigerators; the second to its absolute level of average annual use. The latter will not differ by appliance class and will ensure that consumers are aware of the

[257] The Rise of the Machines: A review of energy using products in the home from the 1970s to today, Energy Saving Trust, June 2006
[258] As above
[259] As above
[260] The UK has pledged to support the International Energy Agency's One Watt initiative, which aims to reduce the amount of energy used by appliances on standby to below one watt by 2010
[261] The Rise of the Machines: A review of energy using products in the home from the 1970s to today, Energy Saving Trust, June 2006

contribution to energy bills of any appliance i.e. an 'A' rated appliance will consume x amount of energy per year assuming average usage patterns;
- set a date beyond which no appliance will be sold that does not meet a defined standard for its appliance type;
- set a date beyond which all new electrical items will be required to contain functionality that switches them off after a specified period rather than remaining on standby; and
- are constantly and rapidly revised to drive and reflect technical improvements and ensure that innovation continues.

In addition further work needs to be done to consider how soon major appliances should be required to have smart-meter interoperability.

These measures would ensure that consumers can make informed choices as labels that relate to actual energy consumption will make it clear where an appliance, though highly rated for its class, nevertheless consumes significant amounts of electricity. In addition, the standards would ensure that appliances with sub-standard efficiency levels will be phased out. These changes would also help to extend the voluntary initiatives announced by some major retailers by which they would seek to stock only the most efficient of products. Improving the energy efficiency of appliances can make a significant contribution to the reduction of demand, not only in the UK and Europe, but at a global level.

The same is true of lighting. In the UK, internal fixed lighting alone accounts for around 16% of household electricity consumption and is forecast to rise by around 17% to 2020, unless we take action[262]. A recent IEA report estimated that 19% of global generation was for lighting and that policy measures and individual action alone could reduce this by 38% by 2030[263]. It is not surprising that things are changing and changing fast. Even while we were developing these present proposals, the Australian Government announced that it was to phase out incandescent light bulbs over the next 3 years. This was swiftly followed by the European Commission announcing that it would be raising standards and improving labelling on a range of appliances. Gordon Brown subsequently produced his own proposals to phase out incandescent lightbulbs and standby. There is no doubt that the wind is with us but it is important to have a systematic aproach to energy efficiency and not just to grab headlines for relatively easy changes that cost governments little either financially or in electoral support.

That is why we want to proceed more rationally and comprehensively by setting a date beyond which no bulb can be sold that does not meet a defined standard for its type. We recognise that not all bulbs currently have a more energy efficient replacement – but that is why we need to define standards that will drive the technological advance needed to create them. This should also provide a challenge to manufacturers to innovate and produce new products such as energy efficient dimmers. We should not proceed with energy efficiency programmes that merely deny people choice. Instead we should force the technological innovation that retains choice while cutting emissions. Energy efficient bulbs already deliver savings over conventional bulbs over their lifetime but increased production will bring down the initial cost of these bulbs and generate still further savings. Wherever possible, people must be encouraged to choose them because they are efficient products rather than be forced to use them by the fact that there is no alternative.

The UK should continue to seek ways in which to forge ahead in the setting of its own national standards. If we are a leader in these matters we should seek to press every opportunity to lead by national action in order to get the rest of Europe to follow.

[262] The Rise of the Machines: A review of energy using products in the home from the 1970s to today, Energy Saving Trust, June 2006
[263] Light's Labour's Lost: Policies for Energy-efficient Lighting, International Energy Agency, 2006

Energy efficiency policy cannot address the fact that higher levels of disposable income continue to lead to growth in ownership and use of appliances. This is a particular concern where there are growth markets for products with unavoidably high carbon emissions. For the most part these are unnecessary and wasteful uses of energy. Government leadership is needed to make high energy usage products socially unacceptable and expensive. We must also continue to work towards restricting usage through the establishment of EU and national standards of efficiency.

7.2.5.3. Building standards

We support the introduction of the Code for Sustainable Homes launched last year, but it is essential that it becomes a mandatory rather than a voluntary standard, and that higher levels of the Code are enforced in future. We expand on this in our Chapter on the Built Environment, but we would add here that unless compliance is rigorously assessed and enforced its impact will be limited. There is a shortage of qualified inspectors and no effective self-certification which must be remedied as soon as possible.

7.2.6. Supply

7.2.6.1. Strategic approach to supply issues

There have always been arguments about the relative economic benefits of different generation sources, which have shown widely differing trends in recent years. The overriding need to curtail carbon emissions has led to the emergence of competitive renewable and small scale generation. By contrast, as the summer's White Paper highlighted, around 25GW[264] of coal and nuclear generation capacity is likely to be lost in the next 20 years due to ageing and inefficient plant closures, which would relate to around 30% of current electricity demand. Furthermore, UK production of oil and gas is likely to fall by around 7% per annum. However, without significant investment, this rate of decline could increase to 14% per annum. If current trends are allowed to continue, we are likely to be importing around ¾ of our primary energy by 2020.[265]

Nonetheless, it is not government's role to make choices between those generation options. Its job is to provide a clear framework within which choices can be made by the market. Government also has a responsibility to ensure diversity and security of supply.

Our view of the responsibilities of government is clear. That is why our proposed framework would:

- discriminate in favour of low-carbon sources;
- encourage low carbon emerging technologies;

reward installations that make efficient use of waste heat for industrial and domestic purposes;
remove the inbuilt assumption in network operation that centralised is best; and
encourage diverse sources of supply.

We believe that by 2020 these policies would provide a diversified and secure mix of generation with a much lower carbon footprint as long as they were implemented today. We are aware, however, that if the Conservatives were to win the next election then a number of key decisions may well already have been taken by the existing Government which cannot be altered retrospectively. There therefore needs to be a pragmatic recognition that the policies that we propose may be overtaken by events. In

[264] Indeed, the recent Energy White Paper published by the DTI in May 2007, states that: 'Energy companies will need to invest in around 30-35GW of new electricity generating capacity – as coal and nuclear plants retire – over the next two decades, with around two-thirds needed by 2020

[265] Our Energy Challenge: securing clean, affordable energy for the long-term, DTI, January 2006

particular, the choices that the current administration makes will have a significant impact upon our success in preventing an energy gap as aging nuclear and coal plants are shut down.

7.2.6.1.1. Security and diversity of supply

In our view, the best way to ensure security of supply is to ensure diversity of supply. As Liam Fox said in a speech last year, diversity of supply means ensuring diversity in the type of fuels we use; in the geographical sources of those fuels; and the security structures that will guarantee the safe transport of these fuels. In our view the best way to promote this diversity is to produce a framework within which the maximum number of sources of generation can thrive. We need therefore to support emerging technologies and to encourage more decentralised energy. If we get the framework right we will get diversity, and thus security.

We do not believe that there is a case for a statutory power for Ministers to dictate generation methods. That will merely undermine belief in the chosen framework and raise prices unnecessarily as uncertainty increases the effective cost of capital. We discuss below the sectors individually.

7.2.6.2. Developing low carbon generation

7.2.6.2.1. Research and development

In order to ensure that the UK is at the forefront of technological advance and innovation, we need a clear, long-term framework of support through all stages of new product development, including research, development, demonstration, and deployment. To date, there have been too many schemes and reviews and no certainty. Industry has therefore located R&D elsewhere. Yet, the seeds of new ideas are often sown in the universities and UK academic excellence is world-renowned. For this reason, companies making auction payments and paying the power station waste heat levy (see below) should be able fully to offset the cost of research grants to explore new technologies for low carbon generation, heat production, demand reduction, energy and fuel efficiency.

7.2.6.2.2. Emerging technologies

When new products have moved to the development stages there is sometimes need to support them through early trials until they become 'proven' technologies. This is best done through the private sector. Private investors need to be encouraged to support technologies in this way and bring them to market. In addition investment in emerging technologies should be offsetable against auction payments and the power station waste heat levy (see below). We could require the Climate Change Committee to encourage these technologies by allocating feed-in tariff bands.

7.2.6.2.3. Proven technologies

A 'proven' technology is one for which all testing and demonstration projects are complete and the technology is known to work but does not have the scale to be economically viable. At this stage, they often need to be given additional support through market development to ensure that they become cost-competitive. There is now considerable evidence from more mature markets that long-term market building programs do deliver consistent and significant price reductions over time. Solar PV costs in Japan for example fell by 75% between 1994 and 2004, during which time there was a 35-fold increase in installed capacity.

7.2.6.2.4. Proven technologies: competitive feed-in tariffs

The Renewables Obligation has built on the Non Fossil Fuels Obligation (NFFO) for some technologies such as onshore wind and landfill gas, but has failed to bring forward other low-carbon generation. Landfill gas in fact, dominates the current renewables market as a result of current policy – as Figure 7.3 shows. Co-firing has not been adequately covered and this is being reviewed as part of the proposals for banding the Renewables Obligation.

Figure 7.3. Total use of renewables

Total use of renewables Thousand tonnes of oil equivalent

	1990	2000	2003	2004	2005
Geothermal and active solar heating	7	12	21	25	30
Wind and wave	1	81	111	166	250
Hydro (small and large-scale)	448	437	278	424	427
Landfill gas	80	731	1088	1327	1421
Sewage gas	138	169	165	177	179
Wood (domestic and industrial)	174	503	400	400	285
Waste combustion	101	376	480	463	460
Other biofuels	72	216	574	710	1193
Total	**1021**	**2525**	**3115**	**3692**	**4246**

Source: DTI UK Energy in Brief, July 2006

Having reviewed the alternatives, we believe that the NFFO approach which is similar to feed-in tariffs was more successful in bringing forwards a range of technologies at competitive prices. New fast-track planning procedures, already announced by the Government and likely to be strengthened by a Conservative administration, should significantly reduce project delays and thus remove a weakness of the NFFO system.

We propose, therefore, a system of feed-in tariffs which would have separate bands for a range of low carbon technologies. Within bands, successful applications would be determined by competitive auctioning for allocations of fixed periods. The technology bands, amounts for each band and periods over which they operate will be decided by the new independent Climate Change Committee, already promised by the Conservatives. We would anticipate that they would allocate bands to wave and probably tidal sources. We would also expect the Committee to review the part to be played by co-firing and biofuels, ensuring that the maximum carbon savings were derived.

As part of our consultation we have discussed the Severn Barrage. We are not yet persuaded that the energy could be harnessed at an acceptable environmental cost but there is a need to monitor closely new developments here and in Morecombe Bay as advances in technology may well shift the balance of advantage. In the battle against climate change, it is not sensible to rule anything out.

Finally, there needs to be a mechanism by which support is withdrawn when either a particular technology reaches market competitiveness or, after a specified period, looks unlikely to reach it. The new Climate Change Committee will also need to make these decisions.

7.2.6.2.5. Proven technologies: onshore wind

Onshore wind is now at market competitiveness with internal rates of return (IRR) hitting 25%, and so should receive no further support through the proposed banded competitive feed-in tariffs. The EU ETS and carbon levy will continue to ensure that it has an advantage over carbon based forms of generation. Furthermore the planning procedures it has found so onerous will be speeded up under our planning proposals (see below).

The withdrawal of support for onshore wind excludes small scale wind turbines, including building integrated wind turbines which are not yet commercially viable, and which would also be supported by feed-in tariffs.

7.2.6.2.6. Proven technologies: microgeneration

It is difficult to obtain accurate data on the number of microgeneration installations in the United Kingdom, but the most widely quoted figures show that, as of 2005, there were just over 82,000 installations, of which some 78,000 were solar water heaters.

Figure 7.4. Installations

Technology	No. Installations
Micro-wind	650
Micro-hydro	90
Ground source heat pumps	546
Biomass boilers (pellets)	150
Solar water heating	78,470
Solar PV	1,301
Micro-CHP	990
Fuel Cells	5
Total	**82,202**

Source: Our Energy Challenge: Power from the People, Microgeneration Strategy, DTI, March 2006

What this highlights is the extremely small number of microgeneration installations in the UK – particularly when we note that those generating electricity account for less than 4,000 in total.

One of the main reasons for this is that small scale microgeneration systems are currently costly. At the end of 2005, the pivotal Energy Saving Trust/DTI study on Microgeneration[266] concluded that few technologies were cost effective, with the possible exception of biomass and GSHP for heating in comparison to electric heating. Small commercial scale CHP was seen to be at border-line competitiveness. The key to delivering a step-change in cost reductions over the next 5-15 years lies in achieving considerable economies of scale, which would take microgeneration in the UK beyond its current niche market status.

Britain's poor performance is especially lamentable when contrasted with that of other European countries – especially Germany, the European leader in solar PV. Germany's success is largely attributable to its '100,000 roofs programme' which used feed-in tariffs to kick-start the market and then continued support with its replacement – the Renewable Energy Law. During 2000 alone, more than 8,000 systems were approved with a capacity of 41.66MWp. That means twice the installations in one year than the total now existantin the UK. By 2003, 345.5MWp of capacity had been installed and the price of solar PV had fallen by 20%.[267] Germany, Japan, and the US are the top 3 countries in terms of installed solar PV. All have used market stimulation programmes to develop – Japan's '70,000 rooftop proposals' vying with the US 'million solar roofs programme'.

In Germany, however, there is a view that the main beneficiaries from the tariffs and tax breaks were financial intermediaries and individual investors. Any feed-in tariff structure in the UK must be set up so that it operates at the smaller end of the scale and benefits directly the domestic and small business consumer. Provision would, however, be made to enable intermediaries to bundle microgen contracts so that the cost of capital can be further reduced.

[266] Potential for Microgeneration Study and Analysis, Energy Saving Trust, Econnect, Elementenergy for the DTI, November 2005
[267] Solar Generation: Solar electricity for over one billion people and two million jobs by 2020, European Photovoltaic Industry Association, Greenpeace, September 2006

By contrast, the existing Government is relying for market stimulation primarily on suppliers voluntarily paying a 'fair price' for export; the ROC reward process; and pump-priming through the Low Carbon Buildings Programme. The figures show that these have so far failed. A typical export tariff of 7p will amount annually to around £15-16 for a standard 1 kWp PV or micro-wind turbines. Clearly, this would not provide sufficient incentive. Microgeneration at the domestic, small business level and community level is too small to be effectively supported through a bidding mechanism of competitive feed-in tariffs and replacement. Measures need to be kept simple if they are to be successful.

Capital grants programmes in general are finite and subject to the vagaries of spending reviews and policy changes as the recent farce over the Low Carbon Buildings Programme only too painfully showed. The Government had allocated £78.5m to the LCBP over 4 years which amounted to £18m a year shared between wind, biomass, solar hot water/PV, GSHP, micro-hydro and gas micro CHP – a mere £2.5m per technology. Grants are awarded monthly, but the householder fund was so small that it was running out on the first day of the month. As a consequence the Chancellor allocated an extra £6m to the fund in the Budget, but the DTI suspended the fund shortly afterwards in order to restructure it. Although this restructured fund is now opened again, the resultant confusion, uncertainty and delay has lead to many renewables firms having to lay off staff and has damaged the fledgling microgeneration industry. Total grants per project have also been reduced. There must be an end to such inconsistency and a more reliable method for supporting microgeneration is clearly needed.

The Government is introducing a number of other measures – such as the development of specific targets; including microgeneration in the EEC and the Code for Sustainable Homes; public sector leadership; and the development of technology route maps. They lack impact, often rely on voluntary compliance, and, in many cases, have been delayed for further consultation. We need to change the attitude and address microgeneration technologies as proven, and extend the focus of policy beyond 'new build' to retrofit.

For this reason, we propose the removal of existing measures and their replacement by the introduction of feed-in tariffs for small-scale microgeneration up to 50kWp. Larger microgeneration that can support a number of properties would be supported through the competitive bidding system.

Transparent feed-in tariffs would allow a generator to know in advance how much they would receive per unit of output. They would be set annually for each type of technology and once set will gradually reduce over a 15 year timetable, until termination of the scheme. This timescale would ensure that a product has sufficient time in which to become market competitive but should ensure that uncompetitive, inefficient products do not become a drain on public finance.

The costs would be borne by UK electricity consumers in the form of a new 'clean energy or renewable development premium' to existing bills. In Germany, this amounted to around 1.63 Euros a month for a typical household for all renewable technologies[268]. In the UK this is likely to be no more than a few pence at the outset. The cost would be transparent to consumers and much simpler to understand and cheaper to administer than the complicated ROC system.

Such tariff systems provide long-term security of income to investors with guaranteed rates of return. This would in turn facilitate the development of low interest credit and loans to pay upfront capital costs from a range of third parties. It would also remove market dependency on the stop-start nature of Government grants.

The relative simplicity of the fixed feed-in tariff and the success of the approach explain why it has been adopted by other European countries including Germany, France, Poland, the Czech and the

[268] German PV Market Report, Solarbuzz LLC, May 2006

Slovak Republics, Spain, Italy, Greece, Portugal, Bulgaria, Belgium, Hungary, Slovenia, Latvia, Lithuania, and Switzerland. There are of course national differences in the rates payable to generators. Greece, France, and Germany, however, all have tariffs between 30-50 Euro cents per kWh. Although further work is needed to determine the exact level that should be set in the UK, we envisage rates around those set by Germany from 2004, i.e. 45p per kWh.

The EST study concluded that microgeneration could provide 30-40% of the UK's electricity by 2050 and reduce domestic emissions by around 15%. Yet this study did not take into account the impact of introducing a European style feed-in tariff model. If these are introduced, then arguably the contribution might be still higher.

As a final measure, a recent study[269] showed how domestic consumers were disadvantaged over business consumers in terms of tax benefits. In order to level the playing field, we support its suggestion that:

- individuals investing in microgeneration technologies should have access to the same capital allowances as companies;
- enhanced capital allowances should be available for all micro-generation technologies; and
- capital expenditure within domestic energy service contracts should qualify for capital allowances.

7.2.6.2.7. Proven technologies: nuclear

The issue of new nuclear power is very emotive for many individuals. It is an issue that divides political parties. Its proponents argue that it is the leading form of low-carbon generation and the only technology that can meet our energy requirements at the scale required. Its opponents' reasons have moved far beyond the initial opposition of the 'green' movement which focused primarily on the issues of safety and nuclear proliferation.

There is not space in this Report to go into each and every argument but there are two general observations that should be made.

- Firstly, that there is no doubt that there are concerns surrounding nuclear that do not exist with other forms of low-carbon generation. Of these, the primary fears are about safety and nuclear proliferation – fears exacerbated by the recent rise in international terrorism. It is for politicians and the public to decide how real these risks are and whether or not they outweigh the benefits of nuclear generation. The current Government has failed to deliver a full public consultation on these issues and that failure resulted in its recent defeat by Greenpeace. By contrast, we support the fullest public disclosure of these issues so that the discussion can be conducted at a national level in an open and transparent manner with full access to evidence for all.
- Secondly, there is a range of issues that are often raised but are not specific to nuclear generation. These must be addressed but in the proper context as issues not confined to nuclear power but involved with low carbon generation and/or power stations in general. These include questions of planning permission, costs of grid access and upgrades, and enhanced security. After all, concerns about the site security apply to gas interconnectors and other strategic energy sources just as they would to Sizewell C.

If government and Parliament, after proper consultation, is convinced in principle, the final decision on new nuclear power stations should still reside with the private sector and will primarily be based on economics. As such, the private sector requires a clear message from a future government as to the regime under which it would operate. Under our proposals:

[269] Unlocking the Power House: Policy and system change for domestic micro-generation in the UK, SPRU/Southampton University/Imperial College, October 2006

- nuclear would receive comparative competitive benefit from the EUETS and the carbon levy to recognise its contribution to carbon reduction;
- government would not underwrite the risk of building a new nuclear power station. The utility companies believe that new nuclear stations can be competitive and they should build on that basis;
- all risks and costs of nuclear commissioning should be borne by the private sector;
- the only exception is the insurance in the event of a catastrophic nuclear accident where, in compliance with international treaties, government must underwrite the insurance of nuclear stations beyond a defined amount;
- the Nuclear Decommissioning Authority should negotiate with the industry arms-length fixed charges for waste disposal contracts. These contracts will be set up to ensure that they do not operate as a subsidy but transfer the cost to the private sector. The changes should include a government risk premium element;
- government should bear the risk of any government changes in disposal strategy, whereas the industry should take the risk of any increase in quantity or specification change in the waste;
- the owner of the station should be fully responsible for decommissioning costs.The government and the owner should conduct a full estimate of those costs. A ring-fenced station-specific decommissioning fund should then be set up, and the owners required to pay fixed amounts into the fund according to the future decommissioning costs. Owners should be able to carry out their own decommissioning so long as it is subject to rigorous independent inspection;
- the private sector should pay for any pre-construction safety analysis currently covered by the Nuclear Installations Inspectorate, including any costs for the HSE, wherever these are identifiably above non-nuclear centralised generation costs;
- nuclear generation would also be affected by the introduction of a power station waste heat levy (see subsequent Section) on centralised generation. Although it might be argued that waste heat from nuclear is relatively carbon free, the purpose of this levy would not just be to reduce emissions but to prevent wastage. The likely location of any nuclear new build means that it may well be located far from existing demand. Such a levy would serve to encourage innovation in finding uses for this waste heat. This may well lead to new partnerships with industry; and
- finally, we are not persuaded of the case for any government funding for research into new generation from nuclear power – in particular, for nuclear fusion.

7.2.6.3. Heat

For too long, heat has been the poor cousin of low-carbon technological advance. This is of particular concern since heating is the dominant end use for energy outside of the transport sector and the vast majority of energy consumed in homes. An Energy Saving Trust study found that in 2000, 83% of energy usage in the home was for space and water heating. This excludes electric water heating and still represents about 24% of total UK energy consumption. Most current generation capacity is located too far from the consumer for the waste heat to be used and since it cannot be easily stored and transported represents a huge wastage. Such inefficiency must be urgently addressed.

An effective heat policy is needed to encourage the reduction in heat use, reward the use of waste heat, and encourage the use of a wider range of fuels to enhance security of supply and reduce the carbon footprint. Unlike mainland Europe, the UK market for low carbon and renewable heat remains underdeveloped owing to a lack of a coherent strategy. There is, for example, no policy in place to promote the use of renewable heat.

We must put that right and set clear targets aimed at the efficient use of heat. We should give incentives for the use of waste heat and for the development of low carbon and renewable heat

solutions across the economy as a whole. Targets should be ambitious and verifiable and reward carbon reduction.

To meet them, we need a long-term stable framework that encourages sustainable investment and avoids the vagaries of short-term government funding rounds. As such, our proposals to strengthen the EU ETS, to introduce a floor price for carbon via the carbon levy, and to phase out CCAs should provide sufficient incentive for investment in low carbon heat generation at the larger end of the power sector. To date, CCAs have reduced the effectiveness of the Climate Change Levy and, combined with the low carbon price, have resulted in little incentive to invest in such generation. Our proposals should result in renewed stimulation to the CHP market.

At an early stage in our deliberations we argued that consideration should be given to the introduction of a power station waste heat levy payable by large centralised generators who do not include combined heat and power off their generation systems. During our consultation process we heard extensive opinion on the merits of imposing such a levy. It was suggested by some that this should only be an option for the longer term as waste heat could only be effectively used when demand was smoothed. This smoothed demand would take some time to achieve, requiring the introduction of smart metering, new tariffs and changed behaviour amongst many other things.

However, whilst the issue of smoothing demand is relevant for the domestic, commercial and small business sector, this is less true for the energy intensive industries such as chemicals. We are therefore recommending the immediate introduction of a power station waste heat levy to encourage innovation in finding uses for this waste heat. The loss of waste heat is too significant to continue unaddressed and a strong incentive is needed to motivate generators to stop the waste. Such a levy would encourage power generating capacity to locate near to outlets for heat and would facilitate the move towards community level generation. Its introduction is urgent so to have maximum influence in the development of the necessary replacements for our aging generators over the next few years.

The introduction of the power station waste heat levy should not result in an increase in the overall tax burden on industry. Payments should be fully offsettable against low carbon R&D grants and investment in low carbon emerging technologies.

Local authorities have a key role to play in encouraging the development of community heating. Within our LCZs, local authorities will be expected to develop a local energy strategy for heating. This should specify what type of energy distribution network is appropriate for a given district. In areas with sufficient heat density, this should be district heating using heat demand in public sector buildings to underpin development. Changes in planning and building standards will result in powers to insist upon district heating, local CHP and other forms of decentralised energy, including microgeneration.

At the domestic level, the first priority is to call a halt on the source of the problem. The Government has set a target that all new homes are zero carbon by 2016. Questions remain about how this is to be delivered and indeed a recent Environmental Audit Committee report noted that "the PBR refers to this as an "ambition", and that the building regulations which are to make it happen will only be "progressively strengthened".[270] We propose that new homes should be built to new passive building standards that require as little heating and cooling as possible. These would be enshrined in the new Building Standards and would prevent replication of the problems that we have with existing stock. Such standards would be an immediate requirement within our LCZs. We further develop this proposal in our Chapter on the Built Environment.

The housing stock as a whole has an average SAP rating of 42. The 83% of energy that this typical home consumes is taken up by 59% for heating and 24% for hot water. A newly built house, with good

[270] Pre-Budget 2006 and the Stern Review, House of Commons, Environmental Audit Committee, 13 March 2007

standards of insulation and a SAP of 80, can reduce heating requirements by about 75%[271]. Insulation should be raised to the highest standard possible in existing stock through the LCZ approach. The aim of the current Government to ensure that every home is insulated by 2010 is an admirable goal but it lacks the sound policies to make it a reality.

New electric heating should not be permitted and existing electric heating phased out through the LCZ approach (unless powered by zero-carbon sources). A perverse incentive has been created by current energy efficiency standards where energy consumption may have been reduced but CO_2 emissions increased through the use of high carbon grid electric heating, both on peak and off peak. It is important that, in future, measures are carbon led and not energy led.

To encourage the development of low carbon heat generation at the 'micro' end of the market, such as biomass heating and ground source heat pumps together with micro-CHP, a fundamental shift is required. We have to move away from the present, bureaucratic framework of insufficient capital grants. We therefore propose reduced council tax and business rates for domestic and business consumers that use 'micro' heat technologies. Such reductions would not apply to microgeneration of electricity which will be addressed through the feed-in tariff approach outlined above. We anticipate that the reduction might be set at a level which provides 40% of standard implementation costs in line with EU rules.

We did consider the concept of renewable heat certificates with an associated obligation on suppliers, however, we agree with the arguments that since the supplier has no control over the many users and producers of heat, the process would be extremely complex and a financial incentive is therefore preferred.

7.2.6.3.1. Cooling

In line with the policy on new electric heating, new electric air conditioning and refrigeration should not be permitted in commercial buildings. This might be done through the LCZ approach or measures such as the EU Directive on Energy Performance in Buildings. Not only do these systems consume high carbon grid electricity they also use very powerful greenhouse gas refrigerants where, for example, 1 tonne of HFC 134a emitted into the atmosphere is equivalent to 3,400 tonnes of CO2 emissions HFCs, the most popular gases used in refrigeration, are a growing source of emissions and that's why it was already Conservative policy at the last election that they should be phased out. We should announce a ban on new use from 2010 and insist on a total phase-out by 2015.

The policies outlined to date and the incentives given to local authorities should see electric air conditioning and refrigeration being replaced by CHP, heat fired absorption and trigeneration, and natural ventilation systems such as passive stack ventilation. Alternatives to HFCs have already been pioneered by some of the world's largest users so that they can easily be introduced to replace equipment using this potent global warmer.

Trigeneration is particularly important as it would replace usage of high carbon grid electricity with more low carbon electricity from the 'heat to cool' process. In addition, electric systems use greenhouse gas refrigerants whereas Trigeneration uses refrigerants that have zero Ozone Depletion Potential and zero Global Warming Potential. Increased use of trigeneration should also increase the capacity for electricity generation in the summer and reduce the high electricity consumption associated with electric air conditioning and refrigeration. The latter is especially important as temperatures are forecast to rise as a result of climate change.

[271] The Rise of the Machines: A review of energy using products in the home form the 1970's to today, Energy Saving Trust, June 2006

7.2.6.4. Fossil fuels

7.2.6.4.1. Coal

To date, coal has been the least efficient means of generating electricity in terms of carbon emissions and yet it accounts for around 41% of primary fuel and 34% of electricity production (both expressed in million tonnes of oil equivalent, 2005[272]). In addition, the rises in gas prices and issues around gas supply have made coal more competitive. As a consequence, coal use rose by 3.4% in 2005 and this upwards trend continued in 2006 with demand from electricity generators rising by 23.1% in the third quarter[273].

With substantial world coal reserves and greater competitiveness increasing their usage, it is essential that cleaner coal technologies, such as Integrated Gasification and Combined Cycle (IGCC) and super-critical boilers, are introduced. Scottish & Southern and PowerGen are already moving towards introducing cleaner coal stations at Ferrybridge in West Yorkshire and KingsNorth in Kent.

100% auctioning of allowances for EU ETS should ensure that cleaner coal technologies with lower emissions are implemented, including lower carbon alternatives such as co-firing with biomass. It should also ensure that the dirtiest technologies are phased out.

However, even the cleaner coal stations (CCS) still have efficiencies of around 40%. Whilst they may be required in the short term, the main technological development that could ensure a future for coal in a low carbon world is carbon capture and storage, which can significantly increase efficiencies. We recognise that the scaled up technology is not yet fully proved, however in order to ensure commitment to this new technology, we propose that no new coal station should be built that does not have the capacity to capture carbon in the future. In addition, evidence of available land for building new facilities will be needed so that any existing technology can be retrofitted within three years of it becoming commercially available. Beyond 2020 no coal station should be allowed to be built without carbon capture. Beyond 2025 no existing station should be allowed to continue to operate without carbon capture in place. In recommending this route, we recognise that unless there are major CCS technology changes we will be reinforcing centralised generation inflexibility as the CCS stations will be base load only.

This commitment together with the carbon levy should ensure that the private sector can have confidence that there will be a sustained market for large scale carbon capture and so ensure that urgent investments are made to scale the technology. This policy ties in with that of the EU which is pushing for all new coal-fired power stations to offer CCS by 2020. It also wants to see 10-12 demonstration projects in operation across the EU by 2015, to prove technical viability in order to assist in meeting the 2020 deadline. International rules that allow the burial of greenhouse gases beneath the seabed recently came into force and will facilitate this development.

BP and Scottish & Southern were looking to construct a CCS plant at Petershead in Scotland. At the site, natural gas would have been split into hydrogen and CO_2. The hydrogen would have been used to generate power whilst the CO_2 would be injected into the North Sea Miller field and used to aid recovery of oil and gas. BP have called for Government funding to assist in developing this project and others have demanded that the Government to take the lead in providing funds for CCS as part of the EU policy. BP have now announced their withdrawal from the plan, ostensibly because of the failure of the Government to commit.

[272] UK Energy in Brief July 2006, DTI/National Statistics
[273] Quarterly Energy Trends, DTI, December 2006

We are not persuaded of the need to fund demonstration projects for CCS and feel that such funds should come primarily from the private sector. However, in order to initiate the market we propose that a single CCS project is funded through the existing Renewables Obligation until our proposed competitive feed-in tariffs come into effect. This project should, however be a coal-fired CCS plant. That would tackle the highest carbon emissions. We do not support exceptional Government funding for the Petershead project unless coal is being partially burnt. In the recent Budget the Government announced that it would launch a competition to develop the UK's first full-scale CCS demonstration and that the result would be announced next year. We support such competitive bidding for the demonstration project, with bidders specifying the subsidy required, the carbon capture to be achieved, and the technology replicability in the rest of Europe and other markets beyond. Under our proposals the cost of the subsidy would be offset against auction payments or the power station waste heat levy.

Such demonstration would be needed to prove the technology can operate at the commercial level. In addition, concerns remain about the costs of CCS which a recent study for the DTI estimated at just above £20/tonne CO_2 for retrofitted coal-fired plant, and just above £30/tonne CO_2 for gas-fired plant[274]. The difference is accounted for by the higher volume of CO_2 emitted from a coal fired plant which enables unit cost savings. Our proposals to introduce an effective floor price for carbon will assist in making such ventures commercially viable and minimising any subsidy from the end consumer.

Finally, Carbon and CO_2 products are already used in industry and consideration should also be given to the utilisation of CCS for these. The energy industry should seek to work in conjunction with the industries that use these products. Carbon is lighter and stronger than steel and does not rust and if increasing uses can be found for such products this may divert some of the need for storage. This could make a small but nevertheless useful contribution to reducing emissions.

Development of this technology is particularly important given the current expansion of coal generation overseas – particularly in China where a new coal station is being commissioned almost every 4 days. This represents a significant export opportunity for these developments if the technology can be refined and suitable sequestration sites can be found.

There are significant quantities of identified domestic open cast mineable coal which could be developed at competitive prices. Modern remediation methods make environmental gain a real possibility in some of these areas. If coal is to be burnt, transport distances should be minimised and this again makes UK exploitation environmentally valuable. However, planning delays and refusals mean that the UK may lose open cast mining expertise as existing sites run out in about 5 years. The Coal Authority estimates that established reserves amount to 222 million tonnes with a further known potential of 380 million tonnes, but that currently un-accessed deep mine and open cast resources could provide many years of future production at present levels[275]. In order to access this potential, planning issues need to be resolved. Planning guidelines need to be reconsidered in the light of the national need to encourage security of supply.

7.2.6.4.2. Gas

As the most carbon efficient of the fossil fuels, gas will continue to play a predominant part during the transition to a low-carbon economy. The construction of additional pipelines and LNG regasification terminals has and should contribute significantly to ensuring diversity in gas supplies to the UK.

[274] Analysis of Carbon Capture and Storage Cost-Supply Curves for the UK, Pöyry Energy Consulting, January 2007
[275] The Coal Authority Evidence, The House of Lords Select Committee on the European Union: Sub Committee B (Energy, Industry and Transport), Hearing Monday 12 November 2001. http://www.coal.gov.uk/news/newsnov2001houseoflordssummarypaper.cfm?jHighlights=open%20cast%20mining

To ensure the UK is at the forefront of implementing CCS techniques as they become available, the same rules should apply as to new coal stations. No new gas power station should be built that does not have the capacity to capture carbon in future. Evidence of available land for building new facilities will be needed so that any existing technology can be retrofitted within three years of it becoming commercially available. Beyond 2020 no gas station should be allowed to continue to operate without carbon capture in place.

Gas storage should be increased as a backstop to any interruptions in supply. There is not a strong enough case for the Government to intervene to provide gas storage. The main barrier to private development is the difficulty of obtaining planning consent. Barriers to planning approval would be reduced under our planning proposals. Proper regulation would remove any risks from disruption and serious infrastructure failure.

In North America, coal bed methane has become a major source of gas supply often aided by federal tax breaks. It is probable that modern technology should make it possible to exploit UK coal bed methane sources without tax advantages or subsidy; however, planning issues mean that permissions to drill are slow to be given and costs subsequently unnecessarily high. Planning guidelines need to be reconsidered as part of addressing security of supply issues.

Furthermore, trials in the US have shown that extraction of coal bed methane can be combined with carbon sequestration. If this can work in the UK, then between 2 and 10 molecules of CO_2 can be injected for every molecule of methane that is extracted. Many of the UK's coal fired power plants are either on top of or near unmined coals and so are well placed to use this technology to deal with many years of emissions.

7.2.6.4.3. Offshore oil and gas

UKCS oil and gas production has peaked and production and oil company behaviour exhibit all the characteristics of a mature province. The UK national interest is served by maximising recovery from existing fields and doing everything possible to ensure exploration for all prospects while the infrastructure is in place. The constant tinkering and raising of tax levels that has characterised the Chancellor's approach has acted as a significant disincentive to investment. We do not, of course, advocate subsidy but the industry deserves a clear, consistent and transparent fiscal approach.

Producing fields

The tax regime in the UKCS has been built up over the past 40 years and is highly complex with differing and often irrational impacts on companies and fields. In addition the interaction between PRT and decommissioning liabilities means that transfer of existing production fields and facilities is being impeded. This reduces the effective exploration of the nation's natural resources. The absence of decommissioning sinking funds and the wish to ensure major companies remain liable for decommissioning means that, if oil prices were to fall significantly, we will face premature abandonment of fields. There is also a significant risk that any period of low oil prices will lead to a reduction in tax receipts coupled with a government obligation to pay for decommissioning on PRT paying fields.

The overriding national interest must be to maximise the life of existing fields and infrastructure. The present tax regime is simply not suited to this objective. We see little alternative to extending the current stewardship approach to tax matters. There would need to be field by field discussions between the companies, including those who have no current ownership but still maintain ultimate liability for decommissioning, and the government. The objective would be to agree on the establishment of field decommissioning funds and so to prolong the field to the ultimate benefit both of the companies and the nation. In some cases this would involve tradeoffs and should lead to the abolition of PRT. We

recognise that this will mean an unusual element of discretionary judgement in matters of taxation. However it has long been the case that companies in the UKCS have been prepared to reach voluntary agreements rather than await specific legislative powers.

It is possible that this voluntary approach would not work effectively in some fields. In that case, we think government should be willing to take the power to open up the continued ownership of such fields. The existing owner could be required to put a value on the field on specified tax and decommissioning assumptions. Other groups would be asked to value the field on the same transparent basis. If the existing owners were outbid they would receive the amount they had bid from the winning bidder with the difference going to the Treasury and ownership would be transferred.

Infrastructure

There has been an improvement in the cost of access to offshore infrastructure but there is still a lack of transparency and lengthy delays. The time has come to apply the same approach to offshore as to onshore infrastructure. The new regulator would be expected to take account of investment and return history when setting tariffs and it would be expected that there would be more price differential between, for example, pipelines than one finds onshore.

Exploration acreage

Too much acreage is still in the hands of companies who are not working it hard enough for exploration opportunities despite efforts over the past 15 years. In the absence of voluntary action, powers may have to be taken to ensure that undrilled acreage is returned to the government.

We believe that the tax regime for new exploration needs to be moved to an acreage specific auction system. 5 year exploration licences with automatic right to move to production on discovery should be put up for auction. The auction should be carried out, not for up front payment, but by the completion of a standard form production sharing agreement with no more than 5 variable figures to be completed. Production would not of course be taken as oil and gas but rather as its monetary equivalent.

7.2.7. Institutional infrastructure

7.2.7.1. Governance

The abolition of the Department of Energy in 1992 has resulted in the progressive reduction of central government's energy expertise. In addition the formation of Ofgem, EST, Carbon Trust, Energy Watch etc has created internal interfaces and conflicting duties which have worked against clear decision-taking. The increased power of the Treasury and No. 10 has also meant that the intellectual rigour and knowledge behind the Energy White Papers has been seriously lacking. There has also been the usual confusion over the respective roles of DBERR and Defra.

The policies we recommend need to be implemented by a Secretary of State and a department combining policy responsibility for carbon emission reduction and energy policy. The formation of the Department of Energy (DE) would resolve the present confusion of responsibility. The political leadership would have to come from the very top but leadership at every level would be critical. It is clear that, as some of the key implementation would be done through the new carbon reduction zones, local authorities, too, must be encouraged and incentivised to give leadership and priority to this area. There would have to be the closest relationship, too, with the DSG.

Ofgem's present remit was designed in the early 1990s and other duties have been added to it. Ofgem should be reformed and renamed Ofnet. Ofnet's responsibility would be to regulate the networks with an emphasis on enabling access and improving quality. We are not persuaded that there is any longer a need for regulation of generation supply – this should, in future, be done through the normal competition authorities.

We support the Conservative Party's proposal to create a Climate Change Committee. The Committee would be responsible for setting the interim targets against the 2050 end goal. It would report transparently on the progress towards achievement of those targets and the government would have to give transparent responses. It would also recommend the technology NFFO bands, the allocation of carbon allowances, and be free to initiate discussion of any strategic issue it feels important. It would take over some of the current roles of the EST and Carbon Trust, including raising awareness and providing advice and support functions. Given the other policy changes we are recommending, we doubt whether there will be a continuing role for those organisations as currently constituted, and every effort should be made to simplify and clarify the structure of policy-making in this area without losing the valuable work they have done.

We believe that there is a continuing role for a somewhat reconstituted Carbon Trust in the extension of carbon measurement. The fact that it is an arms-length organisation enables it to oversee the production of protocols for carbon labelling that could form the basis of a European and then a global system.

7.2.7.2. The public sector

The public sector is in a position to lead carbon emissions reduction, not only by setting a behavioural and strategic example to the private sector, but by its very significant purchasing power. Sadly, current governance, funding, and incentives are not aligned to the procurement or operation of low-carbon buildings. In 2004, the sector accounted for 34% of new non-domestic building construction and 37% of non-domestic refurbishment and maintenance work. That totals 1.45% of UK GDP[276]. Up to now, the opportunity has largely been lost but in the future, by driving the highest standards of energy efficiency and carbon emissions reduction, the public sector's impact on the construction

[276] BSRIA Statistics Bulletin, June 2005

industry should have a very strong knock-on effect to the private sector. From developers, to architects, engineers, construction companies and facilities managers, the skills and mentality to deliver and operate low carbon buildings should then develop quickly across both public and private sectors.

The Sustainable Development Framework for the Government Estate (published 2002-2004) has a target of reducing carbon emissions across the public sector by 12.5% from 2000 to 2010 and improving energy efficiency by 15%. This is of no value if we do not know whether the targets are being met. There is no effective governance to ensure proper monitoring. At present, no-one has effective overall responsibility or even direct accountability within individual departments for either the tracking or policing of performance. There is uncertainty over the baseline[277] against which to quantify the 12.5% reduction, and targets are not currently enforced. There is little transparency, no identifiable accountability by department, incomplete measurement, and no sanction for failure to meet targets. Here are all the hallmarks of a headline-led government that has no capacity for delivery.

It is therefore not surprising that expertise in building and energy management is inadequate. This prevents buildings being operated or changed in the manner best suited to reducing emissions. Financial incentives do not encourage energy efficiency. Funds cannot be ring-fenced or carried forward from one fiscal year to the next. Necessary investment is therefore impossible. Savings generated by reduced energy bills merely lead to reduced budgets for next year.

Procurement systems are not well designed to support energy efficiency. Although there was a commitment to procuring 'Top Quartile' energy performance buildings in the government Energy Action Plan, April 2004, the quartiles have not been defined and beyond Building Regulations, so no 'enforceable' energy efficiency standard exists.

To address this woeful state of affairs, we recommend the following measures:

- Proper baselines must be established and transparent annual targets, metrics and reporting put in place. We therefore, recommend that for local authorities (17% of public sector emissions) objective performance should be measured annually on a number of issues and compared to other LAs. This would improve by competition and would force transparent measurement and reporting.

- Central government (18% of emissions), health (20% of emissions) and education (45% of emissions), must provide transparent reporting of emissions. Specific individuals must be made responsible for delivering carbon reduction within each department and meaningful sanctions imposed for any failure to reach targets.

- Energy managers should be appointed for entities with energy expenditure exceeding £2million to give focus and knowledge within these organisations. They could be expected to reduce energy consumption by at least 5% at an associated maximum cost of approximately £200m per year, but with savings of nearly £280m and 200ktC per year. The experience of those organisations within the public sector that already have energy managers would be of great value here.

- A fund equivalent to SALIX should be made available across the public sector. SALIX is a revolving, interest free loan fund, used to pay for minor capital expenditures for emissions reduction. The loans are repaid with savings from reduced energy bills within three years. The repaid funds are then lent out on a revolving basis. These funds should empower the energy

[277] The UK Climate Change Programme: Potential evolution for business and the public sector, The Carbon Trust, November 2005. Emissions for the public sector differed from 3.7 - 5.5 MTC for 2002, depending on the source

managers to save an additional 10%. (£415m total funds to save 390 ktC pa and £124m of energy per year, based on existing SALIX performance. This would take the form of a 'working capital float' of £210m recycled every three years and eventually recovered).

- A Code for Sustainable Buildings should be set to drive the public sector leadership, by defining the quartile performance for new buildings and refurbishment standards. Top quartile performing buildings should be mandatory for all public sector new build and refurbishment. The quartiles must be defined to avoid the present confusion. Since the public sector accounts for one third of UK construction and refurbishment, such procurement provides the opportunity to lead the buildings market into carbon reduction. Based on 2003 construction data[278], 4.3 million m^2 of new public sector buildings are built per year, creating 116ktC or an additional 700ktC pa by 2010. This does not factor in any increase in intensity. Compliance with Building Regulations Part L2A would reduce emissions by 25% or 29ktC per year, with compliance for refurbishment adding an additional 15% or 10ktC. Much more could be achieved with the higher standards set under our proposals.

- No building below asset energy performance certificate rating of A should be procured.

- For the greatest impact on influencing the construction industry, a single minimum standard of energy efficiency should be implemented across the public sector. The scale of the sector's purchasing means that architects, engineers, construction companies and facilities managers will quickly develop the skills and capacity to deliver and operate low carbon buildings.

[278] BSRIA Statistics Bulletin, June 2005

Chapter 8. Transport – Connectivity

Contents

Section 8.1. Sustainable Transport? 308

Section 8.2. Sustainable Transport through Land-Use Planning 311

Section 8.3. The Integrated Transport Hierarchy 318

Section 8.4. A Framework for Lower Carbon Motoring 340

Section 8.5. Putting Aviation on a Sustainable Footing 350

Section 8.1. Sustainable Transport?

8.1.1. Connectivity

Connectivity between people, places and products is an essential part of any society. In Western countries today, most economic activity is inconceivable without transport, telephones, or computers, while personal mobility has been the dream used to sell motor cars since mass production began in the 1950s.

Sadly, the days of carefree motoring on the open road are gone. With around 33 million cars on British roads today, congestion is an all-too-familiar blight, costing the economy around £15 billion a year. The average UK citizen spends 235 hours in a car every year, driving further and more frequently than ever before[279].

Many daily journeys – to school, to work or the shops – are borne of unwelcome necessity rather than an active desire to drive. Car-dependency is exacerbated by unsustainable land use planning practices that create dormitory suburbs and out-of-town retail parks – a pattern of dispersed development which is in turn harder to connect by bus, rail, or cycle. Similarly, rapid growth in aviation demand threatens to create air-dependent lifestyles that are highly carbon-intensive.

Transport is a major contributor to global warming, with road transport accounting for 24 per cent of the UK's carbon emissions, a figure set to grow in absolute terms and relative to other parts of the economy. At around 5 per cent of the UK total[280], aviation emissions start from a relatively low base but are growing at the fastest rate of any sector. If this trend continues unchecked, aviation alone will be responsible for at least one third of the UK's total emissions by 2050. These statistics raise important questions for equity and policy – are large increases in transport emissions really justified at a time when other sectors are planning carbon cuts?

We aim to present positive ways forward for transport and propose policies which decouple connectivity and economic growth from gridlock and climate change. We start by taking the debate back to first principles – why people travel, where they travel and how.

8.1.2. Why travel?

Travel is a means to an end, used to connect work, leisure, family, shops and communities. Increasingly, connections can be made without leaving the home or office at all. Telecoms and computers are stretching the concept of travel far beyond the bounds of physical transport. Millions of virtual journeys take place over the Internet every second, as people communicate between international time zones and goods are bought or sold.

Even when people do travel between places, they rarely need to do so by any specific mode but expect the freedom to choose that which is most convenient for that journey and its purpose. They expect their journey to have certain attributes – to be reliable, predictable, safe and comfortable. These are not the exclusive properties of any one transport mode. A cycle may provide the most predictable journey time in rush hour, while a bus removes worries about parking at a journey's end. There is often no reasonable alternative to the car. It is significant, however, that in central London, many are happy not to own a car, even though they could afford one. The inconvenience and cost of on-street parking, poor journey times compared with public transport, and the availability of car clubs and conventional car hire when required make that a perfectly sustainable choice. There is clear evidence that if people can

[279] DfT (2006) Transport Trends
[280] Includes emissions from UK domestic flights and international departures

link the components which make up their lives without using a car they are increasingly happy to do so.

We believe that a Conservative government should seek to offer a genuine choice of transport more widely, whether by air, car, public transport, cycling or walking or virtual travel through telecoms. We envisage a transport system in which, wherever practicable, lower carbon modes become the first choice. This means that we have to challenge the ascendancy of the motor car, which continues to dominate much of the transport policy, planning and funding practised in Britain today.

Although removing bottlenecks may make sense, grandiose programmes of road-building are part of the problem, not the solution. After buying short-term relief from congestion at tremendous cost, they induce more traffic. We advocate instead more balanced policies that provide opportunities for choice and modal shift. We argue that government should prioritise low cost interventions with high returns such as work and school travel plans, offering carbon, congestion, and time savings. Investment in sustainable transport is money well spent.

Intelligent land-use planning can make alternatives to the private car more appealing, as well as reducing the number and length of journeys overall. Sustainable land-use means planning for mixed use development that clusters jobs, homes and shops nearby, and investing in attractive community areas that engender a sense of community identity and pride.

However, integrated transport systems and sustainable land-use planning will not of themselves induce a reduction of transport emissions on the scale required. The government must be prepared to use fiscal measures to signal to the passenger, business, and freight communities that choosing lower carbon transport makes financial sense. Environmental tax reform is a sensible framework for delivering demand management – the principle of taxing more of the carbon people burn, and less of what they earn.

'Less of what you earn, more of what you burn'

Environmental tax reform (ETR) represents an efficient and equitable framework for reducing carbon emissions from transport and other parts of the economy. The principle is simple: the tax base is shifted from value-adding activities such as employment towards value-subtracting activities such as pollution.

Several caveats apply to our proposals for ETR in transport. Changes in the tax base must be phased in gradually in order to allow adaptation to take place. Tax shift should be revenue neutral overall – this is not about adding taxes but replacing taxes. We should tax more of what people burn, and less of what they earn. Increasing the cost of carbon-intensive transport should be matched by cutting tax elsewhere. These cuts should be found among taxes on employment or the cost of living, not within the transport world itself. Polluting transport has to become more highly taxed if the necessary cuts in its carbon emissions are to be achieved. Thus the idea that national road-user charging can be offset by reductions in other car taxes and still deliver substantial carbon benefits has to be treated with scepticism. Tax cuts have to be made elsewhere.

Hypothecation

It is sensible to discourage journeys which are highly polluting, but it has to be recognised that this will inevitably increase demand for travel by cleaner modes. Consumers need satisfactory alternatives if they are to avoid unnecessary flights or car journeys. Some of the non-tax revenue raised by discouraging motoring or aviation in ensuring that those alternatives are available is appropriate, and offers the general public visibility and transparency over how their money is spent. Hypothecation may not be universally suitable as a means of funding, but in transport there is a strong case for the principle to be applied.

Technology can help significantly in the battle against pollution and policies that promote sustainable transport can stimulate research and innovation. Car-makers can be encouraged to make much cleaner

vehicles and the public can be offered incentives to buy them; intelligent ticketing and timetabling can make it easier to plan journeys by public transport; improving logistics can offer significant fuel savings for freight operators and airlines.

However technology can only go so far. There is limited ability to improve aircraft efficiency in the short-term; biofuels raise sustainability and carbon problems of their own; and the sheer increase in the number of cars can cancel out the improvements in fuel economy. Exclusive dependence on technology-based solutions will therefore not deliver the emission reductions we need. Managing demand for private motoring and aviation has to be part of the solution.

The package of policies recommended in this Chapter offer a means of reclaiming the benefits of mobility while reducing the costs. The benefits of a more sustainable transport system – environmental protection, higher productivity and healthy local communities – will be enjoyed by everyone.

Section 8.2. Sustainable Transport through Land-Use Planning

8.2.1. Overview and objectives

Transport exists only in the context of land-use planning. The transport system has little intrinsic value – for most people, it exists solely as a means of connecting locations associated with work, leisure, family, community and shopping, as Figure.8.1. demonstrates. The spatial distribution of homes, schools, services and jobs determines how far and how frequently people travel, and strongly influences their choice of transport mode.

Figure 8.1. Trips made per person in 2005, by purpose and distance[281]

Trip purpose	No. of trips per person	Average trip length (miles)
Commuting	161	8.7
Business	37	19.4
Education	66	3.2
Education escort	48	2.0
Shopping	206	4.3
Other escort	97	5.1
Personal business	109	4.8
Visiting friends	170	8.5
Entertainment	52	7.6
Participative sport	17	6.0
Holidays and day trips	39	23.5
Other	42	1.1
Total	1,044	6.9

Source: DfT (2006)

It follows that land-use planning has a fundamental bearing on whether sustainable transport patterns arise in a community or not. Good quality planning can reduce carbon emissions by reducing the total number and distance of journeys, and allowing as many trips as possible to be completed by alternatives to the private car.

Higher density, mixed-use development and walkable neighbourhoods confer social benefits in the form of community cohesion, more opportunities for enjoying green or open space, and better access to goods and services for non-car-owning groups including the elderly and poor. Economic benefits include reduction in travel times, a renaissance for local business and less congestion.

Unfortunately, large swathes of residential and commercial property were developed with no such considerations in mind, pre-dating the recognition of climate change and congestion as serious threats. Whole cities have been designed around car use, while terms such as ‘dormitory towns’, ‘suburbanisation’ and ‘out-of-town retail parks’ are bywords for unattractive, roundabout-dotted landscapes designed to divide instead of bringing people together. These are severed communities.

Of course, many more British villages, towns and cities date back to a time before mass car ownership, when services and jobs were necessarily clustered in the local area. Every opportunity should be taken to restore and improve connectivity within settled communities, whether they are historic market towns or new housing estates. This requires planning departments to think about the travel landscape as a whole, and particularly how the location of healthcare, education, retail and employment affects transport demand. Frequently, this may involve a step back from the trend for centralisation in favour of local provision.

[281] DfT (2006) Transport Statistics Bulletin: National Travel Survey 2005

Given the all-too-visible hazards of car-dependency, it is important to ask why poor planning persists, even when building communities from scratch. Too often, substantial new developments fail to incorporate social infrastructure such as places for recreation and worship, doctors' surgeries or local shops. Failure to provide such facilities stifles community relations and encourages car use even for simple visits to the 'local' shop. .

Case studies such as the town of Houten, near Utrecht in the Netherlands show that with good planning, communities can be genuinely sustainable and attractive at much lower levels of car use than obtain in the UK. Although existing policy aspires to sustainable planning, implementation remains a far greater challenge. Governance, funding, inertia and management all constitute barriers to delivery, although the lessons of best practice are starting to take hold. Systemic change is a story of incremental improvement rather than quick wins; institutional learning rather than major restructuring. The challenge for the next government is to design workable sustainable land-use policy for the long-term.

8.2.2. Connectivity without transport

Transport is all about connectivity, but many elements of everyday life can be connected without transport. IT technologies have taken the travel out of many conections and are a routine choice for business and personal discussions, shopping and entertainment. Home shopping, for example, is expected to account for 11% of total food retail sales by 2010, and the proportion of adults buying goods over the Internet more than doubled to 25% between 2000 and 2003.[282]

However, travel-replacing technologies are still poorly integrated with core transport strategy. Placing greater emphasis upon connectivity could encourage the take-up of innovative ways of reducing the need to travel, such as the 'smarter choices' described in Section 8.3. The Internet has not yet revolutionised working patterns on the scale originally envisaged. But it is fair to assume that improvements in web technologies, tele- and video-conferencing will increasingly lead employers to recognise the potential of home working. Not all staff can work at home; but having all those staff who can do so work one day a week at home would reduce office rental and running costs, while the resultant 20% reduction in employee journeys would help mitigate traffic congestion.

It is time to reconnect ministerial responsibility for transport, environment and planning, through the restructuring of central government departments. For this reason the proposed new Department for Sustainable Growth would incorporate a single Directorate under a Minister of State that would bring together the current responsibilities of the DfT and land-use strategy from Defra/DCLG. The new Directorate should also take over telecoms policy from DBERR in order to bring together transport and telecoms policy, recognising that communications technology offers connectivity in the same way as physical travel.

8.2.3. Local transport planning and funding

The majority of transport planning takes place at local level. The Local Transport Plan framework was introduced in 2000, and has resulted in significantly increased investment in local transport projects, totalling £8 billion in the five years to 2005.[283] The LTP system aims to promote more strategic, joined-up approaches to transport provision.

[282] DfT (2005) Smarter Choices - Changing the Way We Travel
http://www.dft.gov.uk/pgr/sustainable/smarterchoices/ctwwt/
[283] House of Commons Transport Committee (2006) Local Transport Planning and Funding

Although LTPs offer a sensible framework, most local authorities are not performing well enough on congestion, public transport use, or cycling. Improving performance in these areas generally requires implementing demand management measures that are difficult to contemplate for political or practical reasons.

Problems with delivering sustainable transport through local planning can be separated into a 'bottom-up' category regarding local authority delivery and 'top-down' issues relating to central government policy.

In the bottom-up category, projects to reduce car use or promote modal shift are held back by factors including lack of political will, poor sharing of best practice and shortage of appropriately skilled staff.[284]

Of course, the overall travel landscape is shaped by decisions in health, education housing, and land-use planning more than by highways engineers or other transport planners. The number of parking spaces associated with new business or services development, for instance, is an important determinant of whether people drive to work or consider another mode.

The balance of capital to revenue funding presents a further barrier. Capital to pay for new infrastructure, such as bus stands, is easier to find than revenue to maintain transport services. Revenue funding shortages also limit implementation of 'smarter choices' – measures such as travel plans (see Section 8.3.) which offer excellent value for money, but imply an ongoing commitment of staff time that falls foul of current financing and management structures.

Further, revenue funding that local authorities receive from central government is rarely earmarked for transport, which may lose out to other priorities like health and education services. Increasing the political priority accorded to transport may, however, help push up its share of revenue support and is preferable to ring-fencing budgets. We would therefore encourage an increased availability of revenue funding associated with maintaining public transport and other lower carbon travel options. In conjunction with the institutions for transport professionals, we believe that local government should aim to broaden the skills set within local transport planning departments, developing capacity for delivering 'soft modes', and demand management to complement traditional technical and engineering schemes. This would be achieved both in by changes in the initial training curriculum and in in-service training.

We believe that strategic decision-making in major conurbations can be improved through reforms to the PTE/PTA structure, as envisaged by the Road Transport Bill.

We also believe that parking spaces provided by employers could be brought into the tax system by way of an additional charge to occupiers of commercial premises with off-street parking to at least reflect the open-market cost of parking in the area concerned.

Turning to top-down policy, central government currently shows unwillingness to invest political capital in reducing transport emissions. There is a perception that government has put demand management measures into the 'too difficult' box, while DfT targets have little bearing on wider government targets on climate change.

Sustainable transport practitioners feel that central government lays too much emphasis upon installing infrastructure measures (for example, a cycle lane) and too little upon actual outcomes (for example, how many journeys are made on that cycle lane). The lack of an outcome-based approach is also felt in areas outside the LTP, for instance in the travel plans required for new development under PPG13.

[284] Atkins (2005) *Long Term Process and Impact Evaluation of the LTP Policy*, Department for Transport

Many travel plans are currently expensive failures, as developers invest in bus services or cycle sheds but not in encouraging and enabling people to use them.[285]

Local authorities identify the frequent changes to the assessment framework for LTPs and poor policy integration between government departments as serious difficulties in ensuring a local integrated transport policy.

The question of linking local transport funding to performance against sustainability targets is contentious. The many differences between local authority areas – in existing travel patterns, inherited land-use planning, leave alone the demographics – have been felt to render any target regime unfair and impractical. Achievement of minimum sustainability standards should be a pre-requisite for new developments; but the majority of transport issues are bound to be decided piecemeal at local authority level. Projects to revitalise a town centre, deal with an accident blackspot, or unblock a congested road are often individually and separately considered. The LTP framework is designed to bring 'big picture' thinking to these scattered developments, and should be applied whenever any relevant decision is made to ensure that local authorities have robust plans for emissions reduction and for the achievement of other sustainability aims such as modal shift.

Major new developments should be approved only once they meet minimum transport sustainability criteria on modal split between smarter choices, walking, cycling, public transport and car use. This assessment should be made after a full carbon audit.

Central government guidance and targets should place at least equal emphasis upon reducing transport emissions as upon alleviating congestion. We propose therefore that, as a condition of funding, LTPs should be required to demonstrate clear, achievable reductions in the carbon intensity of local transport.

Central and local government should also move to outcomes-based performance monitoring that emphasises service delivery rather than just infrastructure provision.

8.2.4. National and regional transport infrastructure

The UK is the only nation in the EU with such marked difference in economic performance between its capital and other major cities. This is not the place to repeat the debate over the balance of development between the South East and other parts of the country. Suffice to say, transport is a key enabler of economic growth, and there are strong arguments for using infrastructure investment on inter-urban routes to spread the benefit and burden of growth.

The Eddington review was correct to say that transport "cannot of itself create growth".[286] No amount of expensive infrastructure will create jobs if the fundamentals of trained workforce, viable product, and market-place are not also in evidence. On the other hand, neither is it sensible to wait until growth overtakes transport provision. The Docklands Highway and the Jubilee Line extension are examples of major transport infrastructure that was retrofitted too late and at enormous extra cost because they were not planned into the original development. The lesson is to ensure that whenever new growth is contemplated, proper account is taken of the traffic implications at the outset. That might involve a new access road, a rail spur or a guided bus route, with the cost factored into Section 106 negotiations with developers.

Eddington's position that incremental improvements are preferable to major new schemes also merits a nuanced reply. While infrastructure investment should always strive to be cost-effective, the final

[285] Association of Commuter Transport (2006), evidence to Quality of Life Transport Working Group
[286] HM Treasury (2006) The Eddington Transport Study

choice of transport options should be made with reference to wider social and environmental goals. Although Eddington argues against building new high speed rail links, this investment may be justified if it provides an alternative to highly polluting domestic flights and where poor accessibility is currently a limiting factor to the growth of regional economies.

The case for major new infrastructure is not helped by the delays, cost escalations and uncertainty that have plagued many schemes in recent years. The Thameslink 2000 scheme, for instance, has required over 30 consents under four different Acts and has taken over eight years, and it is still not yet complete.[287] White Papers, PPGs and other central policy guidance are not providing the necessary clarity for developers or planners. There is a need to define a more intelligent approach – one that preserves democratic consultation but provides for more certainty of outcomes, thus saving time and costs.

Spatial development strategies at the national and regional level are one such solution, which could be used to establish priorities for sustainable travel patterns and relate transport to other infrastructure including housing, health, jobs and education.

The guiding principle of these strategies should be the need to decouple economic growth from transport emissions. They would emphasise managing demand for car use through sustainable land-use planning and modal shift, eschewing predict and provide approaches to road and airport capacity.

These spatial strategies would be qualitatively different from the proposals contained in the government's recent planning white paper, which threatens to lock the nation into the development of carbon-intensive transport infrastructure for years to come. Purely economic considerations must not be allowed to drive development strategy, which must instead give due emphasis to environmental interests.

We therefore propose that an incoming Conservative government develop strategic spatial plans, nationally and for the regions, which emphasise sustainability and relate transport provision to housing and other infrastructure. Central government should set an example on this necessary rebalancing of national economic growth. Firstly it should encourage the use of technologies that make high-quality communications possible without travel and be seen to be making those choices itself. State of the art tele-conferencing is now extremely effective and user-friendly, yet it is hardly used by government departments. It should become the norm. This would be particularly important as it is also our view that the second means of government leading the field would be by the proper relocation of the whole of significant central departments outside London. In this way, we would begin to build up natural centres for particular activities outside London and make it more likely that private companies would choose to put their headquarters outside the capital.

8.2.5. Road building

As traffic levels continue their seemingly inexorable rise and politicians come under pressure to 'do something', this often means following the route of least resistance – building new road capacity. There are, indeed, some cases in which road-building is justified. We believe there is a value in relieving rural towns and villages of the intolerable burden of noise, congestion and accidents associated with inappropriate traffic volumes.

Similarly, there is a case for removing acute blockages on the network through the use of grade-separated junctions, or other improvements to traffic flow that ease standing pollution.

[287] HM Treasury (2006) The Eddington Transport Study

It is important that the cure should not be worse than the disease. In some cases there will not be a suitable by-pass option available. But if the surrounding landscape is not protected by a National Park, Area of Outstanding Natural Beauty or other designation, the construction of rural bypasses and/or the removal of bottlenecks through dualling should be considered provided the scheme meets a number of criteria.

Most importantly, there must be a workable strategy for locking in the benefits of traffic reduction, such as restricting traffic movement through town centres. Without preventative action, new roads quickly fill up with new traffic as they encourage people to change routes, drive more frequently, or take road journeys that they would have avoided before. For instance, traffic volumes on the Newbury bypass, opened in 1998, were already 22% above the forecast level for 2010 by 2004.[288] Peak-time congestion within the town is back to levels that prompted the building of the by-pass in the first place.

Road-building should, however, be the exception rather than the norm. The truth about major new schemes, as every transport minister knows, is that expanding road capacity to accommodate more cars simply generates more traffic. This has led a succession of ministers to condemn the 'predict and provide' approach, and declare that "simply building more roads" is no longer acceptable.[289]

A key to the mechanism for assessing major road schemes is the cost/benefit analysis prepared by the Department for Transport. The methodology adopted in this respect, and the values placed on such items as the (relatively high) cost of car traveller time as against the (relatively low) cost of disturbance to wildlife and the environment are the cause of considerable disquiet among transport academics. There is a strong case for a comprehensive review of the cost benefit analysis regime adopted by an incoming Conservative government which will have profound implications for major road schemes in the future. We also recommend a moratorium on all plans for motorway and trunk road widening pending such a review and the wider consideration of the issues outlined in this Report.[290]

Given the very high costs and doubtful benefits of motorway widening schemes in particular, there is a strong argument for putting such schemes on hold.[291] Transport spending should be refocused upon measures that reduce climate change impacts, with some money put aside specifically for this purpose through the type of Carbon Reduction Fund proposed by environmental groups.[292]

An incoming Conservative government should not duck the challenge of managing demand for car use. The policies outlined here for land-use planning, integrated transport and fiscal incentives offer a framework for developing sustainable alternatives. If implemented, this would remove much of the perceived need for new road capacity, and finally move the UK beyond predict and provide.
We would further propose that the balance of transport spending is weighted towards sustainable schemes that reduce carbon intensity, and the creation of a new Carbon Reduction Fund to support measures designed to reduce emissions.

[288] CPRE and Countryside Agency (2006) Beyond Transport Infrastructure – Lessons for the Future from Recent Roads Projects
[289] Ladyman, S. (2006) Speech to Energy Saving Trust
http://www.dft.gov.uk/press/speechesstatements/speeches/socialandenvironmentalimpact5885
[290] Leake, J. (9th August 2007) *The Road Fix*, New Statesman http://www.newstatesman.com/200708090012
[291] House of Commons Transport Committee (2006) The Work of the DfT's Agencies
http://www.publications.parliament.uk/pa/cm200506/cmselect/cmtran/907/907.pdf
[292] Transport 2000 and FoE (2007) Climate must be central to transport spending, say green groups. Press release

Outcomes-based road safety regulation

The DfT is one of the most prolific regulators in the country, particularly on issues related to safety. While protecting the public is of paramount importance, in many cases regulation is unnecessarily prescriptive and unhelpful. Examples where regulation might sensibly be relaxed include allowing more informative road signage similar to that found on French autoroutes, promoting nearby attractions of benefit to the local economy. Deregulation of motorway service areas started by the Conservative government could also be continued, enabling independent or local operators to enter the market and improving consumer choice.

The overzealous interpretation of road signs regulation has led to a proliferation of signs that are aesthetically unappealing and can actually reduce road safety through distracting visual clutter. The Streetscape and Highways Design Bill, tabled by Shadow Trade and Industry Secretary Alan Duncan MP, would require highways authorities to ensure signs do not cause unnecessary visual intrusion, while still providing appropriate information. We believe that this should form the basis of amending legislation. We also propose pilot schemes to see how far rural road safety is improved by the increasing use of road marking and additional signs. Experiments elsewhere have suggested that motorists drive more carefully where there is no white lining and only exiguous signing. Proper science would enable more effective decision making.

New research suggests that the assumption that lighting roads is an aid to safety is not necessarily valid in all cases. Such lighting is very carbon intensive and polluting. Government should review all road lighting with a view to significant reduction. That review should include an assessment of the need for the recent intensification of lighting on masts at the behest of the Civil Aviation Authority. Again, there appears to have been no serious research behind recent diktats from international aviation bodies. An incoming Conservative government should plan to replace such road lighting as remains with modern low energy directional lighting which reduces both energy use and light pollution. Similarly it should act on the evidence of its review of the lighting of masts to ensure that it is the minimum necessary to ensure safety. Light pollution is a real concern, even apart from its carbon cost, and transport's contribution to it is significant.

Land-use planning based upon the presumption of increasing car use has given rise to a range of problems. Besides increasing carbon emissions, car-based development creates extra traffic and causes accessibility problems for non car-owners, as well as undermining local economies and communities. Although these problems are highly visible and well understood, unsustainable land-use planning persists. This is partly a matter of habit, partly institutional, and partly conscious choice.

Reforms are therefore needed to improve the governance of transport planning and delivery, and crucially to strengthen linkages with decision makers responsible for the provision of housing, employment, retail outlets and public services – ultimately these are the destinations that generate the need to travel. Every opportunity should be taken to evolve more sustainable travel landscapes, with a stronger priority for walking, cycling and public transport at all stages of planning.

Section 8.3. The Integrated Transport Hierarchy

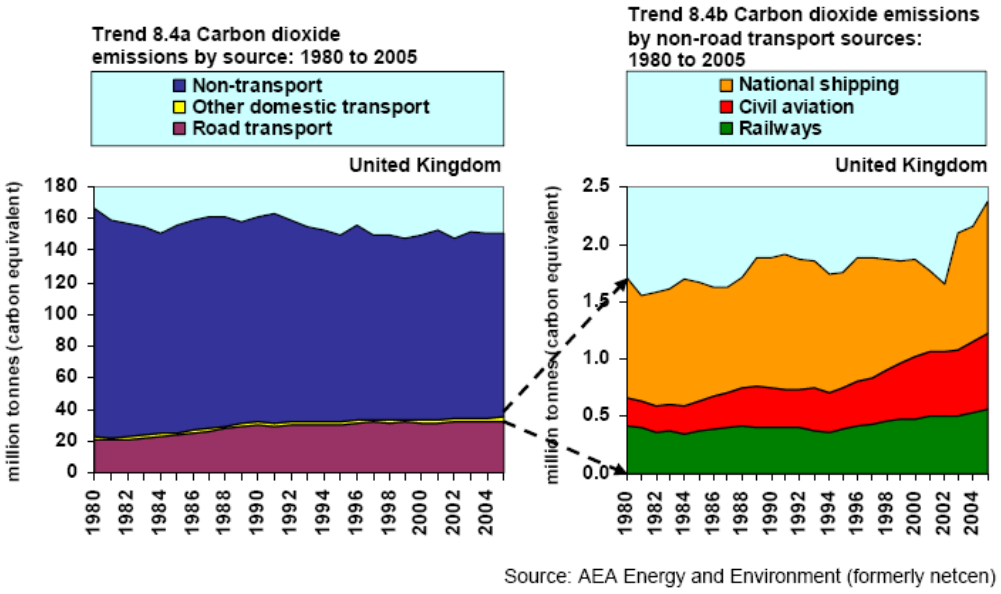
8.3.1. Overview and objectives

Travelling is a significant part of everyday life. The average distance travelled per person each year has increased by about 60% in the last three decades to 7,200 miles.[293] The length of an average trip has risen to around seven miles, partly because of scattered development patterns discussed in Section 8.2, which force people to travel further to connect work, leisure, family and shopping.

While it is true that people travel further and more frequently than before, the large majority of trips are short-distance. Of the average 1,044 trips made per person per year in 2005, 40% were less than two miles in length, and 95% were less than 25 miles. The car is the most common mode for all but the shortest trips of under one mile.

The dominance of the private car is worrying from an environmental perspective. Over medium distances, cars produce around four times as much CO2 as buses or train, and are second only to aviation in terms of carbon intensity.[294] In all, road transport is responsible for 24% of the UK's total carbon emissions and that proportion is rising. Figure 8.2. indicates how total annual emissions break down by transport modes.

Figure 8.2. Carbon dioxide emissions from transport



Source: DfT (2007)[295]

Journey lengths and vehicle efficiency both have an important bearing on transport emissions, and are discussed in Sections 8.2 and 8.4 of this Chapter respectively. This Chapter focuses upon policies for boosting the share of journeys made by alternatives to the car – walking, cycling, buses and trains – as well as considering the potential of so-called 'smarter choices' such as travel plans, flexible working and teleconferencing.

[293] DfT (2006) Transport Statistics Bulletin: National Travel Survey 2005
[294] CE Delft (2003) To Shift or Not to Shift
http://www.ce.nl/eng/pdf/03_4360_09.pdf
[295] DfT (2007) Transport Trends
http://www.dft.gov.uk/162259/162469/190425/Trends_2006_FINAL_v5.pdf

Figure 8.3. shows changes in trip numbers by various modes. The car remains by far the most popular mode, while trips by local bus outside London, by cycle and on foot have declined. However, a number of local authorities have managed to buck this national trend, using investment, demand management, marketing and other incentives to boost patronage of public transport, or increase walking and cycling.

Figure 8.3. Trips and average trip length by main mode, 2005

Mode	Trips per person per year – 1995	Trips per person per year – 2005	Average trip length - 2005 (miles)
Walk	292	245	0.7
Bicycle	18	14	2.4
Car/van driver	425	435	8.5
Car/van passenger	239	236	8.7
Motorcycle	4	4	9.9
Bus in London	13	16	3.8
Other local bus	53	46	4.6
Surface rail	12	16	32.3

Source: DfT (2006)

In the past, modal shift has too often been promoted by its supporters with the fervour of a moral crusade. Hectoring people to give up their cars is neither constructive nor realistic. Sustainable transport policy is not about reducing individual freedoms, but offering greater choice in the way people connect elements of everyday life. A bus or bike has no greater or less intrinsic value than a car or plane in transport terms. Ultimately, any transport mode is merely a means of reaching the desired destination, although travel decisions are not just about connectivity; many more elements come into play, producing a range of subtle barriers to modal shift.

Psychology of transport choices

Nearly four in ten people agree with the statement 'many of the short journeys I now make by car I could just as easily walk or cycle if I had a bike'. At face value this appears a fairly positive statement regarding the prospects for modal shift, but the fundamental question remains – if change is easy, why are these short journeys still being made by car? The answers lie in a failure of communication by transport policy makers, environmental groups and other stakeholders trying to reduce car use.

There is a tendency to believe that merely raising awareness about problems associated with car dependency and alternatives to car use should be sufficient to induce changes in travel behaviour. This is patently not so. Concern over climate change, traffic congestion and the spread of car-based urban sprawl is running at record levels, yet modal shift has been negligible and attempts to restrict car use are met with hostility.

It is time for a more sophisticated approach to reducing car-dependency, one that acknowledges the role of perceptions, identity, social norms and habits in shaping travel behaviour, and recognises that different groups of people will be motivated by different arguments for change. One study has divided the car-driving public into attitude-based groups. Thus, the 'Malcontent Motorists', who comprise an estimated 18% of drivers, feel a moral responsibility to reduce car use, find driving stressful but see no practical alternatives. This is in stark contrast to the 20% of 'Die Hard Drivers' for whom the car is a status symbol, and for whom alternatives are deeply unappealing. Clearly, these two groups will respond to different messages. So for the malcontents, communications could focus upon the accessibility of public transport and its positive environmental contribution. For the die-hards, there is the need to overcome poor social stereotypes of public transport users, for instance by garnering celebrity endorsements for buses or trains.

Marketing and advertising agencies have long been using this differentiated approach in other areas. Better communications implies a considerable challenge for governments, environmental groups and public transport operators, but is a vital part of the tool kit for motivating change in travel behaviour alongside 'harder' policy measures such as taxes or regulation.

Source: Anable (2005)[296], IPPR (2007)[297]

The UK's public transport system needs to be revitalised through targeted investment, more coherent policy guidance, changes in governance, closer cooperation between stakeholders, as well as better information and marketing. Cycling and walking should be enabled through much wider provision of suitable facilities and the dissemination of best practice. Smarter choices including car sharing to and from work, and personal and company travel plans should be pursued wherever possible.

Policies that promote modal shift reduce environmental impacts are socially progressive, and are of direct benefit to the one quarter of households that do not own a car. Economic benefits can be counted in terms of reduced congestion and consequent productivity gains.

Sustainable transport must be clearly prioritised at all levels of government and must be backed up by incentives within the tax and land-use planning systems that favour alternatives to car use.

[296] Anable, J. (2005) Complacent Car Addicts or Aspiring Environmentalists? Identifying travel behaviour segments using attitude theory. Transport Policy 12

[297] IPPR (2007) Positive Energy: Harnessing People Power to Prevent Climate Change

8.3.2. Policy recommendations

8.3.2.1. Smarter choices

Smarter choices or 'soft measures' include workplace and school travel plans, personalised travel planning, public transport information and marketing, car clubs, teleworking and home shopping. They are particularly effective at reducing numbers of routine, peak hour journeys, and offer high value for money as a means of alleviating congestion, particularly compared to high-cost alternatives such as road-building. Every £1 spent on soft measures produces economic benefits of £10 or more in congestion savings alone.[298] Travel plans, for instance, typically reduce commuter car driving by up to 30% in the workplace, while school run traffic can be cut 15% or more by a travel plan.

Sometimes, the smartest choice is not to travel at all. Telecoms open up a whole world of possibilities for reducing the number of total journeys, especially business trips. Modern tele- and video-conferencing facilities save money that is otherwise wasted in lost productivity and travel costs. In a survey of business travellers, half said videoconferencing would be a preferable alternative to their trip. Teleworking reduces the number of home-work journeys and opportunities for home-working are generally welcomed by employees.

Smarter choices case studies

Good quality workplace travel plans can reduce the number of cars driven to work dramatically, and nearly double the proportion of commuting trips taken by bus, train, bike or on foot. Success rates are highest where enabling measures, such as the provision of bus services or a lift share facility, are backed up by financial incentives or parking management. The telecoms company Orange, for example, reduced the proportion of staff driving to work in its central Bristol office from 79% to 27% following adoption of a work travel plan involving parking restrictions, a lift share database and company bus service.

Local authorities implementing school travel plans report subsequent reductions in car travel of between 10 and 30%. There are a number of ways to get children safely to school without the use of a car, including the use of 'walking buses' supervised by parents, road safety education and dedicated school buses. School travel plans reduce peak-hour congestion, improve road safety near schools and encourage children to exercise.

Teleworking is another option with tremendous potential for reducing commuter traffic. The proportion of employees working from home at least some of the time has increased dramatically thanks to broadband internet, and in 2003 included 14% of the labour force – double the number for 2001. BT, appropriately enough, has been at the forefront of the home working trend, and has seen the average car distance travelled per week fall by 186 miles for each teleworking employee. Home workers have access to a technical advice team and online chat forum which recreates some of the social atmosphere of a conventional office.[299] BT has been able to reduce its office space and running costs in the knowledge that part of the workforce will be working remotely at any one time. The company has also replaced substantial amounts of business travel with teleconferencing, avoiding more than 860,000 face-to-face meetings last year and saving at least 97,000 tons of carbon emissions.[300] BT estimated that it saved £238 million as a result thanks to travel cost and time savings.

Source: DfT (2005) except where stated otherwise

Although smarter choices are part of the official sustainable transport guidance, they remain in the aspirational category rather than on the practical to-do list. Among local authorities implementation is

[298] DfT (2005) Smarter Choices - Changing the Way We Travel
http://www.dft.gov.uk/pgr/sustainable/smarterchoices/ctwwt/
[299] BT (2007) Personal communication
[300] University of Bradford and SustainIT (2007) Conferencing at BT

held back by lack of political support and appropriate funding streams, skills shortages and poor integration with traditional infrastructure projects. In a high uptake scenario, smarter choices could reduce peak urban traffic by 20% within the next 10 years.[301] As a cost-effective means of reducing congestion and emissions, these measures should receive better policy support, instead of being treated as unworthy of serious consideration.

An incoming Conservative government should therefore require travel plans to be made for all new developments, with outcomes-based targets for reduced car trips. In addition we would recommend the use of fiscal measures to incentivise smarter choices including workplace travel plans and more widespread use of 'virtual' travel through telecoms.

We note the success of the sustainable transport charity, Sustrans, in pioneering Safe Routes to Schools, which aim to enable more young people to walk and cycle. SRS plans typically involve collaboration between local authorities, school staff, pupils and parents. Potential dangers during the journey to school are resolved, for instance by creating a cycle lane or installing new crossings over busy roads. The school is encouraged to provide enabling measures such as a cycle storage and training. Schools may involve parents, pupils and the local community in delivering a sustainable travel plan. In light of the significant health, environmental and traffic flow benefits of cycling or walking to school, we recommend that all Local Education Authorities are required to produce a SRS strategy for every school, primary or secondary, in the UK. They should also insist that no school is allowed to refuse to harbour bikes on its premises. Some still actively discourage cycling because they deem it dangerous, or because they think that bikes are a nuisance, occupying space in the playground.

8.3.2.2. Walking and cycling

Despite strong anecdotal evidence to the contrary, official statistics show that the number of trips individuals take by bike and on foot has fallen. The national average conceals areas which have successfully increased levels of cycling and walking and walking remains first choice for very short trips, with three quarters of journeys of less than one mile completed on foot. Even at this distance, over 20% of trips are completed by car. The average person now completes half the number of cycle trips recorded in 1985.

The many social and environmental benefits of walking and cycling have been catalogued for years, most recently in terms of averting the contemporary crises of environmental damage, congestion, and obesity. The wider role of these 'soft modes', walking in particular, has been promoted as a means of bringing about an urban renaissance, in which streets become pleasant places to walk, meet and talk.[302] It is also argued that small schemes to promote walking and cycling might reduce congestion more cost-effectively than road-building or national road user charging.

Nor is analysis lacking upon the reasons for the relative decline of cycling and walking, which is attributed directly to car-based land-use planning. The creation of dispersed shopping, work and leisure centres is the opposite of the clustered, high density local facilities most conducive to non-motorised transport. In road design, cyclists' and walkers' needs are often considered as an afterthought. The policy recommendations in Section 8.2. should go some way to restoring a more equitable framework for choosing between cars and other modes.

No-one is against cycling or walking, but like smarter choices, soft modes usually rank lowly on priority lists for local authorities that deliver transport planning (some positive exceptions are described in box below). This is exacerbated by competition for transport funding between cycling and

[301] DfT (2005) Smarter Choices - Changing the Way We Travel
[302] House of Commons Environment, Transport and Regional Affairs (2001) Walking in Towns and Cities http://www.parliament.the-stationery-office.co.uk/pa/cm200001/cmselect/cmenvtra/167/16702.htm

other schemes, and by weak support from other stakeholders with an interest in cycling, particularly health and education authorities.[303]

Best practice examples for cycling[304]

In London, cycling increased by over a fifth between 2003 and 2004. Enabling factors included the sheer volume and relatively slow speed of traffic in the capital, the introduction of the congestion charge, and improvements in cycling infrastructure.

In York the opening of the Millennium Bridge with cycling facilities in 2001 led to an increase of 17% in the number of cyclists crossing the river; and in Hull, 14% of journeys to work are made by bike thanks in part to speed management policies adopted by the local authority.

All these schemes involved improving the integration of cycling into wider transport policies, which was achieved through a range of measures including road-space allocation, dedicated cycle ways and measures to limit demand for private cars.
Source: DfT (2005)

At around £1 per head per year, cycle spending in England still lags behind Continental European cities that have successfully increased cycling with sustained expenditure of around £5 per head per year.[305]

In this context, the formation of a new independent expert body, Cycling England, in 2005 to promote cycling is a positive development. The model of involving several stakeholder groups, including health, education and culture, is promising, as is the decision to work intensively with highway authorities to develop a number of Cycling Demonstration Towns which in turns can act as exemplars of best practice.[306]

This leads us to propose that walking and cycling should be given higher priority in central government guidance to local authorities. Cycling England should be given a fair chance to achieve its objectives including the dedication of extra financial resources. Sustainable modes should be given specific funding priority. Government should work alongside professional bodies and voluntary organisations to disseminate best practice, including the marketing of walking and cycling, and their incorporation into travel plans.

The use of bicycles could be further extended, particularly for older people, by the electric bicycle that has been much improved, particularly in the Netherlands. The present law is still confusing and an incoming Conservative government should clarify it so that all electric bicycles, including the 'twist and go' variety, should be classified as bicycles and not as motor vehicles. It would be reasonable to place a limit on the power delivered so that it closed off a possible loophole but the present rules are unduly prescriptive and appear to include some such bikes but not others. In the countryside these significantly improved products might well provide an alternative to the motor car for some travelling shorter distances to work and a number of major companies are at present considering using them as part of their travel plans.

Because of the lack of coherent land use planning, the UK's urban centres have become excessively car dependent compared to elsewhere in Europe. Improving public transport to a standard where it offers an attractive alternative to the reliability, comfort and convenience of a private car makes

[303] DfT (2005) Delivery of the National Cycling Strategy – A Review
[304] DfT (2005) Delivery of the National Cycling Strategy – A Review
[305] DfT (2005) Delivery of the National Cycling Strategy – A Review
[306] Cycling England website: Demonstration Towns
http://www.cyclingengland.co.uk/demotowns.php

common sense. This will also include better facilities for pedestrians and cyclists, and stronger on-street measures to help buses beat congestion and reach destinations on time.

There are many ways in which promoting urban cycling can be imaginative, appealing and surprisingly cost-effective. Through the "Velib" initiative, Paris has recently introduced more than 700 pick-up/drop off points where sturdy easy-to-ride cycles can be rented free for the first half hour and for very little thereafter and then dropped off at any of the other 700 points. The scheme is commercially underwritten and follows the example of Lyon, where J C Decaux sponsored a scheme in 2005 to deploy 2000 cycles in 175 pick up points. Each bike is used about 15 times a day. The result is not only low cost, but has led to a huge increase in cycling, sparking interest and enthusiasm among those perhaps previously unwilling to make the change.

We strongly recommend the introduction of a Paris-style 'Cyclocity' scheme in British cities where hitherto there has been a distinct lack of imagination in this area. There is no reason whatever why it could not be just as successful here.

We also advocate much more active support of pedestrianisation within central government guidance to local authorities. Areas such as the Marais in Paris show the potential of car-free initiatives for enhancing the urban environment by reducing pollution while increasing accessibility and safety. In the UK, the centre of York is largely pedestrianised which, despite early scepticism, has resulted in widespread popular support and improved foot-fall for retailers. Over one million people visited Oxford Street and Regent Street during London's largest ever traffic free day in 2006. The sensible limitation of vehicular access to areas of the West End in daylight hours would be good for tourists and traders alike, whilst allowing deliveries to be made overnight. We strongly encourage the next mayor of London to implement such measures.

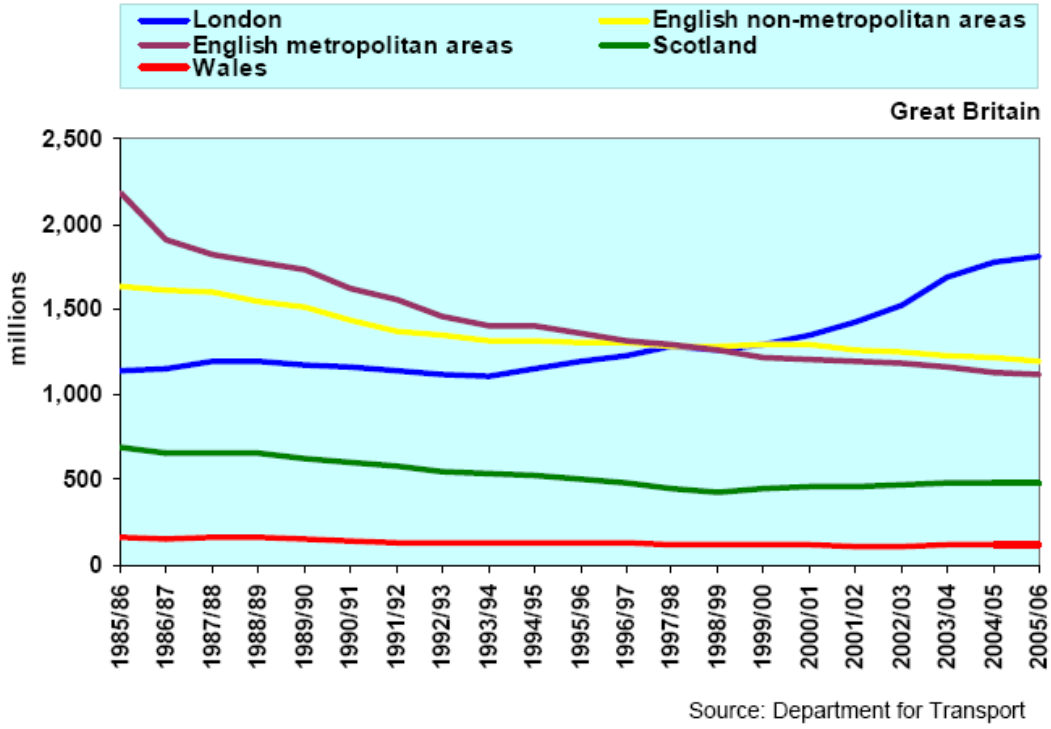
8.3.2.3. Buses

Buses are the most accessible, and versatile form of public transport, servicing a wide variety of journeys. They reduce rush-hour traffic and are sometimes the only form of transport available to people living in more dispersed communities.

Although national investment in bus services has increased, the number of bus passenger journeys declined sharply between 1985 and 2005 (see Figure 8.4.) as car ownership increased. This contrasts to London, where bus patronage rose 59% over the same period.[307] However, even in light of the decline, in 2004, the total number of bus journeys nationwide was more than double the combined figure for national rail, light rail and London Underground.[308]

[307] DfT (2007) Transport Trends
[308] Confederation of Passenger Transport (2006) On the Move
http://www.cpt-uk.org/documents/CPT%20Brochure%20NEW.pdf

Figure 8.4. Local bus journeys by area



Source: DfT (2007)

The decline in bus patronage outside London is due to increasing car ownership combined with the absence of the kind of congestion from which London suffers. This means people are comfortable to commute by car, workplace parking is relatively easy to access. A further issue is that land-use practices have taken daily journeys – to school, work or shops – beyond the local area, making destinations harder to connect by bus.

These are separate issues from the management of bus services and the deregulation initiated by the 1985 Transport Act, enabling 'on the road' competition between any bus operator licensed by independent Traffic Commissioners. Of itself, deregulation provides a sensible framework for running the bus industry, and competition has led to more rapid renewal of the bus fleet as well as a more efficient costs base.

London is a special case, with Transport for London tendering for bus services in a situation of regulated competition. The capital's high levels of bus patronage are sometimes used as an argument for re-regulation, but regulatory structure is not actually the reason for this success. Spending on buses per capita in London is almost treble that in other metropolitan areas, while the sheer volume of passenger journeys supports high-frequency services.[309] Moreover, there are active disincentives to car use, including the high price and limited availability of off-street parking. Bus lanes and other priority measures have proven the key to increasing patronage in the capital and elsewhere (see box below). We do not believe that the people of London are inherently more willing to use public transport than their fellow citizens in other areas. They are not making a moral or political judgement when choosing to travel by tube or bus. They are simply employing the mode of transport which is so often significantly cheaper, faster and less worry than travel by private car. As and when other UK urban centres are similarly congested the appeal of public transport will increase exponentially.

[309] House of Commons Transport Committee (2006) Bus Services Across the UK

What makes a good bus service? Case studies of increasing patronage

Buses are sometimes perceived as a 'last resort' option, taken only by people with no other choice. This is not true for London and a growing number of other towns such as Brighton and Hove, where car ownership has declined as a direct response to good public transport facilities.[310] In other words, people who are able and can afford to run a car are choosing to take the bus instead. But to inspire such trust, bus services must be frequent, reliable, accessible, hassle-free and offer good route coverage. Achieving these objectives is not a matter of re-regulation. It is much more about land-use planning and other enabling measures that enable the bus to reach its destination quickly and on time.

Increases in bus patronage are frequently related to the introduction of effective bus priority measures. The section describes a number of successful case studies.

In York: A package of bus priority measures designed to alleviate congestion in the historic city centre mean that journeys are now up to 12 minutes faster by bus than by car, contributing to a 50% increase in bus use since 2000.

In Leeds: Bus patronage has increased 5% thanks to dedicated road space for buses, bus stop enhancements, investment in new vehicles and improved timetable information.

In Brighton and Hove: A good working relationship between the local authority and bus operator has provided a framework for investment in bus lanes, park and ride schemes and prioritised traffic signals. Town centre traffic has decreased 10% over three years and bus patronage is growing at 5% per year.

In Cambridge: New park and ride sites, traffic light priority and bus lanes have contributed to a 70% patronage growth in the city. A new fleet of low-floor buses have been branded and proactively marketed to potential customers.
Source: Confederation of Passenger Transport (2006) On the Move

In England's six largest conurbations, Passenger Transport Executives plan, procure and promote bus services. They are responsible to Passenger Transport Authorities made up of representatives of local councils. However, the relationship between local authorities and bus is often poor. Local authorities are reluctant to invest in supporting infrastructure for the use of operators who are perceived to be driven by short-term commercial motives. Likewise, operators may be reluctant to invest in new buses, new routes, or more frequent services if local authorities do not commit to infrastructure measures.

We recommend that Bus Quality Partnership arrangements offer a useful framework for improving this working relationship. Under such a partnership the local authority agrees to provide a minimum standard of on-street bus priority and the bus operator commit to minimum standards in terms of the vehicle emissions, DpTAC specification and minimum frequencies with that agreement monitored by the Area Traffic Commissioner. The Commissioner would then ensure that only operators offering the same or superior service quality and vehicles would be able to register services on the nominated route.

[310] Goodwin, P (2007) Trams, Cars and the Process of Gentrification. Local Transport Today 07/06/07

We therefore propose that an incoming Conservative government should replace the two-tier model of Passenger Transport Authorities and Executives with a less politicised single body, a Metropolitan Strategic Transport Authority. It would be invested with new powers enabling it to make highways decisions related to increasing bus patronage and restraining demand for car use. These MSTAs should extend beyond the six existing PTE areas to cover travel-to-work areas for all multi-authority conurbations.

It is important, too, to give bus and train regulators the remit to insist upon interoperability of tickets and integrated timetabling. They should also have the power to require public transport operators in the local area to invest in a common advertising and marketing budget designed to increase public transport ridership. Simply providing visitors with easily understood and widely available explanations of fares, how to pay them, whether payment is on or off the bus or train, and how oyster or similar systems work can do much to increase the use of public transport.

Poor information provision and the lack of coordinated schedules and tickets are frequent complaints about buses, and public transport more generally. There is no justification for Office of Fair Trading rules that preclude through-ticketing and coordination of bus service schedules.[311] The normal competition regime should be adapted where it impedes the development of integrated transport services of benefit to the travelling public. We also suggest the introduction of regulation to ensure mandatory through-ticketing and coordinated schedules between public transport modes.

Further, the efficiency of existing information delivery is low. People tend to use only the bus services they already know about, and are not actively encouraged to try new routes. This is the classic opportunity to develop the use of known technology. Interactive travel information provided at bus stops could overcome this knowledge gap, allowing customers to plan their journey and identify the cheapest or quickest routes. It should be a feature of all urban transport plans, not least because in many areas private sector sponsorship will underwrite the costs.

8.3.2.4. Transport and accessibility

Access to good quality public transport is particularly important for households without a car. In 2005, one quarter of UK households did not have access to car, rising to above 30% in metropolitan built-up areas.[312] Some households have chosen not to own a car. This is particularly true in cities where frequent, high quality public transport services offer a genuine alternative, and where work, home, family and leisure activities are clustered nearby. These can perhaps be described as the 'willing' non-car owners. Their number will increase when effective measures to provide better connectivity without the use of private cars become more widespread.

In rural or suburban areas, however, it is a different story. Rates of car ownership are higher than average – only 11% of households do not have access to a car – and it can be inferred that these rates are so high precisely because few practical alternatives exist to the private car. Indeed, a higher percentage of rural households own two cars or more – than no car at all. Far from opting out of car ownership by choice, significant proportions of non-car households in rural or suburban areas are unwilling or unable to run a car due to age, disability, driving bans, or a simple lack of affordability.

Survey data backs this up, indicating that car availability is strongly related to income, with over half of households in the lowest income quintile lacking access to a car, compared with one in ten of those in the highest quintile. Single parent households are four times less likely to own a car than households with at least two adults. Not only are older people less likely to own cars, they are also more likely to

[311] House of Commons Transport Committee (2006) Bus Services Across the UK
[312] DfT (2006) Transport Statistics Bulletin: National Travel Survey

experience problems with using other modes. 45% of people aged over 70 report difficulties in walking or catching buses. The availability or otherwise of a car has important ramifications for travel behaviour. Members of car owning households make 45% more trips per year than their non-car owning equivalents, and travel over two and a half times as far.

These findings, of themselves, argue strongly in favour of the types of land-use planning and fiscal reforms outlined in Sections 8.2 and 8.4, which seek to alleviate the negative impacts of car dependency. Such policies are socially progressive, since they would begin to close the various equality gaps associated with current transport pricing and access, by encouraging the use of and investment in walking, cycling and public transport.

Although buses are a lifeline for non-car-owning households in rural and some suburban communities, there are inherent difficulties with providing conventional services in these areas. Low population densities, lack of demand peaks and little patronage of existing services are a poor fit for commercial operators. As a result, some 16% of all bus services are subsidised through the Rural Bus Subsidy Grant, which disperses around £50m a year[313] on top of local authority support which produces £200m from council resources.[314]

This situation raises a number of questions, starting with what alternatives are on offer to conventional bus services in low density areas, and how these alternatives are supported. Dispersed populations tend to need demand-responsive transport – this means that operators need the flexibility to vary service routes and timings according to passenger needs. Different types of demand-responsive transport are described in the box below. In many cases such services are not attractive to commercial operators, and rely upon the voluntary sector.

Examples of sustainable travel in areas of low public transport demand

Many types of demand responsive transport are already at work in the UK and abroad. The flexibility of such services can be varied to suit local needs. In Wiltshire, for instance, the 'Wigglybus' operates hourly services along a core circular route, but will divert off the main route in response to passenger requests, which are handled through a call centre. The driver's route is then calculated, and waiting passengers are given a 'time window' of 10 minutes or so in which to expect their bus.

In some areas, transport services do not operate at all unless someone has phoned to request them. This is the case for many of the bookable shared taxi-buses in Germany, Denmark and the Netherlands, which run on bus routes in the evening and at weekends when conventional bus services are not available.

Another model is to time the arrival of a demand-responsive bus or taxi-bus to connect with conventional public transport on major routes, as is the case in some parts of Germany.

Besides the provision of more innovative public transport services, a host of other factors can play a supporting role in enabling more sustainable travel patterns to evolve in rural communities. Many of these, including the integration of public transport ticketing and timetabling, are equally relevant in the town or the country. Sympathetic road design involving changes to traffic management can make cycling or walking a safer, more attractive option, while efforts to reduce travel demand, for instance by encouraging people to 'buy local' can have positive side-effects for retailers and other businesses in the community.

Sources: Transport 2000 (2003)[1]

[313] DfT website (2007) Introduction to Bus Grants
http://www.dft.gov.uk/pgr/regional/buses/busgrants/introductiontobusgrants

[314] House of Commons Transport Committee (2006) Bus Services Across the UK

Although community transport has huge potential for providing accessible, affordable transport for socially vulnerable groups, its development is held back by regulatory small print and lack of revenue support. The Government has recently endorsed a series of recommendations offered by the community transport sector, which would relax the most burdensome licensing restrictions concerning the registration of community transport vehicles and payment of drivers.[315] We welcome these moves, and call on a future government furthermore to establish a subsidy appraisal framework that fully captures the benefits of community transport, including modal shift and social inclusion. As the Commission for Integrated Transport has argued, demand-responsive transport can offer very good value for money compared to other options, and support for rural bus services should reflect this.[316]

To take this further we recommend implementing changes to Sections 19 and 22 of the Transport Act, simplifying the process for awarding permits to community transport services. We also recommend updating the appraisal framework for Rural Service Operators Grant to capture the full benefits of community transport. The better regulation task force should review the reglations surrounding taxi licensing and make recommendations for a significant reduction in the red tape now surrounding it. We recommend that an incoming Conservative government should seek the support of the ABI and individual insurance companies to establish a new simplified insurance regime that would allow drivers to provide informal taxi services under their normal insurance cover.

The very promising growth of car services like Streetcar and City Car Club, which make vehicles available to members as and when they need them for a modest charge has made it increasingly easy to live in a city like London without owning a motor car. We would hope that an incoming Conservative government would encourage other local authorities to be prepared to provide the small amounts of seed money that would make such schemes viable in much smaller communities. It is a very simple way to take cars off the road, even if it merely ensures that families do not buy a second car. As part of an imaginative town transport scheme it could mean many more individuals and families giving up their cars.

8.3.2.5. Passenger railway structure and management

The last decade has seen strong growth in the use of rail. In 2004, 42 billion passenger kilometres were travelled by rail, an increase of nearly 50% from 1994. Since then the total distance of train kilometres operated has increased by a third. The strongest growth has been on London and South East commuter routes, followed by regional services and long distance. Overall, Network Rail expects demand to grow another 30% in the next ten years.[317] The average person now takes 16 trips by surface rail per year, travelling an average 32 miles each time.[318] This increase in patronage means there are now serious capacity constraints on the network, as indicated by Figure 8.5. Delays and overcrowding have become endemic along key cross-country routes and approaches to London.

The very success of the private train operators in attracting record numbers of new passengers has ironically created the new challenge of meeting the need for even greater investment to unlock capacity. This investment takes two forms – the first targeted upon localised improvements such as gauge separated crossings and bypasses of busy track sections, the second upon the creation of discrete new rail corridors.

We do not attempt a comprehensive critique of the structure and performance of British railways in this report but some commentary on perceived weaknesses in the current structure is pertinent. The length and structure of passenger rail franchises awarded to train operating companies (TOCs) has

[315] DfT (2006) Putting Passengers First
[316] CfIT (2004) The Bus Industry – Encouraging Local Delivery
[317] Network Rail (2006) Business Plan 2006: Delivering for our Customers http://www.networkrail.co.uk/documents/3127_Business%20Plan.pdf
[318] DfT (2006) Transport Statistics Bulletin: National Travel Survey

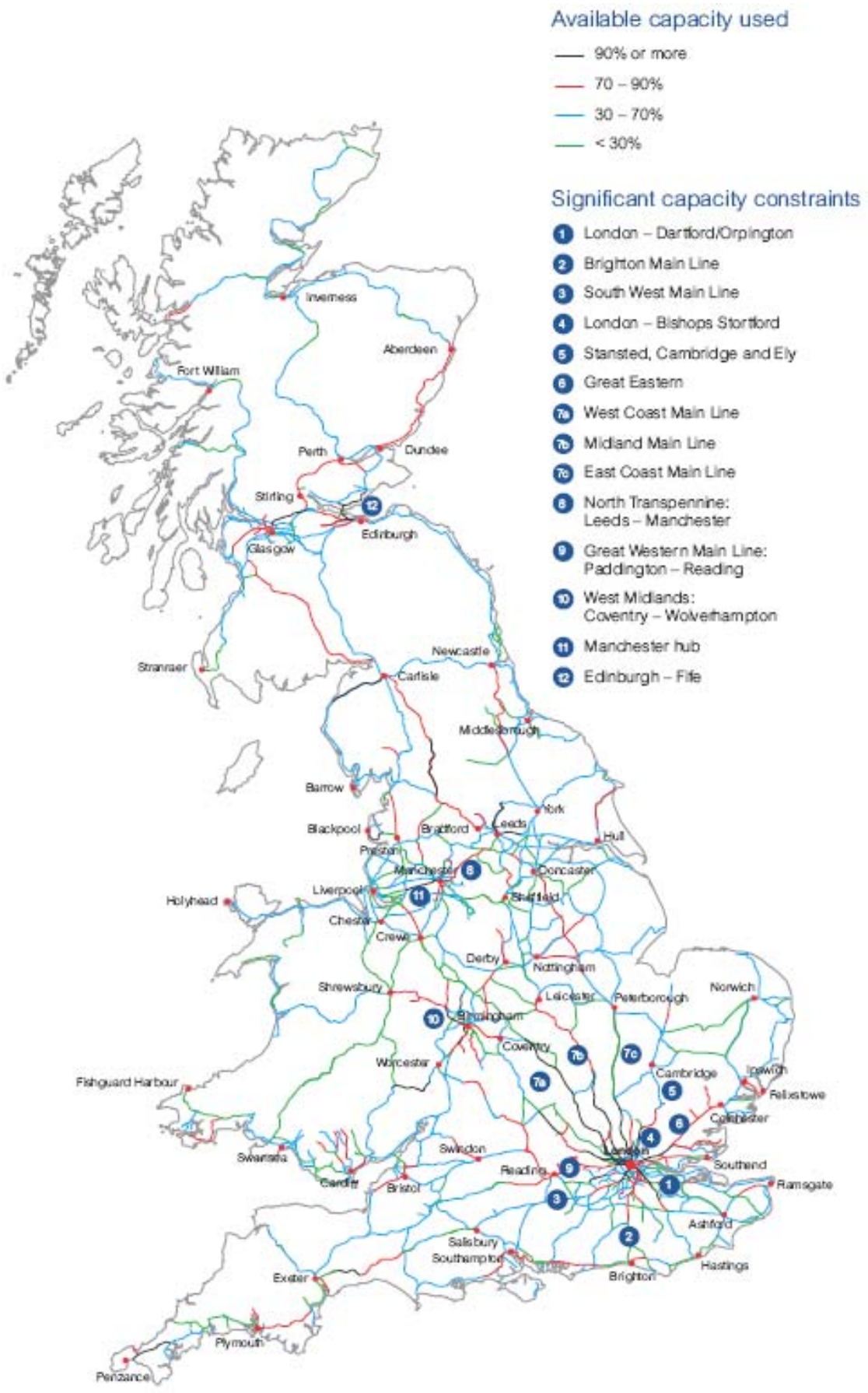
drawn particular criticism over the years. It is widely agreed that short franchises discourage investment in the railway and increase the costs of delivering services. We recommend longer franchises, ideally of between 15 and 25 years in length, incorporating the right to terminate poorly performing contracts at specified review dates. We would expect then to get faster decisions on redevelopment of existing facilities as well as on investment in new capacity. In order to streamline the whole process we recommend that a recreated Office of Passenger Rail Franchising (OPRAF) should take on powers currently held by Department for Transport so as to relieve the Department of the responsibility for detailed commercial and operational negotiations, and free to concentrate on the broader strategic issues of an expanding railway.

One of the biggest tensions within current railway management is the structure of the relationship between Network Rail and the operators. It too often inhibits cooperation and creates perverse outcomes. The interests of train passengers, franchise operators, and infrastructure provider must become better aligned. There is a case for stronger vertical integration on regional networks, albeit on a phased, evolutionary basis. This could foster a new climate of trust between rail stakeholders and offer tangible benefits through greater flexibility, improvements in reliability and transparency, and better planned investment.[319] We therefore recommend that an incoming Conservative government should explore the potential of vertically integrated railways organised on a regional basis, in order to align the interests of rail stakeholders, and increase value for money from the rail network.

[319] House of Commons Transport Committee (2006) Passenger Rail Franchising

Figure 8.5. Capacity utilisation index map

Source: Network Rail (2006)



8.3.2.6. Rail capacity investment

The vast majority of the money currently spent on the railways maintains existing routes and services. As Figure 8.5. shows, there is an urgent need to enhance capacity on a number of rail corridors to accommodate substantial additional passenger growth.

Lower cost enhancements include changes to signalling and timetabling to increase train frequency on different sections of track. At higher cost, individual services can carry more passengers with the deployment of longer trains and platforms. At the top of the price range, capacity can be increased by upgrading existing routes or developing new ones.

The UK lags behind many other European countries in its provision of high speed rail. Figure 8.6. compares the length of high speed rail routes (classified as over 250km per hour) in various countries.

Figure 8.6. High speed rail capacity in Europe, by route length (kilometres)

Country	HSR in use	HSR in development	Total HSR
France	1,573	320	1,893
Spain	941	644	1,585
Germany	793	88	881
Italy	248	618	866
Belgium	120	77	197
Netherlands	0	120	120
Britain	74	39	113
Total HSR	3,749	1,906	5,655

Source: GreenGauge 21 (2006)

It is difficult to argue that our failure to invest in high speed lines has been the result of any profound judgement apart from the natural unwillingness of successive Governments of both political persuasions to invest in infrastructure. In the recent agreement between the European rail companies to exploit the opportunities for long-distance fast travel, Britain signed up with 1/50th of the capacity of the grouping. The published map of the connections illustrated exactly where the high speed lines in the UK were needed. As one would expect, the East and West Coast Lines figure prominently. These are the very routes which would enable us to provide an alternative to domestic flights, with their high carbon emissions, noise, and other environmental impacts upon local communities. High speed rail services between popular hubs should be developed to a level where they offer a reasonable alternative to aviation, as well as to car use. This means competing on time, as well as cost. It currently takes around 5 hours to travel from London to Glasgow, and 2.5 hours from London to Leeds. High speed rail could reduce these journey times to 2.75 hours and 1.5 hours respectively.[320]

The fact that capacity constraints already exist on the west and east coast main lines also argues for step change, rather than incremental improvement in rail capacity, as does the objective of rebalancing patterns of economic growth. An incoming Conservative government therefore needs to review rail capacity, investing to relieve key passenger and freight bottlenecks, and to develop high speed rail links between the North and South after a thorough but rapid review of priority destinations and suitable technologies.

8.3.2.7. Rail fares and ticketing

The car usually appears cheap when we compare the cost of travel because we include only the cost of fuel and forget the heavy costs of buying and maintaining it in the first place. Rail arguably loses out because we are not prepared to look for the cheapest prices in the way that we do when we plan to fly.

[320] GreenGauge21 (2006) Manifesto: The High Speed Rail Initiative

We resent very high differentials between off-peak, advance rail tickets, and peak-time, walk-on rail tickets. Yet that is precisely the model used by low cost airlines which we readily, if illogically, accept. This is partly the product of historical perception. Air fares were originally very high and the fact that they can now be so very low is seen as a bonus. We think of the car as a necessity, so we discount the overheads anyway. Add to that the transparency of air fares, the contrasting impenetrability of rail fares, and the preference of most people to know nothing of the cost of running their cars, and it is no wonder we make travel decisions without reference to the real cost.

A bigger problem even than price is the overly complex structure of rail fares, with ticket names, conditions and restrictions varying between different operators. According to rail consumer watchdog Passenger Focus, the National Fares Manual for 2005 ran to "over 70 fare types, governed by 760 validity conditions". This structure urgently requires simplification, to maintain growth in rail demand and help passengers source the best deals. We therefore propose that the Rail Regulator should be given a remit to demand the simplification of rail ticket structure, and to insist upon the interoperability of rail tickets as well as integrated timetabling.

Other simple changes, such as the inter-availability of concession cards, could make a significant difference. People over sixty have to apply separately for their Railcard and their Freedom Pass for London buses and the Tube. A single photo card, akin to the driving licence, issued conveniently and capable of universal use would increase public transport use among that generation, just as the Oyster card has among regular users in London. Similarly, people are keen on the airlines' frequent flyers programmes. Modal shift to rail would be encouraged by a similar system, already used by Eurostar, particularly if it included access through the recently announced European rail link-up to travel to continental destinations.

8.3.2.8. Road freight

Freight movement in the UK is dominated by road transport. It accounts for 64% of all goods moved and has increased 76% between 1980 and 2005 to reach 163 billion tonne kilometres. As a result of changes in distribution patterns and the types of good moved[321], the average length of haul has also increased so that, at 87 kilometres, an average freight payload is driven one third further now than in 1980. Heavy goods vehicle travel has increased 48%. The number of HGVs in the UK has remained fairly stable at around 400,000, although the average vehicle is now much larger.[322] Light van traffic, of which only a proportion is involved in goods movement, has more than doubled since 1980, to 63 billion vehicle kilometres.

Carbon emissions per tonne kilometre vary significantly between vehicle types and assumed loadings. Trucks of less than 10 tons produce up to five times more carbon than the most efficient large HGVs, which are only slightly more polluting than freight trains.[323]

Changes in supply and delivery patterns have driven the growth in road freight. Patterns of food transport, which accounts for one quarter of HGV kilometres in the UK[324], have altered dramatically. The centralisation of food supply and sales means that most goods' distribution is based upon regional centres and just-in-time delivery. Given that transport is typically only a small percentage of total supply chain costs, it is not surprising that lorries are increasingly used as 'warehouses on wheels'. However, the carbon effects are complex and efforts to reduce so-called 'food miles' in isolation may do little to increase sustainability in the food system as a whole. Nonetheless, road freight now

[321] DfT (2007) Transport Trends
[322] DfT (2007) Transport Trends
[323] CE Delft (2003) To Shift or Not to Shift
[324] Defra (2005) The Validity of Food Miles as and Indicator for Sustainable Development http://statistics.defra.gov.uk/esg/reports/foodmiles/execsumm.pdf

accounts for around 8% of UK CO2 emissions.[325] It is also associated with other environmental impacts including noise and air pollution and economic costs including congestion and damage to road surfaces.

Would a 'food miles' label help reduce carbon?

The concept of 'food miles' – the distance food travels from the farm to the consumer – has come to epitomise popular concern over the sustainability of globalised and industrialised agriculture. The appeal of food miles as a target for environmental censure lies in its apparent simplicity. After all, transport is a visible source of carbon emissions and food miles have increased dramatically thanks to changes in agricultural production, distribution, and retailing. Food transport within the UK accounts for 10 million tonnes of CO2 per year. This figure nearly doubles if we include the ship, lorry, and plane miles taken to deliver produce to UK shores. HGV food tonne kilometres in the UK have risen 100% over the last three decades. Air freight, by far the most carbon-intensive mode of food transport, is increasing even faster.

If the carbon footprint of food systems fell neatly into step with 'low' or 'high' food miles, a labelling system based on distance travelled would be a welcome addition. However, the life cycle carbon emissions of any food product comprise a number of elements besides transport. Reducing food mileage can raise emissions in other parts of that life cycle. From a carbon perspective, it may be better to truck outdoors-grown tomatoes from Spain than to source them locally from heated glasshouses in the UK.

There are also complex trade-offs between short- and long-distance sourcing within food transport itself. Although the total weight of food transported in the UK increased by around a third in the 1990s, the total mileage driven to transport this food increased much less, thanks to the use of larger vehicles, fuller utilisation of lorry space, back-hauling, and other efficiency factors. Thus food travelling in large, fully packed lorries may clock up less transport emissions than for smaller vehicles travelling shorter distances. Transport mode is also critically important – apples shipped from New Zealand do not necessarily have a very different carbon footprint from those sourced from France by lorry. When the total carbon picture is examined, cut flowers from Kenya may cost the environment less than those from Holland.

As an indicator of sustainability, food miles capture too small a part of overall product life cycles to be truly representative. Developing any methodology for assessing food miles raises practical problems too. For instance, how far up or down the supply chain should a label go? Should it include emissions associated with customers driving to supermarkets, or with farm employees driving to work? There are also difficult ethical questions associated with moves to limit the food miles associated with agricultural exports from developing countries, where air freight of cut flowers or other perishables may constitute a key part of local economic growth.

None of this is to say that food miles should be discarded. As a tool of public engagement in climate change they have already proven their worth. The government should be supportive of attempts by the food industry properly to reduce its carbon footprint. The lead taken by Tesco, Pepsico, Innocent, and others to label products with their life-cycle carbon footprint has been followed by a comprehensive programme for the whole industry driven by the Food and Drink Federation. Cadbury's recent announcement of an imaginative plan to reduce their total footprint in absolute terms is an encouraging start to this initiative. The role of the Carbon Trust has been crucial in this process and, in our proposals for its future, we would want to encourage the extension of its programme, not least because it is able to ensure that standards produced here in the UK can be aligned with those developing elsewhere in Europe.

[325] Defra (2005) Sustainable Development Indicators.

An incoming Conservative government should continue to broaden the debate over food transport and the sustainability of the food industry as a whole, and, in doing so, seek the more holistic solution we outline in our Chapter on Food and Farming. It is there that we also discuss the measures that government should take to reduce its own contribution to the carbon footprint of the food industry.

Just as we have seen in discussing passenger transport, the development of more sustainable freight distribution relies on a variety of measures that depend on the availability of lower carbon modes, the relative pricing of these modes, and the shape of land-use planning decisions. The measures outlined in the Sections below and in Section 8.4 should increase the attractiveness of alternatives to road freight. Here we propose, more narrowly, that government could also play a role in encouraging the use of technologies that reduce the empty running of goods vehicles, which currently account for one quarter of road freight mileage. It should, therefore, work with the industry to set up demonstration projects for optimising freight logistics through IT applications. These would, in particular, seek to maximise back-hauling by matching goods to spare freight capacity. A future government should also look again at the current restrictions on freight vehicles to see whether the balance struck between size, axle weight, and road wear is the optimum to deliver the lowest carbon footprint. Carbon now has to be part of every equation.

Besides climate impact, road freight has a number of other negative impacts on local environments, particularly in built-up areas. There are around 400,000 HGVs on British roads and many more smaller vehicles involved in freight delivery. Traffic hold-ups, noise and other inconvenience caused by freight movements are a common annoyance in urban centres, for residents and other road users alike. There is considerable scope to increase efficiency of urban freight deliveries through better-designed logistics, with benefits for business, congestion and the environment.

One promising model we would like to see followed up is the grouping of deliveries according to final destination. A Regional Distribution Centre (RDC) would allow large trucks to break bulk outside the city and transfer loads to smaller less polluting vehicles that make local deliveries to city centre locations much more efficiently in terms of cost, congestion and pollution. So if a retail chain needs to make deliveries to each of 20 branches across an urban area all the deliveries would now probably be made using one single HGV, stopping 20 times and getting emptier and emptier after each stop. An RDC plan would allow the HGV to stop just once.

We recommend the setting up of demonstration projects for optimising freight logistics through IT applications, to maximise back-loading by matching goods to spare freight capacity. We also recommend an exploration of policies for reducing urban freight mileage, for instance encouraging companies to amalgamate deliveries for each local area. On a trial basis, we recommend the introduction of Priority Vehicle Lanes (PVLs) which would be reserved for buses during commuting peak hours but used by freight vehicles at off-peak times to ease congestion.

8.3.2.9. Rail freight

There has been a 60% increase in total freight tonne kilometres travelled by rail between 1995 and 2005, largely thanks to increases in imported coal and the eastwards migration of European manufacturing.[326] Rail freight now accounts for 9% of all goods moved in the UK, and 10% of total train kilometres. The average freight train removes around fifty HGV journeys from the roads, and in 2005 rail freight removed some 1.2 billion lorry kilometres.[327]

Strong demand growth is forecast, but will require extra network capacity, particularly in cross-country corridors, on routes to the major ports, and in respect to freight interchanges between road and

[326] Network Rail (2006) Business Plan 2006: Delivering for our Customers
[327] Office of Rail Regulation (2006) National Rail Trends: 2005-2006 Yearbook

rail. The national infrastructure plans referred to in Section 8.2. should define priorities for rail freight investment, and the changes to railway structure recommended above should be used to deliver this capacity cost-effectively.

We are concerned by moves to transfer costs for freight-only lines entirely to freight operators, set in motion by the 2004 Future of Rail White Paper. This would represent a departure from the 2001 Freight Charging Policy, in which it was agreed that freight would pay variable usage charges – towards electricity costs, or to reflect the costs of track wear and tear – but would not contribute towards fixed common costs, the logic being that much of the freight network runs along passenger lines, that the fixed costs attributable specifically to freight trains are low, and that applying a mark-up could price some freight traffic off the network. We believe this logic still stands. Variable charges already account for around 15% of the cost base for rail freight, and we note the Office of Rail Regulation's concern that the additional charges proposed could damage the rail freight market.

We therefore propose that an incoming Conservative government should promote a wider interpretation of the ORR's statutory objectives, which at present are narrowly defined around increasing efficiency of network utilisation and ensuring non-discrimination between users. Ultimately, charges for rail freight must be considered with reference to enabling more sustainable freight distribution. The true competitor for rail freight is road freight, not passenger trains. It is this that should occupy the regulator whose remit should be changed to enable him to reflect this more mature view of competition and recognise his role in ensuring cost-effective carbon reduction.

8.3.2.10. Water freight

Over 95% of international freight traded with the UK travels by sea. Shipping is the least carbon intensive way of conducting international trade – and shipping and its related services are an enormously important part of the UK economy. Since 1980, UK international freight tonnage has increased 77% to 446 million tonnes in 2005.[328] Imports are growing faster than exports. Like international aviation, shipping emissions are not captured in the Kyoto agreement or recorded under national emissions inventories, and relatively few attempts have been made to study them.

Nevertheless, shipping has grown very fast as world trade has doubled in 25 years and we cannot afford to ignore its carbon contribution. The global fleet of 70,000 ships is estimated to produce around 4% of global carbon emissions, something of the same order as aviation.[329] Ships also produce large amounts of nitrous and sulphur oxides (NOx and SOx) – and are predicted to contribute more to EU inventories of these pollutants by 2020 than all other sources combined. The sulphur content of shipping fuel is around 27,000 parts per million, compared to just 10-15ppm for road fuels in Europe.[330]

We are therefore faced with an urgent need to reduce the pollution footprint of shipping. An immediate step would be to improve the quality of the fuel used to achieve environmental effects similar to those achieved by land-based vehicles. The lack of pressure from the public has enabled the shipping industry to continue to operate in ways which would be unacceptable on land. Yet the fact that the damage is done out at sea is irrelevant in terms of its effect on the climate. International shipping should be incorporated into the total of national emissions inventories as a matter of urgency. Such inventories would then become part of the basis used for policy-making.

[328] DfT (2007) Transport Trends
[329] Guardian (03/03/07) CO2 Output from Shipping Twice as much as Airlines http://environment.guardian.co.uk/climatechange/story/0,,2025726,00.html
[330] ICCT (2007) Air Pollution and Greenhouse Gas Emissions from Ocean-Going Ships

For this to be effective we have to tackle the problem of the international regulation of shipping which has not kept up with the demands of today. It has been convenient for far too many participants – governments as well as the private sector – to maintain a system that moves slowly and is often ineffective. A future Conservative government should take the lead in reform. First, Britain should make it clear that the International Maritime Organisation has a duty to strengthen emissions standards for international ships in line with readily available technology. The IMO should produce a programme that would reduce those emissions to levels comparable with the standards expected of heavy goods vehicles. In the meantime we should seek to take the necessary action to control emissions in European waters as shipping transports 90% of all trade by volume to and from the EU-25. An incoming Conservative government should work within the EU to ensure that bunker fuel standards are enforced upon all ports in the EU so the low grade, high emission fuel is no longer available. We should take heart from the work done by Maersk to prepare for the imposition of such standards and co-operate with them and other progressive shipping lines to produce the speediest and most cost-effective solutions to this problem.

We should not underestimate the institutional difficulties of this course. The international regulation of shipping has roots deep in history and systems designed for another age. The increasing measurement of carbon footprints will help. Supermarkets and other powerful retail chains should be encouraged to use their powerful influence over their supply chains to insist that goods should only be carried in ships meeting the highest emission standards. Major manufacturers who outsource in such a way that they are dependent on sea transport should insist similarly. At a time when shipping is booming, we do not underestimate the complications such a policy will bring. Nonethelesss a concerted effort, involving government, business, and NGOs, could well lead the IMO to take effective action. This would be the best solution and the commitment of the British government is crucial to its achievement.

There is no alternative to shipping for most intercontinental trade. Air freight is only an option for light-weight, high value goods and has extremely high environmental impacts – producing 10 to 60 times as much CO2 per tonne kilometre as other modes.[331] Britain could afford to take the lead by setting higher standards for our own ports if the competitive disadvantages were offset by a sensible reconsideration of our attitude to light dues where, for historical reasons, we charge significantly more than continental countries and shoulder burdens which should be shared. A future Conservative government should not duck this issue.

Carbon emissions from waterborne transport vary significantly between the type of vessel and its size. Large ships have the lowest emissions per tonne kilometre of any freight mode including rail, and around four times less than small, inland vessels. In other words, it makes environmental sense for the UK to maximise the distance that incoming goods travel by water before transferring to rail or road.

A number of port industry commentators have questioned the analysis underpinning current government policy, the thrust of which is to focus port development upon the South East.[332] Using data on the final destination of imported goods containers, the Bristol Port Company has concluded that only 21% end their journey closer to the South East ports than to regional ports in the Midlands, North East and South West.[333] This suggests that a sustainable distribution system would focus upon encouraging traffic through regional ports to minimise road or rail freight.

On the one hand, it is argued that developing port capacity for very large ships is futile beyond the South East – the rest of the country is not on a major international shipping route, and would be unlikely to attract very large vessels. On the other, the transhipment of goods from continental Europe

[331] CE Delft (2003) To Shift or Not to Shift
[332] House of Commons Transport Committee (2007) The Ports Industry in England and Wales
[333] Bristol Port Co. (2006) Memorandum to House of Commons Transport Committee

could see smaller vessels dispatched around the coast of the UK. From an environmental perspective, the transhipment option is more attractive. Again, the development of ports and supporting transport infrastructure should be considered as part of the infrastructure plans described in Section 8.2.

The lack of an integrated ports policy has been exemplified by the separate planning consideration of developments at Harwich, Thamesport, and Southampton. There is no place in the present system for the consideration of sustainability or for the development of ports and supporting transport links which aim as far as possible to minimise freight mileage travelled overland. This will mean a greater focus upon ports outside the South East than is currently the case and we urge an incoming Conservative government to instigate an urgent high level report on the contribution a ports policy ought to make to sustainability and the battle against climate change.

The carriage of freight by inland waterways is limited compared to many continental countries. The narrow gauge of our canals has made it more difficult. Nonetheless, we believe that there are opportunities to increase carriage by water and it is part of the remit of the new British Waterways to achieve this. In particular, the transfer of responsibility for the whole of the Thames to British Waterways should be accompanied by a remit to increase the use of the river for the carriage of freight.

8.3.2.11. Air freight

Although air transport carries less than 1% of total UK trade by tonnage, it accounts for about a quarter in terms of value. Typically, air freight carries electronics, flowers, and vegetables. Although there is an increasing number of dedicated freight planes, the majority of the freight arrives in the hold of passenger aircraft, and the fundamental economic model is to integrate passenger and freight on the same service so there is limited scope for measures specifically aimed at airfreight. Nonetheless, its importance is clear, given that aviation is up to 60 times more carbon-intensive than other freight transport. The measures described in Section 8.5 of this Chapter, particularly the application of flight charges based upon emissions rather than passenger numbers, should go some way to controlling growth in this market. The increasing determination of supermarkets and their suppliers to minimise their carbon footprint will have a further direct effect.

8.3.2.12. Conclusion

Carbon emissions from road transport continue to rise as the proportion of passenger and freight trips made by car or lorry increases, despite a headline policy objective of decoupling transport growth from emissions. The management, reliability and pricing of the rail and bus industries are often raised as barriers to modal shift, but the truth is more nuanced. Some structural change is certainly justified to improve strategic thinking, boost efficiency and draw through investment. But there is also a need to create conditions that enable the use of public transport, cycling or walking. This means managing demand for car use, allocating more road space to non-car users, and more sustainable land-use planning patterns.

The biggest change will be one of perception. The challenge of building a truly integrated transport system needs to be addressed at all levels – the direction of public funding as well as the total amount; the provision of supporting infrastructure as well as new buses and trains; the spatial distribution of travel destinations and the psychology of transport choices.

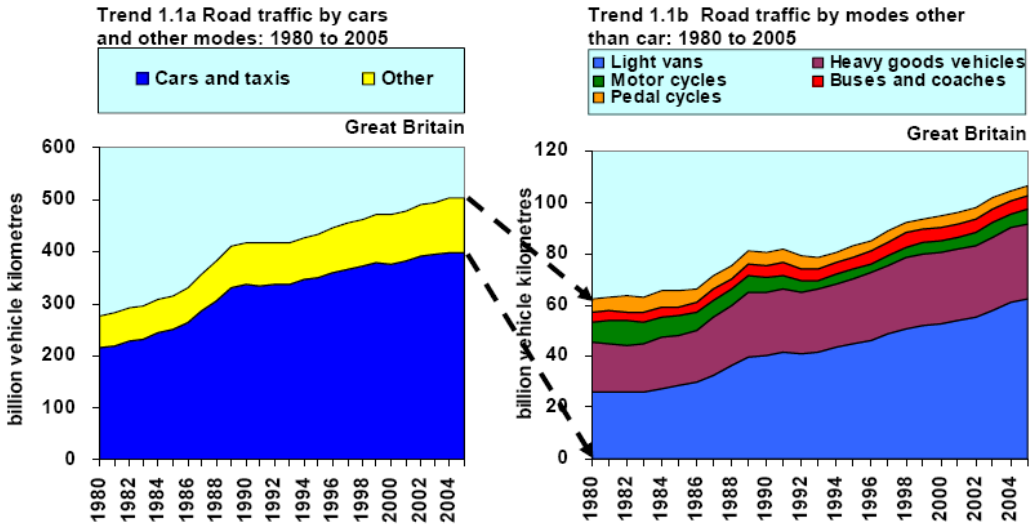
A future Conservative government should be marked by its broader understanding of the issues, its refusal to deal with transport in silos, and its willingness to be as innovative in the encouragement of children walking to school as it is in pressing the development of clean technology or lowering the emissions of trucks and buses.

Section 8.4. A Framework for Lower Carbon Motoring

8.4.1. Overview and objectives

The recent history of UK transport is characterised by an upward trend in the intensity of private motoring – as measured by distance travelled, time spent travelling, environmental impact, and congestion. The total distance travelled by road transport increased 82% between 1980 and 2005 to 504 billion vehicle kilometres. Four-fifths of that was car traffic. Between 1980 and 2005, the number of cars increased by 78% to 27.5 million and the average distance travelled is over 7,000 miles per person each year. Time spent travelling by car has increased to 235 hours per year. The proportion of trips made by car has risen to 64%, while the numbers of journeys by foot, local bus and cycle all fell.[334]

Figure 8.7. Growth in road traffic



Source: Department for Transport

However, the benefits of motoring are not felt by everyone – one quarter of households do not have access to a car either through choice or necessity. The old and the young are disproportionately disadvantaged by the loss of public transport occasioned by the growth in car ownership. The costs of car dependency are ever more obvious as measured in terms of carbon emissions and congestion, as well as in the less direct effects like the demise of local centres, the lack of healthy exercise, and the rising incidence of obesity.

Road transport is responsible for 24% of the UK's carbon emissions, a figure set to rise both in absolute terms and relative to other sectors. Cars account for four-fifths of this total and congestion is already estimated to cost the UK economy £15 billion each year in wasted time, rising to £22 billion by 2025.[335]

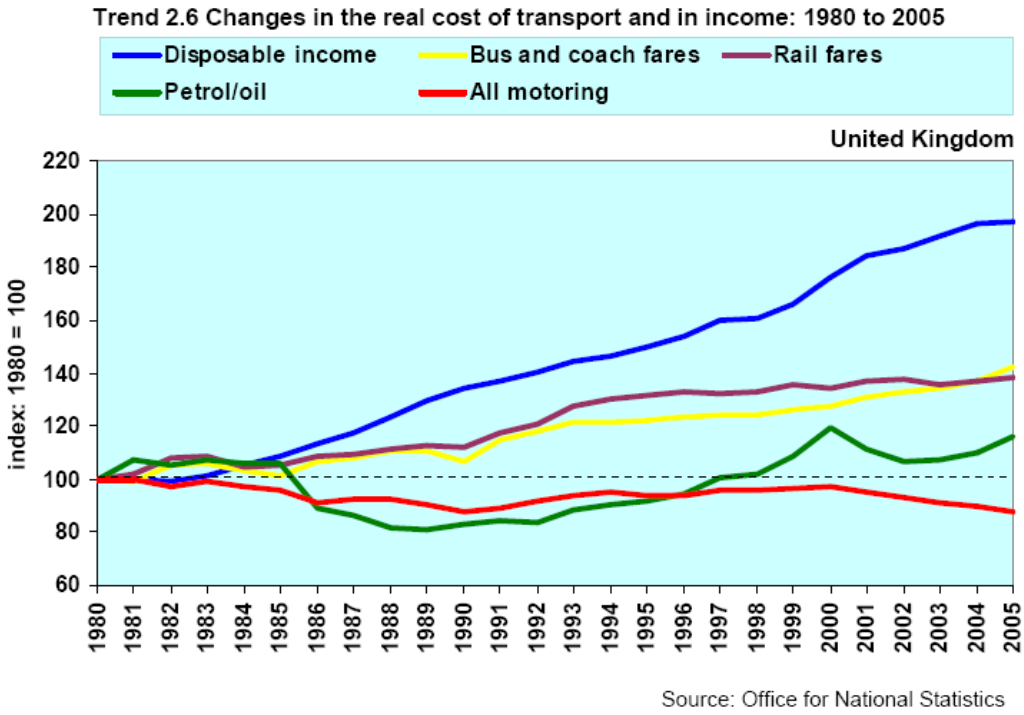
A majority of people believe government action is required to tackle transport emissions and congestion. Over half of people report urban congestion as a serious concern.[336] Nine out of ten agree that the government 'should do more to persuade people to buy more fuel-efficient cars' and over 60% say it 'should do more to stop people driving more polluting cars'. Over 40% disagree with the

[334] DfT (2007) Transport Trends
http://www.dft.gov.uk/162259/162469/190425/Trends_2006_FINAL_v5.pdf
[335] Blair letter to petitioners
[336] REF British Social Survey quoted in Trans Trends

statement that 'people should be allowed to use their cars as much as they like, even if it causes damage to the environment', although 30% agree.[337]

It is not surprising that there is both a high level of comprehension of the problem and a good deal of confusion about the solutions. The signals are confusing and the psychology complex. At its simplest, current pricing produces distortion. Real terms disposable incomes have nearly doubled since 1980, but in real terms the overall cost of motoring has remained at or below 1980 levels thanks to cuts in the cost of car purchase, insurance, and maintenance. Over the same period, bus and coach fares have increased 42% and rail fares by 39% (see Figure 8.8.).[338] Pricing apart, cities designed with the car in mind have made trains, buses, walking and cycling less attractive options.

Figure 8.8. Changes in transport costs



Many car trips could be completed by lower carbon alternatives. Section 8.3 explored some of the policies and investment needed to make these alternatives more appealing. The Section looks at using the tax system to slow down and ultimately reverse emissions growth in the road transport sector. This encompasses measures to reduce the carbon intensity of individual vehicles, as well as encouraging modal shift and reducing growth in overall mileage driven by car.

8.4.2. Policy proposals

8.4.2.1. EU regulation of car emissions

Producing 169g CO2 per kilometre, the average new car sold in the UK is the fourth most polluting of any EU member state. Much cleaner cars are technologically possible without compromising safety, comfort and performance. Indeed, the most fuel efficient cars on the market today emit closer to 100g CO2 per kilometre and over 30 models on sale in the UK emit less than 120g.[339] Cleaner cars make sound economic and political sense too, reducing fuel costs and dependency on oil imports. Reducing

[337] DfT (2005) Attitudes to Climate Change and the Impact of Transport
[338] DfT (2007) Transport Trends
[339] Vehicle Certification Agency website
http://www.vcacarfueldata.org.uk/information/how-to-use-the-data-tables.asp#petrol

average new car emissions from today's 162g to 120g would cut Europe's oil bill by 20 billion euros a year.[340]

We note the failure of the voluntary agreement between car-makers and the European Union. The manufacturers signed up to a deal under which average new car emissions were to decrease to 140g by 2008. They have not delivered and emissions have fallen at nothing like the rate needed. This has done significant damage to the prospect of voluntarism and the willingness of the UK industry to excuse the failure has been a particular disappointment. The EU has recently proposed regulatory action on fuel efficiency, with a target of 120g by 2012; improvements in vehicle technology would be required to reduce emissions to no more than 130g, while complementary measures such as biofuels and more efficient air conditioning systems would contribute a further saving of 10g per kilometre.

The industry has of course raised concerns over compliance costs but experience shows that, when car-makers are required to implement new technology upon environmental or safety grounds, they raise the alarm and then, when forced, deliver in less time and at a lower cost than estimated. The UK should therefore strongly support negotiations of a binding 120g by 2012 target for reducing carbon emissions from passenger cars. We note the long lead-in times for developing new vehicle models and the high costs involved. In order to offer the industry greater certainty with which to plan for the future, we recommend that an incoming Conservative government adopts an emissions target for new cars of between 80g and 100g by 2020. This target is merely a continuum of the downwards trajectory envisaged by the EU's current proposal, which would see emissions reduced by 4 - 5% a year to 2012. Continuing this reduction path yields emissions of no more than 100g per kilometre by 2020.

Finally, we note that the majority of car advertising is for more polluting vehicles. A recent survey found that nearly six in ten car adverts in the UK press were for vehicles in the two most polluting VED categories, and only 3% for the cleanest cars.[341] The European Commission is currently inviting car-makers to sign up to an EU code of good practice on car marketing and advertising.[342] Car adverts and vehicle sales forecourts are currently required to display emissions information, but too often this information is poorly visible or absent altogether. The point of sale is the one moment above all others when customers seriously consider fuel efficiency and therefore the UK government should take an international lead in developing a code of practice on car advertising that promotes the purchase of lower carbon vehicles. In it, more prominence should be given to fuel economy in advertising and at the point of sale. An incoming Conservative government should learn from the current regulation of cigarette advertising and require a designated proportion of advertising space to be given over to fuel economy information.

8.4.2.2. A cleaner car fleet – purchase tax

Transport taxation should be designed to promote demand for fuel-efficient vehicles by new car buyers – in other words, the individuals and companies who ultimately determine the shape of the UK car fleet. There is significant variability in carbon emissions of new cars, both within and between different vehicle classes. For example, the most efficient large family cars emit around 154g CO2 per kilometre, less than half that of the most polluting models, at 319g.[343] Simply encouraging people to buy 'best-in-class' could have a considerable impact on carbon emissions.

[340] Transport & Environment (2005) Cleaner is Cheaper
http://www.transportenvironment.org/docs/Publications/2005pubs/05-5_cars_cleaner_is_cheaper.pdf
[341] Friends of the Earth (2005) Press release: Government and Industry must do more on Greener Cars
[342] European Commission (2007) Press release: Commission plans Legislative Framework to ensure the EU meets its Target for cutting CO2 emissions from cars
[343] Figures from Environmental Transport Association car buyer's guide results for 'large family car'
http://www.eta.co.uk/tools/car-buyers-guide.asp

However, the UK's Vehicle Excise Duty system is failing to prevent highly polluting new vehicles from entering the fleet. This is unlikely to change, despite the government's announcement of a £400 rate for the top VED band – annual road taxes are of limited consequence to new car buyers, since they add a relatively small premium to the purchase price.

In contrast, an emissions-related tax directly at the point of purchase would increase the price differential between clean and polluting new cars more steeply. Such a tax could be phased in over time as automakers respond by bringing a greater range of efficient cars to market.

Examples of car purchase taxes

Purchase taxes payable on the registration of new vehicles are common in the rest of Europe. In most cases the tax rate is varied according to engine capacity or vehicle size, although increasingly purchase tax is being reformed to relate directly to carbon emissions.

In France, for instance, cars emitting more than 200g CO2 per km pay an additional €2 in purchase tax for each gramme between 200 and 250g/km, and €4 for each gramme over 250g/km. In the Netherlands, the rate of purchase tax is reduced or increased according to the car's fuel efficiency compared to other cars of the same size. The cleanest cars attract a bonus of €1,000, while the most polluting pay a penalty of €540.

In Belgium, car purchase tax is graded finely according to the power of the car, and in Finland there is a reduction for low emission vehicles. In the Netherlands car purchase tax is 45.2%, coupled to fixed allowances that reduce the cost of efficient cars and raise the price of larger, less fuel-efficient vehicles. Denmark also has a high purchase tax. As well as a registration tax, Italy has two rates of VAT of 19% and 38% for different engine capacities. All these taxes work to lower the cost of small, efficient cars and increase the price of less efficient models.

As a result, Italy, Denmark and the Netherlands achieve higher average fuel economy than the UK, by 11%, 15% and 25% respectively. This result is particularly notable for Italy, where fuel is significantly cheaper than in the UK.
Sources: Potter and Parkhurst (2005), ACEA (2007)[344]

Evidence suggests that a tax on the initial purchase of a new car strongly influences vehicle choice.[345] However, the UK currently lacks this specific measure, which is used successfully in most of the other European states. We therefore propose that a future Conservative government should introduce a graded purchase tax of 0% to 10% on new cars, graduated according to emissions, or gCO2/km, and accompanied by variable VAT between 5% and 17.5%.

[344] ACEA (2007) Overview of CO2 based Motor Vehicle Taxes in the EU
[345] Potter, S. (2006) Presentation to QoL working group

8.4.2.3. A cleaner car fleet – Vehicle Excise Duty

Annual circulation taxes such as VED are poorly placed to sway new car purchase decisions, and would require draconian increases to do so. It is estimated that a VED differential of £1,500 or more would be required to shift new car purchase decisions significantly in favour of cleaner vehicles.[346] The introduction of a purchase tax would obviate this. We recommend more modest changes in VED, aimed primarily at influencing the used car market where annual running costs comprise a larger proportion of total costs. These levels of VED may also lead to slower depreciation rates for cleaner cars, thus indirectly influencing new purchase decisions. On this basis we propose increasing the VED differential between the top and bottom bands of emissions performance, capped at a maximum of £500.

The granularity of the existing VED structure, in which taxable bands increase in increments of no more than 40g CO2 per kilometre, ceases for the top 'G' band, under which all cars over 225g pay the same. An extra charge should be introduced for the carbon produced by the top-emitting vehicles, which can range up to 400g and we would therefore create a new 'H' VED band for super polluters above the existing A-G range, starting at 300g CO2 per km.

[346] House of Commons Environmental Audit Committee (2006) Reducing Carbon Emissions From Transport http://www.publications.parliament.uk/pa/cm200506/cmselect/cmenvaud/981/981-i.pdf

8.4.2.4. A cleaner car fleet – capital grants

Increasing the costs of more polluting vehicles would help to counter-balance the premium charged by manufacturers for cleaner technologies such as hybrid engines. But an incoming Conservative government should go further and bring in measures to stimulate the market for fuel-efficient cars overall. We propose the reinstatement of modest capital grants towards the purchase of low-carbon new vehicles. Eligibility for grants should be decided according to carbon emissions and subject to vehicles meeting minimum standards for air pollutants.

8.4.2.5. Fleet procurement – private sector

Around half of new cars sold in the UK each year are registered by companies. Since April 2002, company car taxation has been calculated on the basis of the vehicle's carbon emissions and price. Because fleet purchasers are highly responsive to price changes, this reform has been effective in increasing demand for more fuel-efficient vehicles. Data suggests that in 2004, average CO2 emissions from company cars were 15g per kilometre lower as a result of the reforms.[347]

We propose therefore the continuation of the company car tax scheme, gradually reducing the emissions levels associated with each tax band.

8.4.2.6. Fleet procurement – public sector

With well over 300,000 passenger and commercial vehicles, the public sector operates the largest fleet in the UK. Government departments and agencies should purchase clean cars to demonstrate leadership and increase the market for more fuel efficient vehicles. The government has adopted a target of reducing carbon emissions from vehicles in the central government estate by 15% between 2005 and 2010.[348] However, this target lacks a practical delivery strategy, and does not cover procurement by local government.

The public sector spends around £2.2 billion on fleet and related activities every year, and stands to make fuel cost savings as well as emissions cuts through the purchase of cleaner cars. An incoming Conservative government should therefore adopt a clean car procurement policy across central government, and give incentives for local government also to implement a delivery strategy and effective monitoring. An incoming Conservative government should also explore the possibility of international fleet buying consortia with other EU governments and agencies.

8.4.2.7. Road user charging

We need to be clear about the purpose of the proposed national road user charging, a concept that has generated much confusion. Road user charges varied by type of road and time of day are predominantly a tool for managing traffic congestion, not for reducing carbon emissions. Indeed, the 2004 Transport White Paper conceded that the most cost-effective means of reducing transport emissions would be measures affecting the cost of fuel and the price of energy efficient vehicles.[349]

Further, road user charging could have perverse effects that would actually increase transport emissions by encouraging drivers to take less direct routes, avoiding high-charging roads. In this

[347] HM Revenue & Customs (2006) Report on the Evaluation of the Company Car Tax Reform http://www.hmrc.gov.uk/budget2006/company-car-evaluation.pdf
[348] Sustainable Development.gov.uk (2006) http://www.sustainable-development.gov.uk/government/estates/targets-guidance.htm#vehicles
[349] DfT (2004) Transport White Paper

model, traffic simply spreads out in time and place with little reduction in total mileage. As a strategy for reducing emissions national road user charging looks very poor value.

There are also very reasonable concerns that road user charging could shift activity patterns from high charge to low charge areas, turning what is currently an acute problem (of too much traffic in specific places at certain times) into a chronic problem afflicting a wider area, more of the time.[350] This would increase travelling distances, so acting against policies for sustainable land-use planning.

Another reservation is the lengthy timescale (at a minimum ten years) associated with a national scheme, which does not reflect the urgency of tackling congestion or emissions growth. Additionally, the very high costs of a national scheme – between £10-£62 billion to set up, and £5 billion a year to run[351] – are not justified by the extent of congestion in the national road network.

We would therefore replace the concept of national road user charging with simpler adjustments to the price signal designed specifically to reduce transport emissions. This is in line with our general approach that we should seek simple and transparent ways to achieve our ends and avoid grandiose schemes that rely on unproven technology and huge investment. The need to act on climate change is too urgent and the investment cost of climate change mitigation is going to be high enough anyway without adding to it unnecessarily.

The case for road user charging is stronger on urban roads suffering acute congestion, where charging helps ration a scarce resource – although even here, straightforward traffic management initiatives can offer cost-effective alternatives, including controlling the supply of parking spaces, park and ride, pedestrianisation and bus priority lanes. Local authorities should have the freedom to pursue congestion charging schemes where they see fit, after due consideration of other means of alleviating acute congestion.

8.4.2.8. HGV road user charging

The case for road-user charging in the HGV sector is rather stronger than for passenger cars. First, the high price of fuel in the UK compared to continental Europe means that British hauliers have higher operating costs than competitors arriving with cheap fuel from overseas. The freight industry has supported the development of a distance-based lorry road user charge for this reason, since it would apply to all operators irrespective of where they buy fuel. Second, the average freight vehicle does more damage to road surfaces than the average car – providing some justification for a distance-based charge. Finally, the small number of HGVs relative to passenger cars implies a much lower cost and lead-time than for a universal scheme.

The UK government went a considerable way towards introducing a lorry road user charge, only to drop the proposal in July 2005. The scheme would have covered all UK roads and all vehicles over 3.5 tonnes, with a distance-based charging structure potentially varied so that heavier and more polluting lorries pay more. The charge would have been offset by reductions in fuel duty. Germany, Austria and Switzerland have all implemented lorry road user charges, although charges cover only motorways in Germany and Austria. As well as offering domestic and overseas hauliers a level playing field, these schemes have reduced freight carbon emissions by incentivising efficient logistics and modal shift to rail. In the first year of the German scheme, for instance, 23 billion lorry kilometres were charged, and the Government reported a 7% shift from road to rail and a 15%

[350] Campaign to Protect Rural England, quoted in House of Commons Transport Committee (2005) Road Pricing: The Next Steps
[351] DfT (2004) Feasibility Study of Road Pricing in the UK: Annex J
http://www.dft.gov.uk/pgr/roads/roadpricing/feasibilitystudy/studyreport/annexjcosts

decline in empty running by HGVs.[352] The Swiss charge – which is varied by distance, weight and emissions – has been credited with a shift in the vehicle fleet from high to low emission vehicles.[353] The UK should look to replace fuel duty for HGVs with an HGV road user charge to capture the environmental and economic costs of road freight, and create consistent pricing across the haulage industry, irrespective of where fuel is purchased.

8.4.2.9. Fuel duty

A number of factors have an impact on the likely future pattern of vehicle related emissions. Improving land-use planning, supporting the use of trains, buses and cycles, spreading the use of travel-reducing technologies such as video-conferencing, and growing the market for cleaner cars through fiscal and regulatory means will all contribute to reducing emissions. Against that, predictions of the growth of car ownership and trip length suggest that there can be no guarantee that the implementation of all the measures we recommend will necessarily produce the required reduction in emissions.

With that very much in mind we are not recommending regular increases to fuel duty over and above inflation at this time.

We note that fuel consumption is a reasonably direct proxy for tailpipe carbon emissions and that fuel demand elasticity studies suggest that the tax increases resulted in 10% less demand for fuel in 2000 than if duty rates had only increased at the same rate as inflation.

We should also note that critics have questioned whether a resumption of stepped duty increases would in fact moderate demand for fuel. The recent spikes in forecourt prices do not appear to have precipitated a significant drop in demand, and suggest that motorists will sometimes absorb quite significant cost increases without reducing fuel usage.

8.4.2.10. Biofuels

Concerns over climate change and energy security have sparked a number of policies for promoting the use of biofuels in transport. However, the current generation of biofuels crops pose considerable sustainability threats of their own, including tropical deforestation and competition with food crops for available land. Even to make a limited inroad into the demand for petroleum requires a significant land take. It is suggested that, if the US were to grow corn on every reasonably available acre of land and turn all the product into ethylene, it would still only provide 12.5% of America's demand for liquid fuel. If proper account were taken of the necessary added inputs derived from fossil fuels, that figure would fall to 2.5%.

Although biofuel has so far replaced only a fraction of one percent of transport fuel demand (0.25% in the UK), its production has been part of the reason for soaring world grain prices.[354] Subsidy encourages less than optimal use of land and the replacement of beneficial rotation of crops with a mono-culture dependent upon fossil fuel based artificial fertiliser. Resultant pressure on food prices has a disproportionate effect on developing countries where so much higher a proportion of disposable income is spent on food. In the US it is under 6% while in Indonesia it is over 50%.

The carbon savings associated with biofuels are also highly variable according to the energy they take to grow, process and transport. The best performers produce only around 20% as much greenhouse gas

[352] TransFORM Scotland (2007) Toll Collect: Germany's road pricing system for road freight http://www.transformscotland.org.uk/info/docs/2007-03-22_Toll_Collect.pdf
[353] CfIT (website accessed June 2007) Road Charging Scheme: Europe, Switzerland http://www.cfit.gov.uk/map/pdf/europe-switzerland.pdf
[354] FAO (2006) Food Outlook: Global Market Analysis http://www.fao.org/docrep/009/j8126e/j8126e01a.htm

as conventional petroleum, but the worst may be even more carbon-intensive than conventional fuel.[355] So-called second generation biofuels, derived from forestry and other wastes, offer a better carbon and sustainability profile, but may be 10 years away from commercial development.[356]

Policy should stimulate production of low-carbon intensity biofuels, not simply the volume of biofuels. Although there are planned improvements, at present the UK's Renewable Transport Fuel Obligation does not do this, setting a volume target of 5% of all road vehicle fuel to be supplied from renewable sources by 2010. A more promising approach is represented by a proposed review of the 1998 EU Fuel Quality Directive, which would require the climate impact of road fuels, per unit of energy, to decrease 10% by 2020.[357] Even here, it is important not to be prescriptive in order to favour particular lobbies determined to use the mitigation of climate change to deliver their own agenda as growers of particular crops or manufacturers of particular systems. The objectivity of carbon measurement is crucial.

In the UK, the certification of biofuels under the RTFO should be linked directly to environmental and sustainability impacts as soon as possible, moving from a volume-based to a quality-based approach. Within the EU, the UK should support moves to impose targets for the decarbonisation of transport fuels overall, encompassing mineral oils as well as biofuels.

8.4.2.11. Parking

Knowledge of whether or not there is somewhere to park at the end of a car journey can determine whether that journey is made by car or an alternative mode. Suitably restricting parking places, through taxes and land-use planning, would encourage modal shift among drivers who do not respond to other direct price signals.

We therefore recommend bringing private non-residential off street parking space into the tax system and taxing it accordingly. We would exempt single car parking spaces outside small businesses or those premises in mixed use. Local authorities could however offer relief on business rates for companies who convert town centre car parking space to other uses such as document storage or supplementary office use. This could be combined with a proposal to allow local authorities to insist on retailers charging for car parking, particularly in out-of-town shopping centres, supermarkets, and outlet stores with the proceeds being applied to bus provision and other environmental, carbon saving objects.

8.4.2.12.Conclusion

The costs of motoring have consistently fallen in real terms and as a proportion of average household expenditure. However, many car users feel they get a poor deal. The reasons for this need to be unpacked. They may relate as much to frustrating driving conditions, caused by rising traffic volumes, as to the price per se. It is also conceivable that people would be willing to accept pricing changes if they felt there were reasonable alternatives to car use. The positive consequences of changes to motoring taxes needs to be explained far more clearly than in the past and the changes must be seen as part of a new approach which is genuinely to replace taxes not increase them.

Transport taxation should aim to reduce the total distance driven and boost the fuel efficiency of individual vehicles. Neither of these aims are well addressed within the current system, either because the tax signal is inadequate or in the wrong place. A more workable system is described here, which

[355] Sustainable Development Commission (2006) SDC response to the DfT on Biofuels and the RTFO
[356] Shell website (25/03/07) The Energy Challenge
http://www.shell.com/biofuels
[357] European Commission (2007) Stricter Fuel Standards to Combat Climate Change and Reduce Air Pollution
http://europa.eu/rapid/pressReleasesAction.do?reference=IP/07/120&format=HTML&aged=0&language=EN&guiLanguage=en

should be implemented in concert with the changes to land-use planning and provision of integrated transport described in other Sections of our Report.

Section 8.5. Putting Aviation on a Sustainable Footing

8.5.1. Overview and objectives

Demand for aviation is rising dramatically. Air travel through the UK has increased five-fold over the last 30 years, and official government projections suggest it will double or triple again by 2030.[358] This is based on a 4% increase in passenger numbers every year, fuelled by a 40% decrease in fares in real terms over the period. Already emissions from UK aviation, both domestic flights and international departures, contribute 5.5% of the UK's CO2 emissions.[359]

Aviation's contribution to global climate change is often cited as less than 3%. However, this refers only to carbon dioxide. Water vapour and nitrogen oxides emitted at high altitude in fact boost the greenhouse impact of aircraft by a factor of 2 to 4. The true contribution of air transport to global warming is already somewhere between 4 and 9%. This is because air travel is a uniquely greenhouse-gas-intensive mode of transport. Over a single journey of 1,500km, an aircraft emits twice as much greenhouse gas per passenger kilometre than a high speed train. Shorter journeys produce even higher emissions per kilometre. Over a 500km trip, aircraft emit six times more greenhouse gas than high speed trains and 12 times more than a coach.[360]

Aviation emissions in the UK are rising faster than from any other major sector, increasing 90% between 1990 and 2004. Over the same period emissions from manufacturing dropped 28% and emissions from electricity, gas and water supply fell 15%[361]. The Government's own figures (see Figure 8.9.) indicate that aviation emissions are likely to increase from 8.8 MtC in 2000 to around 17 MtC by 2050 – and this is a best case scenario assuming available and timely introduction of new technologies.[362]

Figure 8.9. Projected growth in aviation emissions (domestic and international departures), assuming efficiency gains in aircraft technology and air traffic control

Year	Carbon emissions (Mt)
1990	4.6
2000	8.8
2010	10.8
2020	14.9
2030	17.7
2040	18.2
2050	17.4

Source: DfT 2004

If the UK meets its present target of reducing overall carbon emissions 60% by 2050, aviation will then account for more than a quarter of the total carbon budget, and other sectors will be asked to make deeper emissions cuts to compensate. Some studies suggest unconstrained growth in aviation could account for more than 100% of the nominal carbon budget by 2050.[363] Allowing one sector to

[358] DfT (2003). The Future of Air Transport
[359] DfT (2004) Future of Transport
[360] CE Delft (2003). To Shift or Not to Shift: The environmental performance of the principal modes of freight and passenger transport
http://www.ce.nl/eng/pdf/03_4360_09.pdf
[361] National Statistics (2006) Environmental Accounts, Spring 2006. [Data from Table 2.3 pg27]
http://www.statistics.gov.uk/downloads/theme_environment/EAMay06.pdf
[362] DfT (2004) Aviation and Global Warming
http://www.dft.gov.uk/about/strategy/whitepapers/air/docs/aviationandglobalwarmingreport
[363] Tyndall Centre (2005) Growth Scenarios for EU and UK Aviation: Contradictions with Climate Policy, Report for Friends of the Earth

increase emissions rapidly while seeking cuts from every other sector raises serious issues of equity and practicality. Clearly, the Government's policy of actively encouraging aviation growth is at odds with the UK's commitment to tackle climate change.

Our objective is to reduce emissions growth from aviation, and in doing so, head off air-dependent lifestyles facilitated by cheap flights, based upon second homes abroad or even international commuting. Once established, these patterns will be difficult to undo – in this we can draw a cautionary tale from predict and provide policy towards road capacity, which has contributed to widespread car-dependency.

Turning to the economics of aviation, we note that the sector is lightly taxed compared to other industries and private modes of transport. Aircraft fuel is exempt from fuel duty and air tickets are VAT free, reducing Treasury revenues by around £9 billion a year.[364] These indirect subsidies flatter the economic case for airport expansion and stoke demand growth by decreasing the cost of flying. Such preferential treatment is not warranted in a mature sector.

Technology should be used wherever possible to reduce the carbon-intensity of air travel. Improvements in operations management offer the most promising source of greenhouse gas savings. For example, UN IPCC estimates that there is a 12% inefficiency in air traffic management globally, adding up to 73 million tonnes of wasted CO2 emissions per year as planes queue and circle unnecessarily.[365]

Unfortunately, the technological potential with regard to developing cleaner aircraft and fuels is much more limited. [366] The Advisory Council for Aeronautics Research in Europe sets an objective of cutting CO2 emissions by 50% by 2020, but admits this requires "novel concepts" and putting "breakthrough technologies into commercial service".[367] However, the reality of innovation in aircraft design is of incremental improvement not radical innovation, due to the high cost and risk of developing new airframes. Only very modest efficiency gains are likely to be delivered, at least on a timescale compatible with the urgency of averting dangerous climate change.

This leads us to conclude that some form of demand management is inevitable if the growth in aviation is to be squared with action to cut greenhouse gas emissions.

8.5.2. Policy proposals

8.5.2.1. Recording aviation emissions

Current policy does not reflect the true external environmental costs of aviation and projected growth is incompatible with meeting domestic and international targets for reducing greenhouse gas emissions. Further, the true extent of air travel's contribution to climate change is routinely underestimated, since national greenhouse gas inventories do not count emissions from international flights when used as a basis for policymaking.

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http://www.tyndall.ac.uk/publications/working_papers/wp84.pdf

[364] Aviation Environment Federation (2003) The Hidden Cost of Flying
http://www.aef.org.uk/downloads/HiddenCost.pdf

[365] International Air Transport Association (2007) Every Minute Counts
http://www.iata.org/pressroom/pr/2007-02-13-02

[366] RCEP (2002) The Environmental Effects of Civil Aircraft in Flight
http://www.rcep.org.uk/avreport.htm

[367] ACARE (2004) Strategic Research Agenda
http://www.acare4europe.org/docs/ASD-exec%20sum-2nd-final-171104-out-asd.pdf

We should therefore ensure that international aviation is incorporated into national emissions inventories as a matter of urgency so that policy-making can proceed on a more accurate and complete basis.

8.5.2.2. Cleaner aviation technologies

There are a number of ways in which aviation fuel burn could be significantly reduced that could be implemented without massive technical innovation. Air traffic management reforms and towing aircraft to the runway can reduce emissions. The industry should be encouraged to explore more innovative solutions too, such as completing long distance air travel in multiple stages – an aircraft travelling 4,000km is 40% more efficient than one travelling 15,000km non-stop.[368]

Aviation logistics and operations should be improved to reduce fuel burn, including the reform of national and European air traffic management. It is surely unacceptable that a flight from Glasgow to London will spend more time in a holding pattern over the capital than it will making the journey south. It cannot be beyond the wit of man to devise software which would allow air traffic controllers only to authorise push back from domestic or near European airports when they are clear that the aircraft will be able to travel directly to its destination. The British Government should take the lead in seeking this and other initiatives. The industry should be encouraged to make other carbon savings by minimising ground movements, through a voluntary code of conduct. The closed nature of an airport makes it an ideal site for new forms of low-carbon technology, including fuel cells. Airports should be encouraged to view themselves as test-beds for such development on the ground to compensate for their manifest difficulty in reducing levels of pollution in the air. Ministers in an incoming Conservative government should work with industry representatives to ensure that a radical programme of reform is in place within two years and should stand ready to legislate if the preferred voluntary agreement does not deliver.

8.5.2.3. Offset schemes

We note the popularity of carbon offsets, which are offered by increasing numbers of airlines as a means of neutralising the impact of flying. We also note the low cost of offsets – just £9.43 for a return flight to New York.[369] Unlike a tax, voluntary offsets provide no incentive to reduce aviation demand, and may well encourage flying among sections of the population who otherwise feel guilty about climate impacts. Poor quality offsets that offer incomplete, unverifiable carbon savings over a lengthy timescale are no substitute for reducing growth in air travel demand.

Aviation offsets should be subject to the development an accreditation scheme based upon sustainability and additionality. In public policy, offsets should not be allowed to substitute for measures to moderate demand for air travel. It is important that individuals should be aware of their carbon footprint and for that reason all airline tickets should be required to display detailed information on emissions associated with individual journeys according to a standard format.

8.5.2.4. Emissions trading

The rapid increase in aviation emissions, lack of technological fixes and the sector's privileged tax status justify the introduction of measures to control demand growth. We welcome the proposed inclusion of aviation in the EU Emissions Trading Scheme from 2011 for intra-EU states, and from 2012 for all international flights using EU airports. However, current proposals for an expanded EU ETS raise serious doubts that it will curb the rise in aviation emissions. Specific issues raised by the House of Commons Environmental Audit Committee and others include the level of cap set for

[368] Air Travel – Greener By Design (2005) Mitigating the Environmental Impact of Aviation
[369] Calculated on 7 March using http://www.climatecare.org/britishairways/index.cfm

aviation emissions, whether aviation emissions are traded openly with other sectors or within a closed scheme, and the extent to which aviation allocations are auctioned. The European Commission estimates that including aviation in the EU ETS will reduce projected air travel growth by only 0.1 percentage points, and add a mere €1.8-9.0 to the price of a return flight within the EU. This price signal is clearly too weak significantly to influence demand growth.[370] Moreover, the proposals are a number of years away from implementation, and do not account for the non-CO2 global warming impacts of aviation emissions.

Aviation is a heavily polluting, fast-growing sector with severely limited potential for technological mitigation. According to economic theory, these characteristics argue in favour of including aviation in emissions trading schemes via an open system. But to do so raises the risk that other sectors will have to reduce emissions disproportionately to accommodate aviation growth, with inflationary effects on the price of carbon. It is not difficult to see how such an approach might raise problems of social equity, for instance if aviation emissions were to drive up the price of heating millions of homes.

The UK should advocate more stringent terms for bringing aviation into the EU ETS including the auctioning of permits, and a firm cap for aviation emissions within an overall policy that recognises the sector's non-CO2 global warming impacts.

8.5.2.5. Unilateral measures – Air Passenger Duty

Although the EU ETS offers the appealing prospect of international cooperation, it does not constitute the fast or effective action framework needed to manage aviation demand. This opens a case for the UK to pursue unilateral policies alongside international agreement.

The UK's existing Air Passenger Duty is poorly suited to tackling the environmental impacts of aviation. As a per-passenger tax, it is not directly related to emissions and provides no incentive to airlines to boost efficiency by investing in cleaner aircraft or increasing seat occupancy rates. Further, APD excludes air freight, which is growing even faster than passenger traffic, at a rate of around 7% per year[371]. Government figures indicate that air freight accounted for 6.9% of UK aviation emissions in 2000, forecast to rise to 10% in 2030[372].

APD should be reformed as a per-flight rather than per-passenger charge for both passenger and freight aircraft, to reflect emissions more closely and to introduce a stronger incentive to fill empty seats. We recommend stepped annual increases in APD.

8.5.2.6. Unilateral measures – fuel duty

Charging fuel duty on domestic flights is another option. Fuel duty is a direct proxy for aircraft emissions, but fuel used on international flights is exempt from tax under numerous bilateral Air Service Agreements related to the 1944 Convention on International Civil Aviation (the 'Chicago Convention'). ASAs between EU states have been superseded by EU Community Law since 1993, and the 2003 Directive on Taxation of Energy Products enables member states to introduce fuel tax for domestic flights. Norway and the Netherlands have introduced such a tax, as have a number of US states.

[370] (ENDS, 2007a)
[371] Institute for Public Policy Research (2003) The Sky's the Limit: Policies for Sustainable Aviation http://www.ippr.org.uk/publicationsandreports/publication.asp?id=193
[372] DfT (2004) Aviation and Global Warming [Data in Section 3] http://www.dft.gov.uk/about/strategy/whitepapers/air/docs/aviationandglobalwarmingreport

8.5.2.7. Unilateral measures – VAT

The UK could also charge VAT on air tickets for domestic flights. Indeed, most of the EU-15 countries already do so. VAT is not currently payable on international or intra-EU tickets. However, the VAT 6th Directive makes this exemption optional, and states are free to charge VAT on the portion of a flight taking place in domestic airspace. This would be administratively complex, although the German Government came close to implementing such a measure in 2004[373]. It would be sensible to charge VAT upon domestic air tickets.

8.5.2.8. Price elasticity in aviation

Price elasticities in aviation

Price elasticities refer to the relationship between price and demand for a product or service. Demand is said to be elastic if a given change in price results in a more than proportionate change in demand, and vice versa. For example, if a 10% increase in the price of a product reduces demand for that product by 20%, demand is elastic. If a 10% price increase results in only a 5% demand drop, demand is relatively inelastic.

Price elasticities for aviation fares are complex, and vary significantly among flight categories, routes and journey motivations. For instance, demand for a particular flight is more likely to be elastic if that flight can be substituted by another mode or for another destination, or if the flight is discretionary. Demand is likely to be more inelastic if there is no substitute, if the air fare makes up a small proportion of the total trip cost, or if the flight is being made for non-leisure purposes.

Aviation price elasticities derived from different studies vary substantially. Most figures lie in the range -0.5 to -1.5, meaning that a 10% change in the cost of air travel could be expected to change demand by 5% to 15%. Existing studies do not appear to differentiate between demand for domestic and international travel – elasticities for domestic aviation should be elaborated before determining precise values for VAT and fuel duty on such flights.

Price elasticities also need to be set against changes in income and the cost of air fares, which are projected to decrease 1% per year in real terms until 2030. This implies that the level of any price increase used to constrain demand will also have to rise over time.

8.5.2.9. Alternatives to aviation

Around 100,000 of the 470,000 flights using Heathrow airport every year are to near-Europe destinations where there already exists a reasonable rail alternative, including Manchester, Leeds and Newcastle[374]. With high speed rail, Edinburgh and Glasgow would become even more accessible by overland transport. Transferring these journeys to rail implies significant carbon savings.

It will be necessary to improve railway capacity and management in order to make rail journeys a sufficiently attractive alternative to flying, in terms of price, speed and reliability. The necessary development of UK railways is discussed in Section 8.3. Domestic flights continue to be justified in serving remote communities in the Highlands and Islands or for completing cross-country routes that do not attract the passenger numbers to justify new rail capacity. We need, however to improve the alternative offering by providing the investment in the UK rail network which would reduce journey time between major cities to a level where rail becomes a reasonable, or preferred, alternative to domestic flights.

[373] Sewill (2005) Fly Now, Grieve Later: How to Reduce the Impact of Air Travel on Climate Change, Aviation Environment Federation, London
[374] HACAN (2006) Short-Haul Flights: Clogging Up Heathrow's Runways

Nor should we be concerned only with replacing flights within the UK. London to Paris, Lille, and Brussels are already rail journeys which compete well in time with flying. The fast link between St Pancras and the Channel Tunnel will improve times significantly as will the new link between Brussels, Rotterdam, and Amsterdam. These are all journeys which ought, in future, to be taken by rail and not air.

8.5.2.10. Airport capacity

The government plans to accommodate aviation growth from 180 million passengers per annum to 476 million by 2030, with new runways at Heathrow, Stansted, Edinburgh, and Birmingham and other extensions throughout the UK. This is essentially a policy of predict and provide – an approach that has been discredited as a means of managing the growth of road traffic, and is certainly not justified in relation to aviation.

Growth in demand is heavily concentrated in short-haul leisure flights taken by UK residents. Between 1994 and 2004, 70% of the additional international trips that occurred were UK residents going abroad for leisure. From the perspective of the UK economy, this is arguably the wrong sort of growth. Short-haul leisure flights exacerbate the country's tourism deficit – the difference between what overseas visitors spend in the UK and what British citizens spend abroad – which already stands at around £15 billion.[375]

Today, over half of all air trips arriving or departing UK airports are UK residents travelling for leisure, and this proportion is set to increase. Growth in business and long-haul leisure flights to the UK is much slower. Only 14% of UK flight movements are overseas residents visiting for leisure, and 22% are for business (including 5.4% on domestic flights).[376]

Scaling back airport expansion plans would lead to more efficient use of existing capacity, and accelerate the allocation of flight slots to parts of the market that value them most. This means reducing the rapid growth in short-haul flights with a shift towards the less price-sensitive business and long-haul leisure flights – the categories deemed most advantageous to the UK economy. It does not mean that there would be a diminution in the cheap flights already available but simply that their growth would be significantly curtailed. We would therefore have no need to expand airports in the way the Government proposes.

The tax regime, the improvement in alternative modes of transport, and the expansion of teleconferencing would be likely to dampen growth, while a fifth of the slots at Heathrow would potentially become available for longer haul flights where no alternative exists. There should therefore be no new runways at Stansted or Gatwick. More than a quarter of all flights from Heathrow are to destinations to which there is a practical rail alternative. Paris is the most popular destination with around 60 flights to and from Heathrow a day. There are more than 30 flights a day to and from Manchester, Edinburgh and Brussels. The arguments for the proposed regional runways should also be revisited and the effect of expansion on our carbon footprint factored into the equation before any go-ahead is given.

[375] 2004 (Department for Culture, Media and Sport) Tomorrow's Tourism Today http://www.culture.gov.uk/NR/rdonlyres/73FDC3ED-BCA6-4323-A683-63C6FCF5F79B/0/TomorrowsTourismToday.pdf

[376] Environmental Change Institute (2006) Predict and Decide, quoting DfT data (2006)

There should therefore be a hold on all plans for further airport expansion in the UK while in each case such plans are tested against the challenge of climate change and in the context of a wider European agreement on the restriction of airport expansion. In this way the effect of expansion of our carbon footprint would be factored into the equation before any go-ahead on any of these projects is given.

8.5.2.11. Social aspects of aviation demand

Policies aimed at constraining rapid aviation growth are often characterised as being socially regressive by 'pricing people off planes' and penalising those who cannot currently afford air travel. However, an analysis of aviation demand suggests that additional capacity will mainly be taken up by wealthier frequent flyers, predominantly to short-haul destinations in the UK and Continental Europe, rather than being spread through the population as a whole.

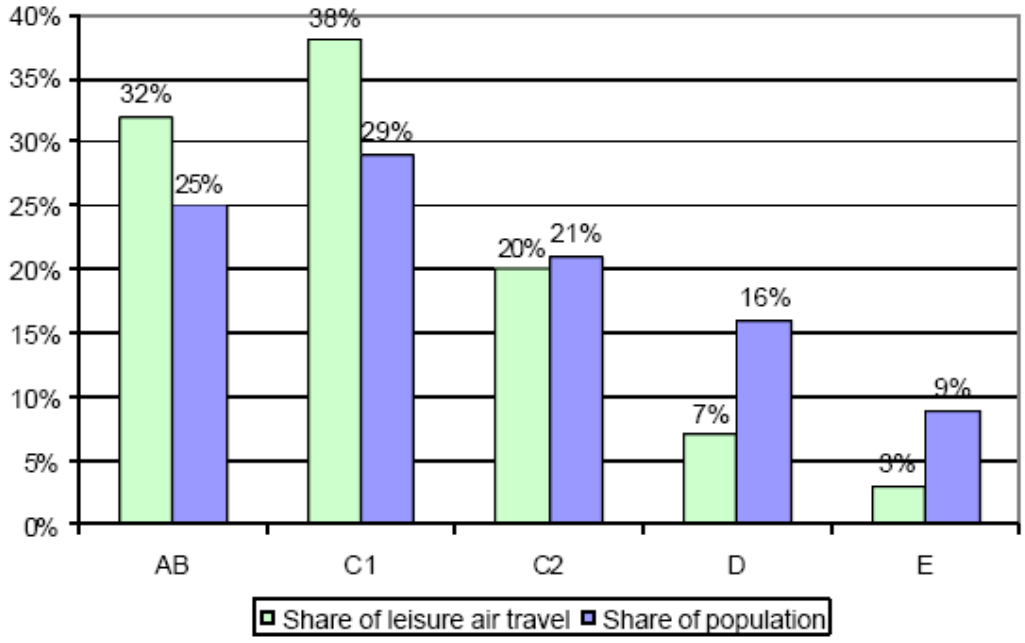
Data on who is flying where supports the conclusion that a tax on aviation would not be regressive. For example, about half of the population do not fly in any one year, 80% of flights are taken by those in the top half of the income distribution, and the average income of leisure flyers is almost double the national average.[377]

The British Social Attitudes survey showed that in 2003, over half of those in semi-routine or routine jobs had not flown in the previous year, while nearly half of those in higher managerial and professional jobs had flown three or more times.[378]

Figure 8.10. shows that the wealthier AB socio-economic groups account for one third of outbound leisure traffic – seven percentage points higher than their combined share of the UK population. By contrast, the less affluent D and E groups are underrepresented, comprising 25% of the population but taking only 10% of the flights.[379] The Civil Aviation Authority concludes that "the wealthiest and most professional groups take a disproportionately large number of leisure trips abroad".[380]

[377] Environmental Change Institute (2006) Predict and Decide: Aviation, Climate Change and UK policy, University of Oxford
http://www.eci.ox.ac.uk/research/energy/downloads/predictanddecide.pdf
[378] Cited in Environmental Change Institute (2006)
[379] CAA (2005)
[380] CAA (2005) Demand for Outbound Leisure Air Travel and its Key Drivers
http://www.caa.co.uk/docs/5/Elasticity%20Study.pdf

Figure 8.10. Leisure trips abroad by socio-economic status



Source: CAA and Mintel

Survey data suggests that other costs such as accommodation are a more important limiting factor than the affordability of air travel for lower income groups.[381] Meanwhile, opinion polls suggest that the general public is prepared to support policies to slow down air travel growth, with 59% in favour of taxes on airlines to reflect environmental effects, even if it means higher air fares.[382]

8.5.2.12. Private business flying

The growth in executive jets and the use of private planes by businessmen and celebrities is one of the fastest in the aviation sector. Clearly, this is a poor use of carbon and a future Conservative government should ensure that the taxation consequences of such flights should fully mirror the carbon costs. In particular, none of the costs of private jets should be allowable against taxation.

Although the Prime Minister and Party leaders will inevitably need to fly around the UK, other Ministers should exclude private flights except in the case of extraordinary circumstances.

8.5.2.13. Conclusion

The data described above contain a number of important lessons for aviation policy. First, some of the large proportion of aviation growth represented by short-haul fights can feasibly be transferred to rail. Second, unconstrained growth in short-haul aviation is creating air-dependent lifestyles and increasing the UK's tourism deficit. Third, limiting aviation growth is unlikely to price poorer people off planes. Finally, short-haul dominated demand growth can be constrained without damaging the business and long-haul leisure markets of most benefit to the economy. These add up to compelling arguments for developing policy to reduce growth in emissions from air travel.

[381] Graham A (2006) Have the major forces driving leisure airline traffic changed? Journal of Air Transport Management
[382] MORI poll for Airfields Environment Trust (2006) Climate Change and Taxing Air Travel http://www.aef.org.uk/downloads/morir.doc

Chapter 9. The Imperative of Climate Change

Contents

Section 9.1. Introduction 361

Section 9.2. The Big Picture 364

Section 9.3. The Science and Economics of Climate Change: What are they Telling Us? 374

Section 9.4. Securing an International Deal 399

Section 9.5. Getting Our Own House in Order 423

Section 9.6. Conclusion – Conserving a Better Future 448

'There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things.

Because the innovator has for enemies all those who have done well under the old conditions, and lukewarm defenders in those who may do well under the new. This coolness arises partly from fear of the opponents, who have the laws on their side, and partly from the incredulity of men, who do not readily believe in new things until they have had a long experience of them.'

Niccolo Machiavelli, The Prince

This is an abridged version of the Climate Change Chapter, the full version of which can be found on the Quality of Life Policy Group website at http://www.qualityoflifechallenge.com

Definition of scientific terms used in this Chapter:

CO2-equivalent refers to the warming effect of all greenhouse gases expressed in CO2 terms

CO2	CO2-equivalent
350ppm	385ppm
400ppm	440ppm
450ppm	500ppm
475ppm	550ppm

i.e. 500ppm CO2-eq is approximately 450ppm CO2-only

ppm = parts per million, which refers to the ratio of the number of greenhouse gas molecules to the total number of molecules of dry air; 450ppm CO2 means 450 molecules of carbon dioxide per million molecules of dry air
ppb = parts per billion, which refers to the ratio of green house gas molecules per billion molecules of dry air
1 tonne of carbon is equal to 3.667 tonnes of carbon dioxide
1 gigatonne is 1 billion tonnes

Section 9.1. Introduction

We are fortunate enough to live at one of the great turning points of human history. Just as at the Renaissance, mankind began to look at itself wholly differently, so today we are having again to reassess our place in creation. We have acted as if we could exploit the earth with impunity and pollute its atmosphere without risk. Climate change is only the latest and the most threatening evidence that our assumptions are unsustainable. To survive and prosper, we now know that we must find a different way to live.

The Millennium Ecosystems Assessment[383] is painful testimony to our abuse of the rivers, oceans, soil, and forests that represent the natural capital on which the global economy depends. Over the 20th century alone, we have lost 50% of our wetland ecosystems and 20% of the world's coral reefs; up to 50% of the world's animals and plants are threatened with extinction; and up to 70% of China's rivers are dead or dying, while around 70% of the original temperate forests and grasslands and Mediterranean forests had been lost by 1950.[384] On current trends, unprotected forest will be gone before the end of the century. In 2002, the Food and Agriculture Organization of the UN estimated that 75% of the world's oceanic fisheries were fished at or beyond capacity. The first global assessment of soil loss found that 38% of currently used agricultural land has been degraded.[385]

We see growing climate instability as a symptom of the unsustainable way in which we treat the planet. We accept the high probability that our process of getting rich on the back of a depleting stock of cheap fossil fuels has carried a deferred cost, which is going to fall disproportionately on the poor. We also understand that 'business as usual' is an irresponsible option in the face of future economic costs, security concerns and the risk of potentially catastrophic climate tipping points. In the name of economic self-interest, social justice and responsibility to our descendents, we have to change. It is time to consider how our economic system can be developed to place a greater value on the finite stock of natural capital that we depend on.

9.1.1. Redefining growth

Over the last thirty years our leaders have been particularly preoccupied with GDP growth as the measure of progress in society. However, the evidence suggests that this period of history in the developed world has left most of us wealthier only in the narrowest of material senses and in real terms neither richer nor happier.[386] The gap between rich and poor has widened within countries and between countries, reflected in the stark statistic that the richest one fifth of the world's population have 85% of the global GNP.

It is time to pay more attention to the quality of growth and the things in life that really count and are not just countable.

We want Britain to be at the vanguard of this progressive movement. Our history as a long term polluter means that there is a clear moral case for taking this stance. However, it is also in our long term, national interest. In the face of this complex challenge, British intellectual capital – our scientists, economists, financiers, politicians and progressive businessmen – have the opportunity to reshape our place and influence in the world.

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[383] The Millennium Ecosystem Assessment was called for by the United Nations Secretary-General Kofi Annan in 2000. Initiated in 2001, the objective of the MA was to assess the consequences of ecosystem change for human well-being and the scientific basis for action needed to enhance the conservation and sustainable use of those systems and their contribution to human well-being. http://www.maweb.org

[384] Millennium Ecosystem Assessment: *Synthesis Report,* 2005 Chapter 1, p.26

[385] Meadows, D; Randers, J; Meadows, D: *A Synopsis: Limits to Growth, The 30‑Year Update*, 2004

[386] Bill McKibben article: *Reversal of Fortune*, 2007

The global response to climate change will require developed economies like Britain to decarbonise progressively over the next fifty years. The costs, even if higher in the event than those now suggested, will continue to look affordable when set against the risk and cost of inaction. They will look even more affordable as the next decade brings growing recognition of the implications of 'peak oil'.

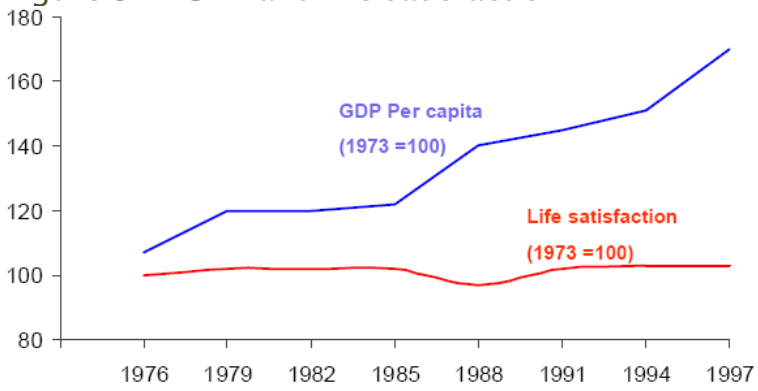
We will be less dependent on others for energy. We will be less dependent on increasingly expensive oil and gas. Our economy will be more competitive for being more efficient in its use of natural and human resources.

The need to transform global energy and transport infrastructures represents one of the greatest wealth creation opportunities for British innovators, entrepreneurs and financiers. By 2020, on current projections, the global market for clean energy technologies and services is expected to exceed $3.5 trillion, the majority of this in energy efficiency technologies and related services, while the market for power system and clean energy production technologies alone is projected to exceed $500 billion annually.[387] Successful nations and businesses will have positioned themselves to take advantage of these opportunities. We want Britain to lead that low carbon revolution just as it led the Industrial Revolution.

9.1.2. Improving quality of life

A low carbon future carries the potential to improve the quality of life. Getting there will require political courage. Some will feel a sense of sacrifice as we all are forced to rethink attitudes towards travel, energy, food, waste and water. However we should draw confidence from the growing public concern about climate change;[388] the early signs of a new 'green' consumer movement;[389] and the evidence that most Britons are not satisfied with their quality of life.[390]

Figure 9.1. GDP and life satisfaction



Source: Ipsos Mori: Life satisfaction, trust and services

[387] Climate Solutions: *Poised for Profit*, July 2005

[388] ICM poll for the BBC: Claimed awareness about global warming among Britons is high. Most know something about global warming, with 81% of respondents saying they know a lot or a little about the issue. Only half (52%) of Britons thought that changing their own behaviour would have any impact on climate change, although a huge majority (85%) of claim that they would be prepared to change the way they live in order to lessen the impact of global warming, 28 July 2004 http://news.bbc.co.uk/nol/shared/bsp/hi/pdfs/28_07_04_climatepoll.pdf; Defra 2007 survey to be conducted in Spring 2007 and to publish preliminary results in the summer 2007 'Public attitudes to quality of life and the envioronment'

[389] Sustainable Consumption Roundtable (National Consumer Council and Sustainable Development Commission): *I Will if You Will – Towards sustainable consumption*, May 2006

[390] MORI: *Life Satisfaction and Trust in Other People*, March 2004; Bobby Duffy: 'Economic wealth in Britain has increased greatly over recent years but life satisfaction has not. This has led to debates about whether economic success should in fact be the main focus for government, and how we can test policy against its impact on a wider, more meaningful set of factors.'; MORI: *Life satisfaction, trust and services – the importance of place:* life satisfaction graph p.19

Yet even among the most fervent of believers in climate change there is scepticism about the motives of politicians. They fear a hidden agenda in proposals for fiscal and regulatory changes, and they are alive to the fact that the burdens of change are often unequally borne. It will need political courage and honesty to lead Britain to lifestyles that are healthier for ourselves and the environment we depend on. We could establish better designed communities where people feel they have a real stake and a sense of shared responsibility. We could produce a sustainable infrastructure of which to be proud, and an economy which would grow without damaging the earth.

However, we will not take people with us if we frame climate change in the negative language of cost and sacrifice. We must set out a positive long term vision of investing to conserve a better future, and of taking actions that will prove to be in the national interest, regardless of the undoubted need to reduce greenhouse gas emissions.

Section 9.2. The Big Picture

IPCC Fourth Assessment Report – Key Findings

- Working Group II: Impacts, Vulnerability and Adaptation, 6 April 2007
- 75-250 million people across Africa could face water shortages by 2020
- Crop yields could increase by 20% in East and Southeast Asia, but decrease by up to 30% in Central and South Asia
- Globally, the potential for food production is projected to increase with increases in local average temperature over a range of 1-3°C, but above this it is projected to decrease
- Agriculture fed by rainfall could drop by 50% in some African countries by 2020
- 20-30% of all plant and animal species at increased risk of extinction if temperatures rise between 1.5-2.5C
- Glaciers and snow cover expected to decline, reducing water availability in countries supplied by melt water

9.2.1. The stark outline

Over the long sweep of human history, the complex climate system that we and many other species rely on for survival has demonstrated volatility, sometimes on a devastating scale. The last thousand years of relative stability have led us to take nature for granted. We are now faced with compelling scientific evidence that our complacency is misplaced. An extraordinarily broad scientific consensus represented by the IPCC[391] is telling us that global warming is real and accelerating; and that it is 'very likely' that human activity, through burning of fossil fuels and destruction of forests, is a significant influence.[392]

We are now getting a better picture of the large economic and social costs associated with climate instability. The groundbreaking Stern Report is compelling about the cost of inaction, spelling out the potential for significant dislocation of our economic system, social disruption, and the destruction of human and animal life on a major scale. We support his central economic thesis that the cost of inaction is likely significantly to outweigh the cost of action now. However, the message is not new.

It was a central theme in a speech given by Mrs Thatcher in 1990, arguing for immediate action on climate change: 'The costs of doing nothing, of a policy of wait and see, would be much higher than those of taking preventative action now to stop the damage getting worse. And the damage will be counted not only in dollars, but in human misery as well. Spending on the environment is like spending on defence. If you do not do it in time, it may be too late'.[393]

[391] The IPCC brings together more than 2,000 scientists from (154 countries) across the world. Established in 1988 by the World Meteorological Organisation and the United Nations Environment Programme, its role is to assess the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation. The body does not carry out its own research; its assessments are on peer-reviewed and published scientific/technical literature from all regions of the world. The reports seek to ensure a balanced reporting of existing viewpoints and to be policy-relevant but not policy-prescriptive. The findings of the IPCC have been endorsed by the national academies of science of all G8 countries, together with those of China, India and Brazil. Together they issued a joint statement on climate change in June 2005, in which they stated: "The work of the Intergovernmental Panel on Climate Change (IPCC) represents the consensus of the international scientific community on climate change science. We recognize IPCC as the world's most reliable source of information on climate change." Lord Rees of Ludlow, the president of the Royal Society, has said: "The IPCC is the world's leading authority on climate change".

[392] IPCC Fourth Assessment Report: *The Physical Science Basis*: 'most of the observed increase in globally averaged temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations', April 2007

[393] Speech given by Mrs Thatcher to the Aspen Institute, 5 August 1990

Yet across the world, politicians are only now beginning to respond to the need for greater urgency in addressing the variable we can control, namely the level of greenhouse gases that we emit. There are voices which argue that we should focus our limited resources on 'adapting' to climate change. We consider this irresponsible because it does not address the issue of escalating cost if we just leave the problem to get bigger, and ignores the cautious but insistent scientific concern about the risk of crossing 'climate tipping points' which may trigger irreversible and catastrophic climate change.

In an age of short termism, the political challenge is immense. We have to persuade people across the world to change their values and behaviour now as an insurance policy against future and uncertain risk. Furthermore, the inertia of the climate system means that our actions today to reduce emissions may take a hundred years to make a difference. The issue brings us face to face with our moral responsibility to those with whom we share the planet now, both human and animal, and to the generations that will follow us.

9.2.2. Finding a solution

The response requires a multidisciplinary approach – with scientists, economists, and politicians working together in a unique way, as we strive to find solutions. It will demand an extraordinary partnership between government, civil society and business. It will also mean asking very tough questions about the capabilities of the multilateral and domestic institutions that we rely on for governance.

At this crucial time, we are entering a new phase of political leadership in the Western world, most importantly in the US; and a very different world order, which is likely to involve the gradual transfer of significant economic and political power to Asia, where the overarching priority will remain economic development. We will have to convince developing nations, as equals, of the need to recognise that 'business as usual' is not an option.

This is categorically not just an environmental issue. The depletion of natural capital and growing climate instability have profound economic, social and security implications for every country. Climate change is inextricably linked with some of the biggest geopolitical issues of the age, not least energy security, the alleviation of poverty and the promotion of human health.

It's all connected

'Environmental Policy in the 21st century is also economic policy, energy policy, security policy'
German Federal Ministry for Environment

Conflict and international security
'In coming decades, changes in the environment – and the resulting upheavals, from droughts to inundated coastal areas – are likely to become a major driver of war and conflict.'
Ban Ki-moon, UN secretary general, March 2007

'Climate change is the most severe problem that we are facing today, more serious even than the threat of terrorism.'
Sir David King, UK government chief scientific adviser, January 2004

The impacts of climate change 'could potentially de-stabilize the geo-political environment, leading to skirmishes, battles, and even war due to resource constraints.'
Pentagon report on climate change, 2003

Economic prosperity
'For too long, necessary action to prevent catastrophic climate change has been delayed by fears that this would damage economic growth. Stern's report nails this myth – it is failure to take action on climate change that would be the real threat to future economic prosperity.'
Ken Livingstone, London Mayor, October 2006

Energy security
'Ensuring secure, affordable supplies of energy and tackling climate change are central, interlinked global challenges facing the international community. Addressing these issues requires urgent, sustained global action and an integrated policy approach'
Whitehouse press release[394], April 2007

Poverty alleviation
'…whether we can end global poverty over the next 50 years will depend on our response to a new global threat – climate change. All our efforts to fight poverty will come to nothing if we cannot slow climate change.'
Hilary Benn[395], Secretary of State for International Development, April 2007

Health inequalities
'There is growing evidence that changes in the global climate will have profound effects on the health and wellbeing of citizens in countries around the world.'
Kerstin Leitner, WHO assistant director-general, December 2003

We must also respond effectively to the warning of Stern that climate change reflects the 'greatest example of market failure we have ever seen'.[396] This has been construed narrowly as failure to put a price on carbon. We would argue that climate instability is but one symptom of our wider failure to attach a proper value to natural resources of every kind.

[394] U.S.-EU Summit Statement: *Energy Security, Efficiency, and Climate Change*: Whitehouse Press Release, 30 April 2007 http://www.whitehouse.gov/news/releases/2007/04/20070430-8.html
[395] Speech by Hilary Benn, Secretary of State for International Development, Brussels: *Climate Change and Poverty: Challenges for the next 50 years*, 17 April 2007
[396] Stern Review: Introduction, October 2006

9.2.3. Revaluing natural resources – the next stage of capitalism

Since the start of the Industrial Revolution, the human impact on the environment has increased approximately one hundredfold,[397] taking into account the increase in population and per capita economic activity.

Looking forward, the world's population is set to grow by 2.5 billion over the next 43 years, from 6.7 billion to 9.2 billion by 2050.[398]

This growth is expected to take place in the developing regions of the world, where resource use per capita is far lower than in industrialised countries. However, their aspirations are for precisely the unsustainable choices those in the developed world are accustomed to. In what Jeffrey Sachs calls 'the Age of Convergence', the pressures to narrow the income gap are intense, and fuelled by the powerful force of globalization bringing wider access to ideas and technology.

We cannot perpetuate a system where the rich continue to demand a disproportionate share of the planet's carrying capacity, while denying the poor the means to realise their dream of a developed lifestyle. It is in the interests of both rich and poor that we create a model of growth that can be sustained, adjusting our economic model towards the future prosperity of the South as well as the North.

In this context, we highlight the importance of spreading best practice in the design and regulation of energy efficient buildings, not least given the fact that the developing world is urbanising so fast. According to the latest UN population figures, Africa and Asia are expected to add 1.6 billion people to their cities over the next 25 years, and by 2030 the towns and cities of the developing world will make up 80% of humanity. If we can help developing countries to continue to reduce their demand for energy per unit of production over the next 10 to 20 years, and decarbonise production to meet what demand is left, then the fewer coal fired electricity plants they will need to construct.

There is growing consensus about the need to put an effective price on carbon, if not the means of achieving that goal. The climate change imperative has also triggered a debate about the linked need to put a value on crucial carbon sinks such as the tropical rainforests and to pay for the management of key ecosystems. We support that principle, and argue that it is consistent with paying European farmers to be managers of the rural environment. Logic would then demand considering not only the need to price carbon effectively, but the value we put on other key eco assets such as forests, biodiversity, water and the natural nitrogen cycle, which is affected by the heavy use of fertilisers.

This is not farfetched. We understand that the Portuguese and Germans are to lead an international convention on biodiversity next year which will contemplate among other things the idea of a Stern type report on its economics – the cost of inaction and our inability to put a value on biodiversity. We fully accept that pricing carbon is the priority but we should see it as the first stage of a journey, not the end.

We should also question the emphasis we place on GDP growth as the ultimate measure of progress in society. Economic growth should be recognised for what it is – not an endpoint but a means to two essential endpoints: maximised social and environmental wellbeing. That is not to deny the need for growth; simply that we need to focus more on the quality of that growth and its impact on the planet.

[397] Jeffrey Sachs: Reith Lectures 2007 *'Survival in the Anthropocene'*, Beijing 2007
[398] United Nations Population Division: *World Population Prospects: The 2006 Revision*, March 2007 Expected growth in developing regions: 5.4-7.9 billion by 2050, with the developed regions stable at 1.2 billion

Specifically we have to confront the extraordinarily inefficient way we use natural resources, attaching no value to them. This impedes competitiveness, reduces availability, and creates waste management problems. We therefore argue that it is time to put greater resource productivity, embracing both conservation and efficiency, at the heart of the philosophy that drives a Conservative government.

9.2.4. Resource productivity

We see a greater focus on resource productivity as a fundamental response to climate change and the need to decouple economic growth from greenhouse gas emissions. Greater resource efficiency is the opportunity to reduce emissions at the lowest cost to consumer or producer; and to reduce demand and buy much needed time as we develop and deploy the low carbon supply side solutions that will transform our energy and transport infrastructure. It should also deliver higher profits in a future that will be increasingly resource constrained: an opportunity significantly to enhance the competitiveness of the British economy.

The fundamental challenge is to confront the **unacceptable** level of waste which we tolerate in our economic system. This complacency is puzzling in the face of our failure to achieve dynamic growth in productivity[399] – arguably a key barometer of a competitive and healthy economy. This Report's Chapter on Waste highlights some key statistics; we would pick out the following two:

> The average household in the UK purchases 2.5 tonnes of material and throws away a tonne each year.[400] Industry, business and households produce approximately 190 million tonnes of waste annually in England and Wales, of which over a quarter is sent to landfill.[401]

It has been estimated that British industry is putting up to 8% of its gross profit into landfill, whilst inefficient use of resources such as energy and water costs UK businesses up to £3 billion a year.[402] Energy efficiency improvements by business and individuals could save £12 billion annually.[403]

9.2.4.1. The waste of energy

Electricity production in the UK is responsible for a third of our carbon emissions. A staggering two thirds of energy is wasted before it reaches the end user due to the inefficiency of our centralised model of production and transmission.

Much of the heat produced during the burning of fossil fuels is lost due to the distance electricity has to travel from a relatively small number of large power stations to towns and cities throughout the country. In total, the energy wasted is equal to the entire water and space heating demands of all buildings in the UK – industrial, commercial, public and domestic.[404]

Furthermore, a recent report by the Energy Saving Trust predicts that by 2010 the UK could waste up to £11 billion and emit around 43 million tonnes of carbon dioxide through wasted energy, such as leaving lights on and appliances on standby.

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[399] LSE: Seminar: *The UK's productivity gap: what research tells us and what we need to find out*, September 2004 'In the market sector of the UK economy, output per hour worked - the most commonly used measure of labour productivity - is almost 40 per cent below that in the United States. The productivity gap with France and Germany is around 20 per cent.'
[400] WWF: *Counting Consumption*, 2006
[401] Environment Agency: *State of the Environment*, 2005
[402] Environment Agency: *State of the Environment*, 2005
[403] H.M. Government Cabinet Office, Performance and Innovation Unit: *Energy Review*, February 2002
[404] Greenpeace: *Decentralising Power: an energy revolution for the 21st century*, 2005

For every £1 billion wasted, we could pay for approximately:
45,000 new nurses and midwives
32,000 secondary school teachers
31,250 dentists[405]
29,500 police officers[406]
1,000 MRI scanners[407]
40 new secondary schools

Every £ saved on energy, water or waste management is a £ that can be reinvested more productively in the public and private sectors or returned to shareholders and taxpayers. Every hour that a business executive or a lorry full of goods sits in a traffic jam carries an opportunity cost.

The scale of the opportunity is reflected in the estimates underlying the agreed EU target to reduce primary energy consumption by 20% from 1990 levels by 2020. The scale of savings estimated is 780 tonnes of CO2 annually and €100 billion.

In the new global marketplace, an economy that is more efficient in its use of human, financial, and natural assets is likely to be more competitive. At the company level, progressive leaders such as DuPont are demonstrating that energy efficiency alone can add substantially to the bottom line – it saved $3 billion between 1990 and 2005, whilst reducing its global energy consumption by 6% and its emissions by 60%. BT has saved £1.5 billion in energy consumption costs (£400 million in 2005/2006 alone) since 1992.

Nor is this economic opportunity limited to big companies. The results of the CIBSE '100 Days of Carbon Clean Up'[408] show small companies such as the Peacock Group and Fulcrum Consulting achieving significant emission and cost reductions through what are often simple adjustments like adding time switches to central electricity boards, which turn lights and electrical appliances off an hour after closing time.

This is not necessarily an issue of new technology but rather of breaking through inertia and encouraging companies to design their processes differently and rethink their own procurement policies. The government can help them by supporting research and development, facilitating the sharing of best practice, and rethinking incentive structures, including public sector procurement policies.

The Government appears to be aware of the opportunity, stating in 2005 that 'we need a major shift to deliver new products and services with lower environmental impacts across their life cycle, while at the same time boosting competitiveness.' The issue was given further attention in 2007's Budget.[409]

However, our concern is that we continue to invest less on R&D than benchmark G7 countries,[410] even taking into account scientific research into energy by the Research Councils and demonstration funding through the DBERR's capital grant funds.

[405] http://www.nhscareers.nhs.uk/details/Default.aspx?Id=604
[406] Labour Force Survey (January - March 2006) public sector professions/occupations: according to the Annual Survey of Hours and Earnings 2005 (ASHE), median pay per week for a nurse is £429.20; for a secondary school teacher is £598.60; and for a police officer is £652.70 http://www.medicalnewstoday.com/medicalnews.php?newsid=57411
[407] http://www.diagnosticsfutures.com/docs/diagnostics/High_Level_MRI_Capacity_Calculators_22-07-05.pdf
[408] Chartered Institution of Building Services Engineers: *100 Days of Carbon Clean Up* http://www.cibse.org/index.cfm?go=home.show&PageID=599&TopSecID=24
[409] H.M. Treasury: *Budget 2007:* Chapter 3: Meeting the Productivity Challenge, 2007
[410] In the UK in 1999 we were spending £54 million a year directly in government money on research and development in new generation technology. In comparison, Belgium were spending £71 million, Germany £189 million, France £434 million; and the US £1.5 billion'.[410] According to IEA figures, the UK was still lagging in R&D spend on renewables in

Furthermore, we may be missing a trick if we focus exclusively on developing new low carbon technologies rather than the design, development and sharing of new processes to improve efficiency and reduce long term, full cycle cost.

The evidence below suggests that other countries are moving faster in this direction, and that the disparate UK scientific effort does not have the same level of support or focus on transforming processes to maximise efficiency.

The Netherlands

The Netherlands Government funded a five year programme of research and 'learning-by-doing' based on setting up new innovation networks and working with new methods to search for sustainable technological solutions. Findings of the Sustainable Technology Development programme (1992-1997) concluded that factor 10[411] to 20+ improvements in resource productivity are possible over the next 50 years (from 1990).

The National Initiative on Sustainable Development (NIDO) was launched at the end of 1999 as one of twelve government led initiatives with the aim of investing in the Netherlands' knowledge infrastructure. A key concept of the initiative is the pooling of resources and expertise by firms, government bodies, scientists and NGOs.

Germany

The German Federal Ministry of Education and Research (BMBF) established the Social-Ecological Research (SÖF) programme in 1999. The programme receives €7 million in funding each year and comprises approximately 30 research projects. 'Research for Sustainability' is part of the German federal government's national strategy for sustainable development.

The German Federal Ministry for the Environment has proposed an 'Ecological Industrial Policy' – an innovation based environmental policy that is looking at the potential of technology and new processes to 'achieve a 'double dividend' for the environment and trade and industry.' Their research programme is 'looking intensively at enabling technologies such as nano- and biotechnology to which great environmental and economic significance is attached'[412]

Japan

The 'New Earth 21' program was proposed by the Japanese Government in 1990, with the aim of solving problems through the development of new technologies for reducing greenhouse gas emissions and technology transfers. The Research Institute of Innovative Technology for the Earth (RITE)[413] was founded in the same year as a research hub focusing on the development of innovative environmental technologies and the broadening of the range of CO2 sinks. Since then, with the cooperation of the private sector, academia and government, RITE has been conducting R&D and research investigations and has been providing information to the public.

Australia

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) was set up in 1926 and receives funding through the Australian Government's Department of Education, Science and Training (DEST). The 2007 Budget allocates the largest funding in CSIRO's history, with total government funding over the next four years set to exceed A$2.8 billion (£1.15bn). In addition to baseline funding

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2004, $19.8 million compared to the Netherlands $51.1 million, Germany $73.6 million, Japan $134.6 million, and the US $242.7 million.

[411] A Factor Four increase in resource efficiency equates to a 75% reduction in resource use (in other words, a reduction in energy and materials intensity as 'resource use per unit of production'), whilst Factor Ten corresponds to a 90% reduction

[412] BMU German Federal Ministry for the Environment Nature Conservation and Nuclear Safety; www.bmu.de/english

[413] RITE; http://www.rite.or.jp/English/E-home-frame.html

of A$2.558 billion, CSIRO's successful National Research Flagships program will be expanded by A$174 million to increase the organisation's research effort in clean energy, climate adaptation, niche manufacturing and minerals exploration.

9.2.4.2. Government support for the intellectual and practical effort

We believe that we must review the priorities of our publicly funded science and technology programmes, to ensure that adequate weight is being given to the goal of 'an environmentally sustainable UK' and that we have effective mechanisms for sharing best practice. Our benchmarks should be the Social-Ecological Research programme in Germany and the Sustainable Technology Development programme in the Netherlands. We cannot afford to be left behind on this agenda and need to structure partnerships with the private sector, which has every incentive to accelerate the development and deployment of technology and processes that can transform our resource efficiency.

At the same time, we need to challenge and support an international, intellectual drive to develop a methodology of 'Green GDP' that reflects the net environmental cost of our activity and provides a more reliable figure for the social cost of carbon. That would put a value on the damage to health, environment and the economy caused by each tonne of carbon emitted. Over time, this value will become a key tool in assessing the cost-effectiveness of policies to reduce emissions. We suggest that a new administration set a deadline for a Green GDP framework to be in place by the end of the first Parliament.

We note that China is one of the most advanced nations in thinking along these lines. There, 'Green GDP' is calculated by deducting the cost of natural resource depletion and environmental degradation from traditional GDP. The 2004 report[414] showed that, based on the traditional GDP accounting method, the financial loss caused by environmental pollution was as much as 511.8 billion Yuan (US$64 billion), 3.05% of China's economy. We recommend that the UK or the EU develop a bilateral dialogue with China to develop methodology as a prelude to wider engagement with the EU and other nations.

Our intellectual effort needs to go further. We need to develop the forward thinking on how to extend the principle of valuing natural capital beyond the initial phase of carbon pricing. There a number of options as to how this could be developed, such as commissioning existing UK institutions, or creating a new Institute as a centre of excellence, as either an EU or UN project.

We need, too, to gain a greater understanding of the evolution of capitalism in other regions, notably Asia. If capitalism is part of the problem, it also holds the key to the solution as the globe's dominant economic system. However, as Paul Saffo argues[415], we are already beginning to see a divergence of capitalist models between the US, Europe, and Asia. In an interconnected world we need to understand those shifts. If capitalism is to be the engine to power our response to climate change, we have to be able to use it in whatever form it is found. There is no place for a new imperialism that accepts as legitimate only one manifestation of capitalism.

9.2.4.3. Increasing resource productivity

Yet, while we seek to catch up on the intellectual and research front, there is much that is immediately practical that has to be done. The Government's default mode is still to measure success by how much has been spent rather than by how much has been delivered. By contrast, better resource management sits well with the traditional Conservative message of needing to live within our means, whilst being

[414] Jointly released by the State Environmental Protection Administration (SEPA) and the National Bureau of Statistics (NBS), China
[415] www.saffo.com/essays/capitalismsfuture.pdf

consistent with seeking efficiency and best value for taxpayers. It is a theme that runs through this Report, with our aspiration for a zero waste economy and the emphasis we place on getting smarter about how we use energy and water.

9.2.4.4. Changes to the economics of energy

The key drivers of energy policy have changed significantly since privatisation. The need to protect the consumer now has to be balanced with the commitment to energy security and reducing emissions. The most powerful and logical response to all three agendas is to place much greater priority on increasing energy efficiency and reducing energy demand.

We believe that there is merit in looking at the experience of Utility Regulatory Reform in California during the early 1990s.

In effect this process changed the economics of energy and has been described as the 'negawatt revolution'. The introduction of 'integrated resource planning' and the principle of 'best buys first' meant that profits no longer depended on how much energy was sold. Utilities began to think of meeting new demand through more efficient use by customers. They were able to offer rebates up the value chain to key partners such as light bulb manufacturers. Shareholders got to keep a proportion of savings achieved for customers.

There is growing interest in the business opportunity associated with saving customers energy but our instinct is that it remains at the margin of the core business. Given the urgency of the carbon challenge we believe that it is time to consider changing the regulatory regime to deliver a 'negawatt revolution' in Britain.

Therefore, we recommend that a new Conservative administration enter into a broad consultation on the timescale, mechanics and feasibility of transforming the Energy Efficiency Commitment (EEC) into a more fundamental revision of the regulatory base of the industry, with the aim of decoupling the profits of energy companies from sales volumes. We would expect this to include a discussion on the feasibility of changing tariff structures to allow companies to reward low usage customers.

9.2.4.5. Incentive structures

Within this Report are several recommendations for changing the remits of the regulators, and for expanding the incentives for investment in measures that improve energy and resource efficiency. We would add here one further idea for an incentive aimed at the four million small businesses who account for around half of UK employment and who should be the lifeblood of the economy.

The Carbon Trust has developed interest free loans which the agency effectively offers through the suppliers of products and which are paid back through cost savings over four years, to help those SMEs pursuing greater energy efficiency. This access to capital has proved increasingly popular and cost-effective with low levels of default. The Government has around £18m of capital at risk under this scheme but we believe it should now leverage that base through the private sector and scale the opportunity up to around £200m.

9.2.4.6. Support new thinking

We also recommend the development of special awards to reward innovation in pursuit of greater resource efficiency, and the launch of a national initiative to share best practice more effectively, and to work within the EU and international dialogues to encourage voluntary sector based initiatives to reduce natural resource consumption.

Examples of best practice include South African Breweries' leadership of an initiative aimed at reducing water and aluminium (and therefore energy consumption) in the brewing industry. Within the PepsiCo empire, Walkers Crisps has in recent years reduced water use by 50% and energy use by around 30%. Sun Systems is a pioneer in rethinking the weight and energy intensity of the basic computer that we rely on.

Meanwhile, a Treasury task group on business energy efficiency advice and support reporting in December 2006 noted that there were no fewer than 70 national and 96 regional bodies providing energy efficiency advice services to business. This argues for a review of the cost-effectiveness of all government funded resource and energy efficiency programmes, with a view to rationalising a network that overlaps too much. We should be looking to provide a single, authoritative point of information that serves as the 'undercarriage' of the system, while supporting a network of local agencies that can develop the personal contact. This idea is developed further in the Section on domestic policy (Section 5.5.3).

9.2.4.7. Lead by example

Government credibility in leading by example on resource efficiency is low. The Sustainable Development Commission reported in 2006 that government departments have 'on average, generated more waste in 2005/06 when compared to previous years'. Furthermore, 'only 18% of the total sites with the government estate have implemented Environmental Management Systems.'[416]

The government should aim to represent best practice and set ambitious targets for the reduction of waste from departments; improvements in resource and energy efficiency across all sites within the government estate; and the establishment of a road map for all sites within the government estate to have implemented Environmental Management Systems.[417]

The government should also report annually the cash savings that arise from energy and resource efficiency initiatives on the public estate, and detail any subsequent redeployment of those funds.

In this overview we have stressed the importance of setting the climate change challenge in the bigger picture of how we treat our one planet. Sustainability is about doing more with less; eliminating waste and living within our means.

We now have to face up to the particular challenge presented by global warming. As the next Section argues, the science and economics are demanding an urgent response to the risk of climate instability. However that cannot just be technical; it must also trigger a shift in core values. We think that the Conservative approach should be rooted in the principle of responsible stewardship that rediscovers a sense of human humility and obligation to those who follow.

[416] Sustainable Development Commission: *Sustainable Development in Government 2006*, March 2007
[417] Sustainable Development Commission: *Sustainable Development in Government 2006*, March 2007

Section 9.3. The Science and Economics of Climate Change: What are they Telling Us?

9.3.1. Our starting point

9.3.1.1. Scientific uncertainties

Climate science 101

Without the natural greenhouse effect, the average temperature on earth would be around minus 18°C, rather than the comfortable 'life-supporting' 15°C we know today.

However, since the Industrial Revolution, human activity has contributed to a significant increase in the greenhouse gases which trap the sun's heat. This is known as anthropogenic global warming, which leads to a rise in temperature over and above the earth's natural cycle of warming and cooling.

According to the IPCC, compared to the largest temperature changes of the past million years, the current rate of warming is 'much more rapid and very unusual'. During the glacial cycles, the global average temperature changed by 4°C to 7°C, but this occurred over many thousands of years; the global warming at the end of an ice age taking about 5,000 years.

We are under no illusions about the uncertainties that continue to exist in our understanding of the science of climate change.

In particular, we have an urgent need to improve our understanding of feedback mechanisms and tipping points; the correlation between temperature increases and concentrations of greenhouse gases, and the regional impacts of climate change.

Positive Feedbacks

Positive feedback mechanisms amplify the warming effects caused by rising levels of greenhouse gases. One example is the 'albedo feedback'. As temperatures rise, snow and ice melt which reveal darker land and water underneath. These darker surfaces absorb more of the sun's heat than the reflective surfaces of the snow and ice, therefore causing more warming. This in turn leads to further melting, and the cycle continues.

Potential positive feedbacks at 3°C and beyond include methane release from defrosting Siberian peat bogs,[418] the collapse of the Amazon rainforest ecosystem,[419] and a weakening or possibly 'switching off' of the Gulf Stream due to melting of the Greenland ice sheet. Further unquantified feedbacks, such as oceanic methane hydrate releases, also become a realistic possibility beyond this point.

Carbon sinks

'Carbon sinks' in the form of forests, vegetation and oceans absorb around half of anthropogenic carbon dioxide emissions every year.[420] However, as temperatures increase, these sinks begin to absorb less carbon, increasing the amount remaining in the atmosphere.

With ever higher temperatures, carbon sinks start to release carbon dioxide back to the atmosphere[421], turning from sinks to sources. This is another example of a 'positive feedback', and can lead to a rapid increase in warming regardless of the reduction of carbon dioxide emissions from fossil fuel use and land use changes.

Since the Industrial Revolution, the world's oceans have absorbed about a quarter of the carbon emitted into the atmosphere by humans. However, recent research has shown that an increase in winds over the Southern Ocean, caused by greenhouse gases and ozone depletion, has led to a release of stored carbon dioxide into the atmosphere and is preventing further absorption of the greenhouse gas.[422]

Tipping point

This refers to the point at which these changes in the climate system lead to runaway global warming. At this stage, what little influence we had on the climate system will no longer have any effect on the outcome. Runaway global warming could lead to mass extinction.

Supporting our intellectual capital must be one of the most cost-effective investments we can make. Furthermore we must not underestimate the status of British climate science which is recognised to be among the best in the world. In this context, it is puzzling that in February 2007 the Government should have cut £98m from the science budget to pay for overspends elsewhere in the DBERR.[423].

The Met Office Hadley Centre in the UK is widely recognised to be the world leader in developing the sophisticated climate computer models that are fundamental to our decision making. It is funded primarily by the Ministry of Defence and Defra through two main programmes – GMR and CPP

[418] Katey M. Walter, University of Alaska Fairbanks; Sergei A. Zimov; Jeffery P. Chanton; F. Stuart Chapin, III: *'Methane Bubbling from Siberian Thaw Lakes: A Positive Feedback to Climate Change'*, Arctic Forum 2005. The Arctic Research Consortium of the US (ARCUS), Fairbanks, AK, 2005

[419] P. Cox, R. Betts, C. Jones, S. Spall, I. Totterdell: '*Acceleration of global warming due to carbon-cycle feedbacks in a coupled climate mode*l', *Nature*, 408, 184-187, November 2000; P. Cox et al: '*Amazonian forest dieback under climate-carbon cycle projections for the 21st century*', Theoretical and Applied Climatology, 78, 137-156, June 2004

[420] JT Houghton, LG Meira Filho, BA Callender, N Harris, A Kattenberg and K Maskell (Eds): *Climate Change 1995: The Science of Climate Change* (p.65-131) Cambridge University Press 1996 (possible update?)

[421] W. Knorr, N. Gobron, M. Scholze, T. Kaminski, R. Schnur, B. Pinty: '*Impact of terrestrial biosphere carbon exchanges on the anomalous CO2 increase in 2002–2003*', Geophysical Research Letters Vol. 34, No. 9, 05 May 2007

[422] UEA Press Release: *Climate change affects Southern Ocean carbon sink,* 18 May 2007

[423] House of Commons Science and Technology Committee: *Uncorrected Transcript of Oral Evidence* (to be published as HC 311-i) Minutes of Evidence, OSI Scrutiny, 21 March 2007 http://www.publications.parliament.uk/pa/cm200607/cmselect/cmsctech/uc311-i/uc31102.htm; also Hansard, 20 February 2007, Col. 38WS

respectively – at approximately £20 million per annum. This sum has not been increased significantly over the last two spending rounds, and to put the budget into perspective, the Government is effectively putting the same value each year on developing our understanding of climate change as it does on buying one new Typhoon fighter aircraft.

The evidence suggests that the models are now so complex and the level of detail needed so large that the capacity of the supercomputers is now inadequate to task.
The priorities appear to be twofold: to embody detailed models of full carbon cycle and land use impacts into the main climate change models; and to improve the resolution so that we can we can develop more detailed scenarios of regional impacts.

Best estimates suggest that an investment of £10-15 million is required to upgrade the capacity. At the same time a parallel modelling effort called QUEST is being funded through the National Environment Research Council with a budget of £24 million spread over five years. We simply ask whether it is sensible to run parallel programmes.

It is therefore a key recommendation that we should upgrade the supercomputing resources of the Met Office Hadley Centre, possibly through integration with other publicly funded modelling programmes such as QUEST. If necessary, we should seek European funds for the expansion.

We should also encourage the Hadley Centre to develop tailor-made presentations, modelling the impact of climate change both on UK regions and other key regions of the world. We would particularly emphasise the importance of sharing our work with China and India, especially at a regional government level. This is a case of a small incremental investment carrying the potential to drive big change.

9.3.1.2. What we do know

There are, however, things that we can say with reasonable certainty now. We know that the burning of fossil fuels and the destruction of forests result in an increase of greenhouse gases in the atmosphere. We know that the concentrations of these gases are the highest for 650,000 years[424], with an increase of 70% between 1970 and 2004[425], and that carbon dioxide concentrations have grown by 30%[426] since the developed world began to industrialise. We know that global warming is real and accelerating[427]. We can see a strong correlation between the growth in greenhouse gas concentrations and increases in temperature.

Therefore it is difficult to disagree with the conclusion of the unprecedented scientific consensus that underpins the latest IPCC report[428], which states quite clearly that 'it is very likely' that the acceleration of global warming is due to the net emissions of greenhouse gases by humans. This conclusion means that it is also very likely that we can make a difference to the climate. There does appear to be a variable that we can control, namely the level of greenhouse gas emissions that we emit in our daily lives.

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[424] IPCC Fourth Assessment Report: *The Physical Science Basis*, February 2007: 'The atmospheric concentration of carbon dioxide in 2005 exceeds by far the natural range over the last 650,000 years (180 to 300 ppm) as determined from ice cores; European Project for Ice Coring in Antarctica (EPICA)
[425] IPCC Fourth Assessment Report: *Mitigation of Climate Change*, May 2007
[426] Carbon dioxide in the atmosphere was stable at 280ppm before the Industrial Revolution, it is now around 380ppm
[427] There has been an approximate 0.8°C increase since the Industrial Revolution. IPCC Fourth Assessment Report, *The Physical Science Basis: Summary for Policy Makers*: 'Eleven of the last twelve years (1995–2006) rank among the 12 warmest years in the instrumental record of global surface temperature (since 1850). The updated 100-year linear trend (1906 to 2005) of 0.74°C is therefore larger than the corresponding trend for 1901 to 2000 given in the [Third Assessment Report] of 0.6°C. The linear warming trend over the last 50 years (0.13°C per decade) is nearly twice that for the last 100 years. The total temperature increase from 1850–1899 to 2001–2005 is 0.76°C.' 2007
[428] IPCC Fourth Assessment Report: *Mitigation of Climate Change*, May 2007

9.3.1.3. Why act now?

But why act now? Why not wait until the scientists can give us more conclusive information on the risks and the economists can give us a more reliable cost benefit analysis? The reality is simple. We know that every molecule of CO2 that we add to the atmosphere will stay there for at least 100 years. Therefore with every year that passes we may be locking ourselves into a potentially bigger and more expensive problem even it were not to become utterly disastrous.

The Stern Report has made a very significant contribution to the global debate on how we manage this risk. Its core value lies in making a robust, economic case for taking action now to reduce emissions - on the basis that the costs will rise significantly the longer we delay.

The IPCC reports that we should anticipate average temperature increases of 1.1 to 6.4°C (with a best estimate of 1.8 to 4°C) above 1990 levels by the end of this century[429], depending on our response.

IPCC Fourth Assessment Report – Key Findings

Working Group I: The Scientific Basis, 2 Feb 2007

- It is very likely (more than 90% certain[430]) that human emissions of greenhouse gases are responsible for global warming
- The current concentration of carbon dioxide in the atmosphere (379ppm in 2005) is far higher than the natural range over the last 650,000 years and is growing faster than at any time before
- Average global temperature and sea levels are rising, accelerating at an unprecedented rate – the impacts of which can be seen in the loss of glaciers, sea ice and permafrost
- Impacts include loss of snow cover, heat waves (very likely that parts of the world will see an increase in number), more frequent flooding and extreme droughts, possibly leading to runaway global warming
- Sea levels are likely to rise by 28-43cm
- Probable temperature rise by the end of the century will be between 1.8°C and 4°C (3.2-7.2°F)
- Possible temperature rise by the end of the century ranges between 1.1°C and 6.4°C (2-11.5°F)

That temperature average masks some very big regional variations which reveal the hideous unfairness of climate change. The lower end of the range will impose a very significant human and financial cost on some of the poorest and least polluting countries in the world, while some of the richest and dirtiest may well benefit from a period of warmer temperatures.

Nonetheless, we are deluding ourselves if we think that this scenario carries no downside for the developed world. People will move in large numbers to find a better climate, and extremists who wish us harm will have a much more fertile soil in which to work; TV pictures of the disastrous impact on the poorest will change the politics of the fortunate. The world will not be a safer or more comfortable place.

[429] IPCC Fourth Assessment Report: *The Physical Science Basis*, February 2007

[430] IPCC probability of occurrence: virtually certain - more than 99%; extremely likely - more than 95%; very likely - more than 90%; likely - more than 60%; more likely than not - more than 50%; unlikely - less than 33%; very unlikely - less than 10%; extremely unlikely - less than 5%

Although the risks and costs to the developed world rise with the temperature gauge, history should have taught us that the climate does not change in a gradual, linear fashion. We are being warned by credible scientists that temperature increases at the middle of the IPCC range could trigger climate tipping points such as the irreversible melting of the Greenland ice sheet.[431] Given the inertia of the climate system, passing these tipping points carries the potential to lock our descendents into a level of catastrophic climate change that will fundamentally dislocate the global economy.

Our sense of responsibility to future generations should lead us to err on the side of caution. That is what we understand by the precautionary principle – if there is risk of serious harm we should not wait to be sure to start taking effective action.

The Rio Declaration was made 15 years ago, stating that'where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.'[432] Since then our leaders have procrastinated and made our job even harder.

9.3.2. Don't give up on 2°C

The British Government took a welcome lead in adopting on a unilateral basis the 2050 goal to reduce emissions by 60%. That aspiration was rooted in the soundest science available at the time, which suggested that this level of cuts was necessary to contain temperature increases below a 2°C threshold (above pre-industrial levels[433]) beyond which risks were considered to be unacceptable[434].

The 2°C threshold was initially adopted by the EU as a stabilisation target in 1996[435], and runs through the IPCC Third Assessment Report (2001); its significance was highlighted by the International Climate Change Taskforce in 2005, who said that 'Beyond the 2°C level, the risks to human societies and ecosystems grow significantly.'[436] It was the focus of an EU Commission Communication in January 2007, which stated that 'the EU must adopt the necessary domestic measures and take the lead internationally to ensure that global average temperature increases do not exceed pre-industrial levels by more than 2°C'.[437]

According to the Stern Report, the consequences of exceeding this threshold include a significant fraction of species facing extinction, a sharp decline in crop yields in developing countries, and irreversible melting of the Greenland ice sheet[438]. Furthermore, the IPCC states that 'major changes in ecosystem structure and function, with predominantly negative consequences for biodiversity, water and food supply' are projected with increases in global average temperature exceeding 1.5-2.5°C.[439]

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[431] Eric Rignot and Pannir Kanagaratnam: *Science: Changes in the Velocity Structure of the Greenland Ice Sheet*, 17 February 2006; IPCC Fourth Assessment Report: *The Physical Science Basis*, February 2007

[432] Report of the United Nations Conference on Environment and Development: Principle 15, *Rio Declaration on Environment and Development*, Rio de Janeiro, 3-14 June 1992

[433] Pre-industrial is defined by the IPCC as AD 1000–1750

[434] RCEP News Release: Royal Commission Calls for Transformation in the UK's Use of Energy to Counter Climate Change: 'As a contribution to global efforts to prevent climate change running out of control, the United Kingdom should plan for a reduction of 60% over the next 50 years', 16 June 2000

[435] EU Council: 1939th Council meeting, Luxembourg, 25 June 1996: 'the Council believes that global average temperatures should not exceed 2 degrees above pre-industrial level'

[436] International Climate Change Taskforce: *Meeting the Climate Challenge*: Primary recommendation: A long term objective be established to prevent global average temperature from rising more than 2°C (3.6°F) above the pre-industrial level, to limit the extent and magnitude of climate-change impacts, January 2005

[437] EU Commission Communication: *Limiting global climate change to 2 degrees Celsius – The way ahead for 2020 and beyond*, 10 January 2007

[438] H.M Treasury: *Stern Review: Towards a Goal for Climate Change Stabilisation*: Chapter 13 (13.5), October 2006

[439] IPCC Fourth Assessment Report: *Climate Change Impacts, Adaptation and Vulnerability*, April 2007

Also important to note is the risk that a move over 2°C will 'accelerate future warming by reducing natural absorption and releasing stores of carbon dioxide and methane.'[440] This is echoed by recent research suggesting that a 'tipping point' of 3°C warming or more would lead to the world's carbon sinks becoming net producers of carbon dioxide, initiating a positive feedback loop which would in turn lead to increased warming.[441]

In the face of the evidence as to the costs that an incremental 2°C will impose on some of the poorest countries in the world[442], the rich countries should find it morally difficult to shift from that ceiling. In fact political inertia has already moved the goal posts to a point where even the British government's chief scientist is on record as suggesting that 3°C is the only realistic target[443] – given the politics – despite a report by the Hadley Centre stating that a 3°C rise would put 400 million more people at risk of hunger, and between one and three billion more at risk of water stress.[444]

Furthermore, acceptance of a 3°C target has the potential to take us into very different territory in terms of the potential costs of climate change, as is made clear from the following table in the Stern Report.

Figure 9.2. Estimates of the costs of climate change by temperature increase, as a proportion of gross world product, from PAGE2002

	Mean expected cost	5th percentile	95th percentile
2°C	0.6%	0.2%	4.0%
3°C	1.4%	0.3%	9.1%
4°C	2.6%	0.4%	15.5%
5°C	4.5%	0.6%	23.3%
Source: Hope (2003)			

Source: Stern Review: Towards a Goal for Climate Change, Chapter 13, Table 13.2

Thus, for example, according to PAGE2002, if the temperature increase rises from 2ºC to 3ºC, the mean damage estimate increases from 0.6% to 1.4% of gross world product; but the 'worst case' – the 95th percentile of the probability distribution – goes from 4.0% to 9.1%.

We believe that there is a strong moral imperative for developed countries to remain focused on the goal of 2°C. It also has political value in the task of building the trust and engagement of developing nations who will suffer most if we exceed that threshold. We are under no illusions that 2°C will be very difficult to achieve. Some argue that we have already missed the opportunity, but they can't be certain as there is so much we are yet to learn about how the climate works. We do know that we have made this goal a lot harder to achieve due to our complacency over the last 15 years.

[440] H.M Treasury: *Stern Review: The Science of Climate Change:* Chapter 1 (1.3), October 2006
[441] Dr Marko Schulze, University of Bristol: *A climate-change risk analysis for world ecosystems*: Proceedings of the National Academy of Sciences, 21 August 2006; At present the magnitude of this feedback is uncertain, which increases the uncertainty as to the amount of carbon dioxide emissions reductions required to stabilise at a concentration level likely to keep warming below 2°C.
[442] IPCC Fourth Assessment Report: *Climate Change Impacts, Adaptation and Vulnerability*: 'Poor communities can be especially vulnerable, in particular those concentrated in high-risk areas. They tend to have more limited adaptive capacities, and are more dependent on climate-sensitive resources such as local water and food supplies.', April 2007
[443] Sir David King, interview with the BBC Radio 4 Today Programme, 14 April 2006 'If you ask me where do we feel the temperature is likely to end up if we move to a level of carbon dioxide of 550 parts per million - which is roughly twice the pre-industrial level and the level at which we would be optimistically hoping we could settle - the temperature rise could well be in excess of three degrees Centigrade. And yet we are saying 550 parts per million in the atmosphere is probably the best we can achieve through global agreement.' http://www.bbc.co.uk/radio4/today/listenagain/zfriday_20060414.shtml
[444] The Met Office Hadley Centre: *Avoiding Dangerous Climate Change*, 2006

New political leadership has to deliver a step change in ambition and the 2°C threshold is a strong signal of intent. Faced with the risks attached to further slippage in ambition, we argue that it is premature to give up on 2°C on grounds of practicality. We should consider what is necessary to be what is practical. On current trends, it won't be long before we are being told that we are too late to stabilise at 550ppm, at which point we are in very dangerous territory. We must not encourage the view that if the target proves too hard, we just move it. The climate won't wait.

We therefore believe that the British government should be a more explicit supporter of the goal of limiting temperature increase to 2°C and should actively canvass international support for that goal.

9.3.2.1. What is the right stabilisation target?

The question that arises is 'What does 2°C mean in terms of a stabilisation target for concentrations of greenhouse gases in the atmosphere?' This in turn leads to the question 'Do we have the right long term targets in the UK?'

The bottom line is that we don't know for sure. The scientists are keen not to give the stamp of approval to any greenhouse gas stabilization level (apart from, perhaps, pre-industrial or 350ppm CO2-eq) as being safe at this stage.[445] We can't be exact but we need to have a view in order to set the direction and speed of travel. The British Government echoes the Stern Report in talking about a wide target stabilisation range of 450ppm to 550ppm[446] CO2-equivalent. However, we query the value of persisting with the 550ppm as Stern himself asserts that 'the evidence strongly suggests that 550ppm CO2e would be a dangerous place to be, with substantial risks of very unpleasant outcomes.'[447]

But he also makes clear his belief that the only practical range starts at 500ppm CO2-equivalent since 'it would already be very difficult and costly to aim to stabilise at 450ppm CO2e.'[448] All this would be fine if we could have confidence that a stabilisation target of 500ppm would give us adequate protection against crossing the threshold of 2°C.

Unfortunately, the models that Stern refers to suggest that 550ppm carries a 63-99% probability of exceeding 2°C and a 21-69% probability of exceeding 3°C. Likewise, a stabilisation target of 500ppm carries a 48-96% probability of exceeding 2°C and an 11-61% probability of exceeding 3°C.[449] Research carried out by Malte Meinshausen and Michel den Elzen on a number of climate models concludes that 'For achieving the 2°C target with a probability of more than 60%, greenhouse gas concentrations need to be stabilized at 450ppm CO2-equivalent or below.'[450]

Therefore the question we have to ask ourselves is what level of risk we are prepared to accept at this stage. It is important that Britain has a coherent view based on what is likely to be necessary.

In December 2006, we placed on record our view that the most appropriate stabilisation target range for a goal of 2°C is 400ppm–450ppm CO2-equivalent[451]. Given our view that we should not give up on 2°C, we think that as a minimum the British government should stop talking about 550ppm CO2-eq as an acceptable target at this stage. We should not expect international agreement on this step out of the comfort zone to be immediate, but Britain has the credibility and therefore the responsibility to set a lead.

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[445] Malte Meinshausen, *Emission and Concentration Implications of Long term Climate Targets*, 2005
[446] H.M Treasury: *Stern Review: Towards a Goal for Climate Change Stabilisation:*13.7, October 2006
[447] H.M Treasury: *Stern Review: Towards a Goal for Climate Change Stabilisation:*13.5, October 2006
[448] H.M Treasury: *Stern Review: Summary of Conclusions*, October 2006
[449] H.M Treasury: *Stern Review: The Economics of Climate Change*: 8.2, October 2006
[450] Malte Meinshausen and Michel den Elzen: *Meeting the EU 2°C target*, 2005
[451] Quality of Life Policy Group: *Don't Give up on 2°C,* December 2006; based on data and probability analysis by Meinshausen, den Elzen; and Baer

The newly formed Climate Change Committee (CCC) should be required to give an opinion on the appropriate stabilisation target range for concentration of greenhouse gases that is compatible with a threshold of a 2°C temperature increase.

This recommendation reflects our view that the CCC should not be restricted to advising on the feasibility of carbon budgets, as the Government appears to wish. They should also have the resource and the credibility to at least give an independent opinion on the appropriateness of the long term stabilisation range towards which presumably the statutory targets and carbon budgets are bent.

9.3.2.2. The importance of short term action: peak and decline

It should be less difficult to get international acceptance of the view from the IPCC report, which states that 'in order to stabilize the concentration of greenhouse gases in the atmosphere, emissions would need to peak and decline thereafter.'[452]

Given that the global atmospheric concentration of carbon dioxide is at present around 380ppm (approximately 430ppm CO2-eq), and that concentration levels are growing at around 2ppm per annum[453], we think it is only plausible to consider an effective stabilisation range within a peak and decline framework, whereby greenhouse gas concentrations peak by 2050 before falling towards an optimal long term stabilisation level (in our view 400-450ppm CO2-equivalent or below) by the end of the century.

This would require a peak in global emissions by 2015[454], with a global reduction of between 50 and 85% by 2050[455]. By ensuring a peak within a timeframe of less than ten years, we are more likely to avoid global emission reduction rates exceeding 3% per year.[456]

9.3.2.3. What does this mean for national targets?

Acceptance of the peak and decline framework arguably shifts the emphasis away from the need to agree and set in stone specific long term targets and puts the stress on the need to generate momentum behind short term emissions reductions. The longer we wait to peak, the sharper the decline that will be needed. If we can't get to a point where emissions are peaking in 2015 then the inertia of the climate system means that we will significantly reduce our chances of meeting the long term targets.

Therefore we would argue that the key argument is not whether the long term target should be 60% or 80% reductions. The key target is the medium term targets for the period 2020 to 2030. The greatest value of the Climate Change Bill, therefore, lies in the breaking down of long term targets into shorter term milestones.

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[452] IPCC Fourth Assessment Report: *Mitigation of Climate Change*, May 2007

[453] IPCC Fourth Assessment Report: *The Physical Science Basis*, February 2007 – 'The global atmospheric concentration of carbon dioxide has increased from a pre-industrial value of about 280ppm to 379ppm in 2005. The annual carbon dioxide concentration growth rate was larger during the last 10 years (1995–2005 average: 1.9ppm per year), than it has been since the beginning of continuous direct atmospheric measurements (1960–2005 average: 1.4 ppm per year) although there is year-to-year variability in growth rates.

[454] Malte Meinshausen and Michel den Elzen: *Meeting the EU 2°C target*, 2005: 'A stabilization at 450ppm CO2-equivalent requires global emissions to peak around 2015, followed by substantial overall reductions in the order of 30% (50%) compared to 1990 levels in 2050.'

[455] IPCC Fourth Assessment Report: *Mitigation of Climate Change*, May 2006 – Table SPM 5: Characteristics of post-TAR stabilization scenario [Category I = CO2 concentration 350-400ppm; CO2-eq concentration 445-490ppm; Global mean temperature increase above pre-industrial at equilibrium, using "best estimate" climate sensitivity 2.0-2.4ºC; peaking year for CO2 emissions 2000-2015; change in global CO2 emissions in 2050 (% of 2000 emissions) -85 to -50%]

[456] Michel den Elzen: *Emission implications of long term climate targets*, Scientific Symposium on Stabilisation of Greenhouse Gases, Exeter, UK, 1- 3 February, 2005

These are the targets that are going to bite on today's decision makers whether they sit in Whitehall, the local civic centre or the boardroom. This is the target which is going to shape the price of carbon in the key phase post-2012, and it is that price which will shape the key decisions that are being taken now on the long term infrastructure decisions with which we will have to live for many years.

The most critical decisions are those being taken on the replacement and expansion of our energy infrastructure, not least in the UK where we will have to replace some 25% of our electricity generation capacity over the next twenty years. Given how long those assets will be around, their carbon intensity will be fundamental to our chances of meeting our long term aspirations.

So our scrutiny should be focused on that medium term statutory target; the trajectory of carbon budgets that are the building blocks to achieving it; and the process for revising it in the light of actual performance and scientific evidence.

The Government has provisionally set a target to reduce CO2 emissions in a range of 26-32% by 2020 versus 1990 levels. This is consistent with what we might expect the UK allocation to be as a result of the agreed EU target of an average of 20% reductions in all greenhouse gas emissions by 2020 versus 1990 levels[457], and the more ambitious target proposed by the EU Commission of a 30% reduction by 2020 if developed countries as a group agree to reduce their emissions to this extent.[458]

Key points of the draft UK Climate Change Bill

- A series of clear targets for reducing carbon dioxide emissions - including making the UK's targets for a 60% reduction by 2050 and a 26 to 32% reduction by 2020 legally binding
- A new system of legally binding five year 'carbon budgets', set at least 15 years ahead, to provide clarity on the UK's pathway towards its key targets and increase the certainty that businesses and individuals need to invest in low-carbon technologies
- A new statutory body, the Committee on Climate Change, to provide independent expert advice and guidance to government on achieving its targets and staying within its carbon budgets
- New powers to enable the government to more easily implement policies to cut emissions
- A new system of annual open and transparent reporting to Parliament. The Committee on Climate Change will provide an independent progress report to which the government must respond. This will ensure the government is held to account every year on its progress towards each five year carbon budget and the 2020 and 2050 targets
- A requirement for government to report at least every five years on current and predicted impacts of climate change and on its proposals and policy for adapting to climate change

Defra[459]

[457] EU Commission: *'Commission proposes an integrated energy and climate change package to cut emissions for the 21st Century'*, 10 January 2007
http://europa.eu/rapid/pressReleasesAction.do?reference=IP/07/29&format=HTML&aged=0&language=EN&guiLanguage=en

[458] EU Environment Commissioner Stavros Dimas: 'The essential next step must be for developed countries as a group to reduce their emissions to 30% below 1990 levels by 2020' Press release, 15 February 2007
http://europa.eu/rapid/pressReleasesAction.do?reference=IP/07/192&format=HTML&aged=1&language=EN&guiLanguage=en
EU Commission: 'In particular developed countries should continue to take the lead by committing to reduce their collective emissions of greenhouse gases in the order of 30% by 2020 compared with 1990 levels' Press release, 20 February 2007
http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/07/69&format=HTML&aged=1&language=EN&guiLanguage=en

[459] Defra: News Release: '*Draft Climate Change Bill Published'*, 13 March 2007
http://www.defra.gov.uk/news/latest/2007/climate-0313.htm

We believe that this range represents a sufficiently stretching target for CO2 given the difficulties that we have faced in stabilising UK emissions since 1997 let alone reducing them. Targets have to start life with some credibility of achieving them and we recognise the difficulty of breaking through the inertia that exists, and believe that changes to the UK energy mix in the short term add to the challenge.

However we do not see the argument for capping ambition by setting a top end to the range and believe that the target should be recast as at least 26% (in CO2 only terms) by 2020. We also believe that the targets are miscast in that they do not cover the whole story in two important ways.

The proposed UK targets are CO2 only. However our challenge is not restricted to CO2, as the other greenhouse gases are still around and very potent. CO2 may be the priority but we cannot ignore the others. Furthermore, our national targets should be in the same currency as the EU targets which are for all greenhouse gases, i.e. CO2-equivalent. There are complexities and uncertainties around the conversion of these gases into CO2-equivalent but we consider it better to manage that complexity than miss a significant piece of the problem. The UK targets should be for all greenhouse gases, or failing that there should be separate targets for the other gases.

The targets take no regard of two important sources of emissions – international aviation and shipping. We understand the lack of political will to include these but it is insufficient to argue that they should be excluded on the basis that a) they are not part of Kyoto targets and b) we don't agree on how to measure them. We have to look beyond Kyoto/2012, and create the incentives to find agreement on how to measure these significant emissions. We are told that, by 2013, aviation will be included in the EU Emissions Trading Scheme and therefore the mechanics should be clearer. We would like to see the UK take a lead in focusing minds on the need to include these significant sources of emissions into targets at an EU and UK level.

9.3.2.4. What about the long term targets?

Our view on long term targets is that they should be effectively seen as aspirations that have value in signalling the direction of travel. We must expect a great deal to change over the next forty years and there is little value or credibility in setting rigid targets. Our understanding of risk will change as the science develops. Technology will develop in a way that will enable us to parallel the scale of transformations in our society over the last forty years. Our perception of economic risk and opportunity will also evolve in a way that will shape our levels of ambition.

Given the urgent need to address our credibility challenge in relation to short and medium term targets, the debate on whether our 2050 target should be 60%, 70% or 80% is therefore of secondary importance to us. The point is we must assume that we will travel down the road to significant decarbonisation of the world economy, and the most pressing challenge is how to precipitate the collective political will to take the first serious steps on that journey.

We have placed on record our view that the existing 60% by 2050 goal in the UK is likely to prove inadequate, and that we must plan for emissions reductions of at least 80% over that time frame.[460] This view is consistent with the direction of travel cited by the EU Commission in January 2007.[461]

[460] Quality of Life Policy Group: *Don't Give up on 2°C,* December 2006

[461] EU Commission Communication: *Limiting global climate change to 2 degrees Celsius - The way ahead for 2020 and beyond*, 10 January 2007: 'This Communication proposes that the EU pursues in the context of international negotiations the objective of 30% reduction in greenhouse gas emissions (GHG) by developed countries by 2020 (compared to 1990 levels). This is necessary to ensure that the world stays within the 2°C limit. By 2050 global emissions must be reduced by up to 50% compared to 1990, implying reductions in developed countries of 60-80% by 2050.'

There are signs that other economies are waking up to the scale of reductions required. California, the sixth largest economy in the world, has committed to 80% reductions.[462] Germany has talked of the need for global greenhouse gas emissions to peak in the next 10-15 years, with a target of 40% reductions by 2020.[463]

9.3.2.5. The importance of the Climate Change Committee

We see the concept of an independent Climate Change Committee as very important against a background of political failure to establish the credibility of existing targets and policy frameworks.

It is clear that the Government sees this body as simply an advisory body. We would be more ambitious. Our ultimate vision is that the Committee would have the credibility and accountability to Parliament to be the body that sets and revises both the targets and the key carbon budgets.

In the interim period, our instinct is that targets and budgets should continue to be set by the elected government of the day and the Committee should be adequately resourced under an independent Chairman and Chief Executive (appointed after confirmation hearings in front of select committees) to give an independent view on:

- the adequacy of the statutory targets in response to the evolving scientific evidence of the IPCC;
- the adequacy of carbon budgets proposed by the government which will determine the key trajectory of cumulative emissions;
- the appropriate limit for the purchase of overseas carbon credits to comply with UK obligations; and
- the feasibility of meeting the carbon budget. This is critical if we are to avoid a repetition of this Government's state of denial in relation to the 2010 target.

It should also:

- give an independent annual report on the performance of government. This will be very important if we accept the principle of five year carbon budgets in which case the mechanism for accountability for annual performance will be critical. In the absence of annual targets we believe that the Climate Change Committee should publish an annual benchmark against which the government performance should be judged; and
- have the ability to develop in the public domain some forward thinking on more controversial policy options which may be required, such as personal carbon trading .In this context they can perform a useful function for government.

The Climate Change Committee should also be asked to give an early opinion on the adequacy of the 2020 and 2050 statutory targets. This should flow from judgments formed on the appropriate stabilisation target for concentration of greenhouse gases that is compatible with 2°C and transparent assumptions on an equitable share for the UK and other developed economies.

[462] California Climate Change Policy & Programs; http://www.climatechange.ca.gov/policies/index.html

[463] Federal Environment Minister Sigmar Gabriel: Government policy statement to German Bundestag. The minister presented an eight point plan to achieve a 40% reduction in CO2 emissions by 2020: Energy efficiency – 11% reduction in electricity consumption (40 million tonnes CO2); power plants must be made more efficient (30MtCO2); renewable energy in electricity generation increased to 27%+ (55MtCO2); advance environmentally sound technology for use in CHP plants to 25% (20MtCO2); reduce energy consumption through building modernisation and improved heating systems (41MtCO2); increase the share of renewable energy in heat generated by power plants (14MtCO2); increase efficiency in transport and use more biofuels (30MtCO2); reduce emissions of other greenhouse gases like methane (40 MtCO2). http://www.g-8.de/nn_94680/Content/EN/Artikel/2007/04/2007-04-26-regierungserklaerung-bm-gabriel__en.html

If, then, our view is accepted that the scale of long term response required is likely to be at least 80% reductions in cumulative emissions, then serious consideration should be given to 'changing the frame' and developing the long term proposition of Britain as carbon neutral or 'climate positive'.[464]

Revisions to the targets must take account of the cumulative performance, because it is cumulative emissions that count.[465] It doesn't matter if we cut our emissions in the year of the target by the required amount if we have missed the targets in previous years. The excess carbon will have been emitted and will stay in the atmosphere for at least 100 years. In this context, we place high importance on the concept of carbon budgets introduced in the draft Climate Change Bill. The concept of 'banking' and 'borrowing' within those budgets is clever but we have reservations. The ability to bank should be restricted to domestic emissions (not overseas credits) and the ability to borrow should remain very restricted.

This makes it all the more important that assumptions underlying the targets must be made public in a way that has not happened with past targets. Not least it should be made clear what the target is aiming for in terms of a global stabilisation goal.

There are good arguments for carbon budgets to stretch over a longer planning period than one year, which are supported by business groups. However, long term budgets need to be underpinned by a very robust mechanism of accountability for annual performance. Our preference is for the Climate Change Committee to set annual benchmarks to judge the performance of government and publish an annual report on performance which should be debated in Parliament.

9.3.3. The economics

There is no getting away from the fact that the move to a low carbon economy will involve significant investment in both the public and private sector. Some of those costs will be passed onto consumers, not least in terms of higher energy costs and will have implications for the management of inflation. Large amounts of capital will have to be diverted from the rich world to the poor world in order to preserve rainforests, improve resilience, and incentivise the deployment of clean technology.

The Stern Report estimates that the 'incremental costs of low-carbon investments in developing countries are likely to be at least $20-30 billion per year.'[466] This comes on top of the $80 billion per year that the World Bank estimates is the 'finance gap' for standard energy provision. Most companies around the world will need to invest time and money in redefining their business model for a low carbon world.

The Stern Report moved the debate on significantly. His central thesis is that the cost of action is likely to be significantly less than the cost of inaction.

We are aware that some economists criticise his methodology, not least on discount rates, and growth rate assumptions that may be too high in the context of escalating climate instability. Our conservative instincts are that costs are likely to be at the top end of his ranges, but then again we believe it likely that runaway climate change will cost more than 20% of GDP.

[464] SustainAbility: *Submission by SustainAbility Ltd/Inc to the Quality of Life Commission on Climate Change*, May 2007 http://www.qualityoflifechallenge.com/documents/SA_QOL_Commission.pdf
[465] Dr Kevin Anderson, Tyndall Centre: *Energy and Climate Change in a Myopic World* – presentation to the All Party Parliamentary Climate Change Group, 22nd January 2007
[466] H.M Treasury: *Stern Review: Executive Summary*, p.xxiv, October 2007

On balance, we accept the central Stern thesis of affordability with one caveat. It is predicated on a stabilisation target of 500-550ppm CO2-eq and there is no robust analysis of the costs associated with our preferred stabilisation target of 450ppm CO2-eq. Indeed the IPCC's recent report on Mitigation of Climate Change notes that the number of studies that report GDP results for a stabilisation range relative to limiting global average temperature rise to 2°C is relatively small.[467]

The cost of inaction

The Stern Review estimates that at 2-3°C warming, the cost of climate change could be equivalent to a permanent loss of around 0-3% in global world output compared with what could have been achieved in a world without climate change. With 5-6°C warming, existing models estimate an average 5-10% loss in global GDP, with poor countries suffering costs in excess of 10% of GDP. Analyses suggest that 'business-as-usual' climate change will reduce welfare by an amount equivalent to a reduction in consumption per head of 5-20%.

The insurance industry is already dealing with the impacts of climate change and is vociferous in pointing to the increased risks and costs associated with extreme weather events.[468] The industry is preparing for 'mega-catastrophes' including storms that could do up to $30 billion worth of damage – requiring the risk to be shared among reinsurance companies.

Damage from natural catastrophes:[469]	
1950s	$4bn per year
1990s	$40bn per year
2002	$55bn per year
2003	$60bn per year

UNEP estimates the amount will be $150bn by 2010, while Munich Re estimates losses will be $300bn a year within the next few decades. CGNU, the UK's largest insurance group, warned UNFCCC delegates in 2000 that damage to property due to global warming could bankrupt the world by 2065.

9.3.3.1. The economics of stabilisation

If the judgement of the Climate Change Committee is that a stabilisation target of 500ppm CO2-eq is insufficiently ambitious in respect of a target of 2°C, then a 'Stern Review 2' should be commissioned to build on the existing Stern workings and give an opinion on the likely economic cost associated with achieving a more appropriate stabilisation range (which we suggest should be 400-450ppm CO2-eq).

The above recommendation is proposed in the interests of completeness because we don't expect it to undermine the case for affordability.

If we assume that economic growth will be in the order of 2% per annum over this century, then our descendents can look forward to being around 10 times richer than us. Are our values so warped that

[467] IPCC Fourth Assessment Report: *Mitigation of Climate Change*, May 2007 [Table SPM4: *Estimated global macro-economic costs in 2030 for least-cost trajectories towards different long term stabilization levels*. For a stabilisation level of 445-535CO2-eq, note g. states: 'The number of studies that report GDP results is relatively small and they generally use low baselines.' A median GDP reduction % is not available for this range. Table SPM6: *Estimated global macro-economic costs in 2050 relative to the baseline for least-cost trajectories towards different long term stabilization targets*. For a stabilisation level of 445-535CO2-eq, note e. states: 'The number of studies is relatively small and they generally use low baselines. High emissions baselines generally lead to higher costs.' A median GDP reduction % is not available for this range.]

[468] Munich Re/Swiss Re: *The effects of climate change: Storm damage in Europe on the rise*, June 2006

[469] Source: CNN 2003

we cannot contemplate a pause in our process of wealth creation and consumption in order to safeguard the environment which makes it all possible?

The private sector appears to be taking a view. In the UK, high street retailers are competing furiously to present their green credentials to an increasingly demanding consumer. The biggest banks in the world are lining up to announce their intentions to commit investments into clean technology. In October 2006 Morgan Stanley committed an investment of $3bn in carbon credits and energy projects to reduce greenhouse gas emissions over the next five years.[470] This followed a $1bn pledge by Goldman Sachs to invest in alternative energy, an amount they exceeded by 50% in 2006.[471] Meanwhile, Bank of America recently announced a $20 billion ten-year initiative to encourage the development of environmentally sustainable business practices.[472]

It is important to look at the momentum behind the much maligned Clean Development Mechanism through which polluters can buy Certified Emission Reduction (CER) credits as part of their compliance with the Kyoto protocol and in so doing distribute capital and technology to the developing world. There is a pipeline of projects worth 1.6 billion tonnes of CO2 which at a current value of around €10 per CER is worth around €16 billion. Given that the carbon value is typically around 10% of the value of a total project, it seems that we are on the brink of a major distribution of capital.

9.3.3.2. Investment priorities

If we are serious about meeting the environmental challenge, then it is time to review the whole 'cake' of public expenditure to check whether it really reflects the priorities of the age. The following table sets out past and proposed public expenditure on a range of projects and compares them to what we are prepared to spend on protecting the environment and addressing fundamental inequalities.

[470] Clean Edge: 'Morgan Stanley to Invest $3 Billion in Emissions Reduction Credits and Other Related Initiatives', 6 November 2006; http://www.cleanedge.com/story.php?nID=4395
[471] GreenBiz.com: 'Goldman Sachs Expects Big Returns from Going Green', 2007; http://www.greenbiz.com/news/reviews_third.cfm?NewsID=34521
[472] GreenBiz.com: 'BofA Banks $20 Billion to Grow Green Economy', 6 March 2007; http://greenbiz.com/news/news_third.cfm?NewsID=34688

Public Expenditure: Do we have the right priorities?

Political & Economic Priorities	Environmental Priorities
EU budget 2007: €126.5bn[473]	EU Environment €353m[474]
EU Structural Funds: €195bn 2000-2006 for EU 15[475]; €15bn for new Member States 2004-2006; EU CAP: €55bn[476]	UK Government Energy Tech R&D: £15m[477] (2007), including 'ensuring the continued production of hydrocarbon reserves'
US budget 2007: $2,068bn[478]	UK Science budget 2007-08: £3.45bn[479]
US spending on Iraq War: $254bn[480]	OECD Official Development Assistance: $106.8bn[481] (2005)
Fossil fuel subsidies: $150-250 billion annually[482]	UK Environmental research: £800m per annum[483]
UK Budget 2007: £552 billion[484]	FCO Climate Change and Energy Programme: £4.7m[485] (FY 2007/8)
UK Military – Typhoon Fighter aircraft: £16.7m[486] - £19m each [487]	UK Climate Impacts Programme (UKCIP): £3.5m[488] (2005-2010)
UK Defence spending: £33.3bn[489] 2005-06	Hadley Centre: £20m per annum[490]
Civil nuclear liabilities: £48bn[491]	UK Cleaner Coal R&D $3.4m[492] (2004)

[473] http://ec.europa.eu/budget/budget_detail/current_year_en.htm
[474] http://ec.europa.eu/budget/budget_detail/policy_areas_en.htm#5
[475] http://ec.europa.eu/regional_policy/atlas/factsheets/pdf/fact_eu25_en.pdf
[476] Open Europe: 'CAP budget up by 12 percent. Not only has the CAP not been reformed – as has been widely reported, but farm spending is actually to increase substantially. Spending on the CAP is to increase from 49.3 billion euros in 2004 to 55 billion euros in 2007. In real terms the CAP budget has increased from 330 billion euros over the last seven-year budget to 371 billion over 2007-13. CAP spending will also account for a bigger share of the new (larger) EU budget than it does currently (from 42.6 percent last year to 43 percent on average over the 2007-13 total).' http://www.openeurope.org.uk/media-centre/bulletin.aspx?bulletinid=27
[477] Government News Network: DTI: *Strong innovation, strong economy,* 21 March 2007; '£15 million for energy technologies - both renewable low-carbon options and ensuring the continued production of hydrocarbon reserves'
[478] http://www.civitas.org.uk/eufacts/download/SF.1.Budget.pdf
[479] DTI: *Science Budget Allocations 2005-06 to 2007-08*, May 2005
[480] Congressional Budget Office: Military Operations and Other Defense Activities – Iraq 2003-2006 http://www.cbo.gov/ftpdocs/75xx/doc7506/GWOT_Tables_2006_08.pdf
[481] http://www.oecd.org/document/38/0,2340,en_2649_201185_38144422_1_1_1_1,00.html
[482]H.M. Treasury: *Stern Review: Accelerating technological innovation* p.355, October 2006, cites: REN21, 2005 which cites: UNEP & IEA: *Reforming Energy Subsidies*, 2002 www.uneptie.org/energy/publications/pdfs/En-SubsidiesReform.pdf; additionally, New Economics Foundation: *Price of Power*, 2004 states that'…global fossil fuel subsidies amount to approximately $235 billion a year'
[483] The Independent: Gordon Brown: *'The environment must be centre of policy worldwide'*, 20 April 2006 http://news.independent.co.uk/uk/politics/article358763.ece
[484] http://www.hm-treasury.gov.uk/budget/budget_07/bud_bud07_speech.cfm
[485] Foreign & Commonwealth Office: 'The Global Opportunities Fund Climate Change and Energy programme objective is to contribute significantly to UK climate change and energy security (CCE) objectives: Achieving climate security by promoting a rapid transition to a sustainable low carbon, global economy and access to clean, secure and affordable energy supplies for the UK' http://www.fco.gov.uk/servlet/Front?pagename=OpenMarket/Xcelerate/ShowPage&c=Page&cid=1070989563933
[486] UK Ministry of Defence: *Major Projects Report 2006* http://www.nao.org.uk/publications/nao_reports/06-07/060723i.pdf
[487] http://www.publications.parliament.uk/pa/cm200506/cmhansrd/cm051121/text/51121w13.htm
[488] 'Oxford's Environmental Change Institute has been awarded more than £3.5 million of government funding over the next five years for the UK Climate Impacts Programme (UKCIP).' http://www.ox.ac.uk/blueprint/2004-05/0206/13.shtml
[489] H.M. Treasury: *Public Expenditure Statistical Analyses 2006*, May 2006 [estimated outturn]
[490] Risk Solutions: Hadley Centre Review 2006, March 2007 p.39 Table 2: 'Financial information is based on estimates provided by the institutes in national currency'
[491] The 2002 white paper '*Managing the Nuclear Legacy: A strategy for action*' estimated the undiscounted civil nuclear liabilities at £48 billion. This was made up of 47% nuclear waste management, 43% decommissioning and 10% ongoing management and maintenance costs. The majority of the total (£40.5 billion) is for liabilities that were managed by British Nuclear Fuels plc (BNFL), principally Sellafield; the rest was managed by UKAEA

ID card scheme: £10.6-19.3bn to 2016[493]	UK Renewables R&D $19.8m[494] (2004)
NHS computer system: £12.4-20bn[495]	Total UK Energy Investments by the Research Council: £38.9 m (2004-2005)
Budget for widening M1: £5.1bn[496], and M6: £2.7bn[497]	Carbon Trust Budget: £100m
Cost of Olympics: £9bn[498]	

Most controversially, Europe spends almost half of its annual budget on a problem which arguably it has already solved – namely food security – and a fraction of that on the next big problem – climate security.

But the point is not to criticise any particular project in the left-hand column. It is simply to ask that if climate change really is 'the biggest political challenge of our time',[499] is this fully reflected in our investment priorities?

We would suggest that there are two useful tests:

a) The EU budget review

In theory, the whole €121 billion EU budget is up for grabs in the comprehensive review scheduled for 2008/9. In practice the debate is likely to be boxed in by entrenched self interest. We would like to see the British government lead the debate on the scope to retune CAP and structural funds to help provide funding for both the mitigation and adaptation agendas. For example Poland is set to receive €60

[492] International Energy Agency
[493] The Home Office released figures showing that their estimate in October 2006 was £4.9 billion, but that this had jumped to £5.75 billion by April 2007 (Home Office, *Identity Cards Scheme Cost Report*, May 2007, pp5-8). However, the London School of Economics states that, for the first ten years, the project will cost £10.6 billion at best and £19.3 billion at worst, with a median estimate of £14.5 billion (LSE, *The Identity Project: an assessment of the UK Identity Cards Bill and its implications*, 27 June 2005, p.245).
[494] International Energy Agency
[495] House of Commons Public Accounts Committee: Department of Health: *National Programme for IT in the NHS*, March 2007 'When the main contracts for the Programme were let in 2003 and 2004, the Department announced that they would cost £6.2 billion. Subsequent estimates of the cost of the Programme reportedly attributed to the Department have ranged up to £20 billion, but the Department clarified that this figure relates to total IT expenditure within the NHS during the life of the Programme and that it expected the cost of the Programme itself to be £12.4 billion.' p.20-21
[496] The Observer: *M1 widening to cost £21m per mile* 'The cost of widening the M1, Britain's biggest road-building project, is spiralling out of control with each mile costing more than £21m. The National Audit Office was called on last night to investigate why the price of the project has risen from £3.7bn to £5.1bn. The latest estimate makes the 240-mile project bigger than the annual economies of a third of the world's nations. The figures have been revealed in a report ordered by the Department for Transport amid rising concerns about huge budget increases needed to fund road-building across the country.' May 6, 2007 http://observer.guardian.co.uk/uk_news/story/0,,2073611,00.html
[497] Transport 2000: *Expert to review M6 business case on behalf of national groups* 'The scheme was originally costed at £670 million when Midman reported in March 2002, but had risen to £2.9 billion by 20 July 2006, when Transport Minister Dr Stephen Ladyman made a ministerial statement. The Government`s motorways and trunk roads programme is currently valued at around £12 billion.'
[498] ePolitix: *Jowell outlines £9bn Olympic budget* 'The bill for the 2012 Olympic Games and associated regeneration work could exceed £9bn, Tessa Jowell has announced.' 15 March 2007 http://www.epolitix.com/EN/News/200703/5f6ea9b5-44b3-4528-ae4d-8d89ac006ea3.htm
[499] The Rt Hon Tony Blair MP: *Letter to David Miliband MP*, 11 May 2006, "Climate change is the greatest long term threat facing the world today." http://www.number-10.gov.uk/files/pdf/SSDEFRA.pdf; The Rt Hon David Cameron MP: *The Independent*, 20 April 2006, "Climate change is one of the biggest threats facing the world and we must have a much greater sense of urgency about tackling it." http://news.independent.co.uk/uk/politics/article358764.ece

billion[500] in Structural Funds – how much of that money is to be directed towards improving the environmental performance of a major coal producer and the resilience of its infrastructure to climate change?

b) Perverse subsidies

The estimated public subsidy for fossil fuels is between $150-250 billion per year globally,[501] with subsidies on oil products in non-OECD countries estimated at over $90 billion annually.[502] The European Environment Agency have produced an analysis of energy subsidies which concluded that for every €1 spent on renewables subsidies, €4 goes to fossil fuels.[503] This ratio is consistent with a report which argues that every year the UK government gives some £6 to £8 in fossil fuel subsidies for every £1 to support clean and renewable energy, and that a typical British taxpayer pays at least £1,000 a year to fund 'perverse' subsidies.[504]

The oil and gas industry in the UK is supported by holding down value added tax on its products at a cost to the Treasury of around €1.4bn a year.[505] A significant amount of the UK's support for fossil fuel projects is in the form of export credit guarantees, through which public money is used to underwrite investments in large-scale energy projects in the developing world.

Diverting a small fraction of that money to renewable energy or energy efficiency incentives would make an enormous difference. The revenue that government collects from the fossil fuel sector[506] may be greater than revenue from council tax, stamp duty, capital gains tax, and inheritance tax combined. But it is likely to be subject to long term structural decline, and phasing out taxpayer subsidies would be consistent with the Conservative Party's principle of shifting the basis of taxation to give greater rewards to perceived 'goods' and greater penalties for perceived 'bads' such as pollution. The polluter should pay, not get paid.

The 'End Oil Aid' bill,[507] introduced in the US in April 2007, seeks to end subsidies for the international operations of oil companies, calling on international financial institutions to stop financing oil and gas projects. Calculations by the World Bank and OECD show that global subsidy removal could reduce CO2 emissions by around 10% worldwide.[508] In 2005, the G8 asked the World Bank to finance the move away from carbon use in the developing world.

The UK should therefore support the EU Sustainable Development Strategy requiring a 2008 roadmap to phasing out subsidies that are harmful to the environment, and encourage the EU Commission to

[500] 'EU aid to Poland is set to rise from 2% of the country's GDP to 4% between 2007 and 2013. The funds are part of the EU Structural and Cohesion Funds aimed to improve transport infrastructure, regional development, education and environment. Poland will receive a total of €91 billion of which around €60 billion will be allocated to the Structural Funds' http://www.euromonitor.com/Improving_Polands_transport_infrastructure

[501] H.M Treasury: Stern Review: *Accelerating technological innovation* p.355, October 2006

[502] International Energy Agency: *World Energy Outlook 2006*, 2006

[503] European Environment Agency: *Energy Subsidies in the European Union: A brief overview*, June 2004. The study estimates that the EU and the governments of its 15 older Member states together provide 5.3 billion Euros a year in subsidies to renewables. This amounts to just over one-sixth of the total volume of subsidies given annually to the energy sector, which is estimated at 29.2 billion Euros. Fossil fuel production and consumption receive much greater subsidies than renewables -- an estimated 21.7 billion Euros, or over two-thirds of the total.

[504] Myers, N. and Tickell, C: '*The no-win madness of catch-22 subsidies*' Financial Times 28 July 2003

[505] European Environment Agency: *Energy Subsidies in the European Union: a brief overview*, June 2004 'Italy, the Netherlands and the UK provide the highest level of support to the oil and gas sector. In the Netherlands, preferential tax treatment under the regulatory energy tax for medium and large users of gas is significant (estimates range from EUR 0.9 to EUR 2.4 bn). The UK supports oil and gas with reduced rates of VAT (5 %) on domestic oil and gas (circa EUR 1.4 bn), while Italy allows reduced VAT rates (10 %) on domestic gas (circa EUR 0.9 bn).'

[506] Calculated by the New Economics Foundation at £34.9 billion; NEF: *The UK Interdependence Report*, 2006

[507] http://www.house.gov/list/press/ny22_hinchey/morenews/041707EndOilAidActIntro.html

[508] UNEP: *Background document on Energy Northern perspective* by Climate Action Network, 1 October 2005

review state aid guidelines in order to discourage subsidies to the fossil fuel industry. Support of fossil fuel projects during the phasing out period must be transparent and accountable.

Given the difficulty of defining subsidies, perverse or otherwise, the UK should encourage the OECD to take a lead in trying to supply guidelines. It should also contribute to the work of the International Commission on Perverse Subsidies, chaired by the former New Zealand Environment Minister, Simon Upton, in order that they may highlight the areas in the UK and EU where such subsidies should and could be eliminated.

Priority should be attached to ensuring that the lending available from export credit agencies and multilateral development banks is directed towards investment in renewable energy and energy efficiency projects. As a starting point the UK should put pressure on the World Bank to be transparent in reporting the funding of fossil fuel based projects and to work towards a requirement that borrowers should first demonstrate that low carbon options have been considered and reasons for rejection published.

Our Trade and Aid policies can improve resilience through economic development based upon clean energy. Development assistance in the energy sector should therefore focus on overcoming energy poverty and promoting sustainable solutions, not subsidizing oil companies, and development aid must be focused on supporting developing countries in such a way that they can leapfrog conventional technology.

We should require DFID to produce an energy and climate strategy, covering both bilateral and multilateral energy funding, which will work towards the phasing out of support for all fossil fuel extraction projects and an increase in access to energy in the developing world through the promotion of decentralized and low carbon forms of energy, and energy efficiency projects.

> ‘The solar panel, the wind turbine, the water pump, the biogas plant – these are relatively simple pieces of technology. But in the developing world, what they can deliver is almost miraculous. They improve health conditions, increase opportunities for education, and provide sustainable livelihoods. At the same time they combat the greatest threat of our time.’
>
> *Al Gore – introduction to Ashden awards 2007*

9.3.3.3. The most cost-effective approach?

We have argued that there is a powerful case for the affordability of the measures necessary to keep the global average temperature rise below 2°C. That in no way detracts from the need to show real discipline in pursuing the most cost-effective approach, not least given the continuing uncertainties. The only way in which we will be able to achieve our targets is by maintaining public trust. Every time measures are seen to be more onerous than necessary, more complicated than they need be, or more expensive than is justified, we betray that trust and make our job much more difficult.

We have a duty to ensure that the bill is as low as it can be consistent with delivering a low carbon economy. If we can ensure that people believe we are doing that, we have a real chance of winning through. If they see us as profligate or we shall fail.

9.3.3.4. We cannot afford to wait

Some argue that the most cost-effective approach is to focus our limited resources on ‘adapting’ to climate change. We strongly support the view that adaptation must rise up the international and domestic agenda but not at the price of failing to reduce emissions. The science is clear. The problem is only going to get bigger and more expensive. Adaptation alone ignores the risk of crossing ‘climate

tipping points' which may trigger irreversible and catastrophic climate change. Adaptation will of course play an important part, but mere adaptation is a wholly irresponsible position.

There are some who argue that we should wait before taking action to cut emissions vigorously, because the cost of the technology that will make a difference will fall. But for costs to fall, technology needs to be developed and deployed. Given the long timescales involved, our innovators and financiers need the policy framework and incentives to get to work now.

Finally, the argument ignores the fact that huge investments are about to be made in replacing or expanding our capacity to generate energy. The IEA has projected that a global investment of around $21 trillion is needed between now and 2030 to meet the world's rapidly growing need for energy.

Within the UK it is likely that nearly a quarter of our total generating capacity will be decommissioned by 2016[509]. Given the long life of this infrastructure, we need that investment to be in the cleanest technology that is available to us. The decisions we take now will critically affect our ability to achieve ambitious long term emission reductions.

9.3.3.5. The social cost of carbon

The 'dismal science' of economics is fundamental to effective decision making on behalf of taxpayers. Economists around the world are frustrated by their inability to run reliable cost benefit analysis of climate change policy given the large number of variables and the imprecision around a critical value – the social cost of carbon. This value is defined as the cost to society of each additional tonne of carbon that we emit and pure economics dictate that the cost of abating emissions should not exceed this value unless, as Dr John Llewellyn points out,[510] society chooses to pay beyond that point in order to invest in a cleaner environment in its own right or because society wishes to take out additional insurance against the unknown.

The problem is that estimates of the social cost of carbon (SCC) vary enormously. The range runs from $20 per tonne of carbon (Nordhaus 2006) through the PAGE2002 estimate of $66 per tonne of carbon emitted in 2001, to Defra's figure of $70[511] and Stern's estimate of approximately $85 per tonne of CO2 (approx. $312 per tonne of carbon) if we remain on a business as usual trajectory.

Until we build consensus around a narrower range, our policy response will lack a coherent framework. We would expect a future British government to press for major international support of the intellectual effort to refine our understanding of what value we should attach to each additional tonne of carbon. Once we are clearer on that value, we will have a better view on what constitutes an effective carbon price and the cost-effectiveness of different policy instruments.

We therefore recommend that Britain should call for and be prepared to contribute to the funding of an international collaboration to reach consensus on an appropriate range to price the social cost of carbon.

9.3.3.6. Offsetting

Analysis shows that a large proportion of the cheapest carbon abatement opportunities exist in developing economies. The Kyoto protocol has created the Clean Development Mechanism (CDM), which allows UK PLC to take advantage of these opportunities. A balance has to be struck between

[509] House of Commons Environmental Audit Committee: *Keeping the Lights On*, Sixth Report of Session 2005–06, March 2006
[510] Lehmann Brothers: John Llewellyn: *The Business of Climate Change: Challenges and Opportunities,* February 2007 p.31
[511] Clarkson and Deyes, 2002

encouraging the UK to pursue the lowest cost for a tonne of carbon saved; requiring the UK to grasp the nettle of domestic reductions; leaving some 'low hanging fruit' for developing economies once they engage in the international process; and supporting a key mechanism for developing countries to develop on the back of clean technology.

We believe that there needs to be greater transparency of the agreement as to what proportion of emission reductions can be 'bought' overseas by developed nations complying with their obligations. This is an issue which needs definition and the UK should take the lead in seeking to achieve it.

We cover offsetting in more detail in our Sections on international emissions trading and domestic policy.

9.3.3.7. Impact on the British economy

Given the lead times on supply side solutions, we believe that we have no option but to focus on policies to improve resource efficiency and reduce energy demand if we are to have a chance of achieving a peak in global emissions within ten to fifteen years. Because the climate agenda coincides with rising energy prices and concerns about energy security this policy focus can be framed as 'no regrets' and in the economic interests of the UK.

Our central thesis is that we can improve quality of life in Britain while taking significant amounts of carbon out of the economy. In fact it is time to debunk the myth that somehow there is a choice between the environment and the economy. The latter depends on the former in a way which we have collectively underestimated.

No government is going to turn its back on the need to grow the economy. We depend on growth for our national prosperity and ability to invest in the infrastructure and public services which are central to our quality of life. However it is time to think more carefully about the quality of that growth, and the impact it has on our natural resources.

Despite lingering concerns about possible impacts on our competitive position and therefore our quality of life, in fact the analysis that emerges from our policy review leads us to a radically different view – that it is in Britain's national interest to decarbonise the economy.

This is not just an issue of climate change risk and opportunity. Britain is set to become a major importer of energy which should lead us to take a more conservative view on the question of our future energy security. Analysis by the Institute for European Environmental Policy predicts that on a business-as-usual path, Britain's dependence on foreign oil will increase 705% by 2030, from 7 million tonnes in 2005 to 56.3 million tonnes net of imported oil every year by 2030.[512] Exports of gas fell by 35% in 2004 compared with the previous year, with imports increasing by 54%[513] – the UK becoming a net importer of gas for the first time since 1996. In 2005 the UK was a net importer of gas by £987m.[514]

Any economy will struggle to compete if it does not have reliable access to affordable energy. We have to ask ourselves whether it is in the interests of this country to remain dependent on fossil fuels, which look set to become increasingly expensive in the age of 'peak oil'. With reserves increasingly concentrated in countries which carry relatively high levels of political risk, we must consider whether our energy security interests would not be better served by higher levels of self sufficiency. We note the brave decision of Sweden to aim for zero dependence on oil by 2020.

[512] Greenpeace: *Over a Barrel*, Dec 2006
[513] DTI: *UK Energy in Brief*, July 2005
[514] DTI: *Dukes 2005* – Gas: £1.7bn imports; £745m exports

Finally in a world of increasing energy costs, can we afford to be so complacent in the face of compelling evidence that two thirds of energy is wasted by the time it reaches the end user?[515] Our radical Energy proposals take us in the other direction – towards greater self sufficiency, greater energy efficiency and ultimately lower energy costs as the price curves of traditional fossil fuel energy and low carbon energy cross. We believe that British companies will benefit.

Peak Oil

Oil made up 36% of world energy consumption in 2005

'Peak oil' theory refers to the point at which half of the world's accessible oil reserves have been extracted. After crossing this threshold oil production starts to decline, with future demand outstripping supply. The resulting increase in oil prices has vast economic, social and political implications, with conflict between nations competing for ever-scarcer oil resources. A number of authorities believe that we will have passed the point of world peak oil production in 2008.[516]

Estimates of the time it will take for world oil and gas resources to run out vary considerably. According to BP data from their 2006 Statistical Review of World Energy, global oil reserves are enough to last for around 41 years at current levels of production. More than 60% of remaining global oil endowment is in the Middle East. China has less oil than the US with around four times the population. At the current rate of growth China will consume 100% of currently available world exports within ten years.

At a time when the global economy is going through a seismic shift in response to the impact of advances in global communications and the growing power and capability of countries such as China, India and Brazil, Britain's productivity growth is too low and we are sliding down the league table of world competitiveness. One of the reasons for this is relatively low levels of investment in research and development. Our science is strong but as Professor Michael Porter made clear in his 2003 assessment of UK competitiveness[517] we are relatively weak at innovation – the successful exploitation of new ideas – and that has major implications for our productivity growth. A more healthy economic future lies in stimulating enterprise and innovation.

The priority must lie in positioning ourselves to maximise the value that we add in the new growth industries. The need to reduce radically the carbon intensity of the global economy will generate extraordinary growth in environmental services. A report commissioned by Shell suggested that the UK market opportunity alone will be worth £4 billion a year by 2010. Britain has been complacent in the face of this opportunity, reflected in the fact that we have only a 5% share of the market and have created less than half the jobs in this sector than has Germany.

'Chancellor Merkel has committed the CDU to spearheading an ambitious hydrogen research and development initiative with the goal of establishing a mature hydrogen game plan leading up to 2020. The CDU plan calls for Germany to lead the world into the new hydrogen era and a third industrial revolution.'

Japan leads the way on hybrid car technology. Brazil saw a future in the $20 billion biofuel market decades ago. The US attracts criticism for its stance on Kyoto but wants to lead the development of the

[515] Greenpeace: *Decentralising Power: an energy revolution for the 21st century*, 2005
[516] James Kunstler: *The Long Emergency,* 2005p.25, note 1
[517] Professor Michael Porter & Christian Ketelsuk: *Competitiveness: moving to the next stage*, May 2003

hydrogen economy, and is investing $1.7 billion[518] in pursuit of that goal. The fact that we are such a latecomer to recycling means that the companies benefiting from the boom in the £10 billion a year UK industry are predominantly foreign.

There is no room for complacency. All the language of 'technology transfer' to India and China may seem redundant in twenty years time, given their ambitions to supply the technology of the future. Within a decade China will be the largest auto manufacturer in the world, and already has the largest installed base of wind turbines. The country has invested $930 million in climate change technology innovations since 2001, and the Chinese Ministry of Science and Technology recently launched a Scientific and Technological Actions on Climate Change initiative with the aim of 'enhancing the role of science and technology in responding to climate change'.[519]

Australia too is billed as a climate sceptic, but 23% of Australian Research and Development went into the environment industry in 2003 – reflecting an ambition for the industry to be worth AU$40 billion a year by 2010.[520] In this context, we should be concerned that UK R&D spend lags many of our global competitors.[521]

British engineers should be leading the innovation that is going to be required in the automobile and aerospace industries. We should leverage the North Sea and our knowledge of coal to profit from developing key technologies such as carbon capture and storage. Despite our natural resource advantages we have let other countries take the lead in developing renewable energy technology from wind (a $18bn market in 2006) and solar photovoltaics (a $16bn market in 2006). A country with one of the best renewable energy resources in the world should be a leader not an 'also ran' in those technologies. Furthermore, British farmers should be seizing the opportunity to redefine their business models to profit from the new opportunities inherent in biomass, anaerobic digestion, and the sustainably managed production of biofuels.

The development of emissions trading will drive strong growth in carbon trading markets, whose global aggregated value was estimated to be $30 billion in 2006, three times greater than in 2005 and dominated by the sale and resale of European Union Allowances (EUAs) at a value of nearly $25 billion.[522] The City of London, which makes such an important contribution to our national wealth, must be the centre of the international carbon trading market and the fundraising centre of choice for companies at the cutting edge of our attempt to take carbon out of the global economy.

'The UK has emerged as the clear leader in carbon fund management, with 72% of private carbon funds and 50% of all carbon funds being managed out of London.'[523]

[518] 'President Bush launched the Hydrogen Fuel Initiative in his 2003 State of the Union Address. The goal is to work closely with the private sector to accelerate transition to a hydrogen economy, on both the technology of hydrogen fuel cells and a fueling infrastructure. The President's Hydrogen Fuel Initiative and the Freedom CAR Partnership launched in 2002 will provide $1.7 billion t h r o u g h 2008 to develop hydrogen – powered fuel cells, hydrogen production and infrastructure technologies, and advanced automotive technologies.' www.hydrogen.gov.
[519] China Daily: *China invests US$930m to fight climate change*, 14 June 2007 http://www.chinadaily.com.cn/china/2007-06/14/content_894637.htm
[520] The Parliament of the Commonwealth of Australia: *Employment in the environment: Methods, Measurements and Messages: Inquiry into employment in the environment sector*, November 2003
[521] House of Commons Environmental Audit Committee : *Keeping the Lights On*, Sixth Report of Session 2005–06, March 2006 p.53
[522] World Bank: *State and Trends of the Carbon Market 2007*, May 2007
[523] New Carbon Finance: Press Release: *UK in Pole Position as Carbon Funds Surge to $11.8bn – but More Funds Required*, 4 April 2007 http://www.newenergyfinance.com/NEF/HTML/Press/PR_2007-04-04_Carbon_Funds_Analysis.pdf

The need to transform the world's energy and transport infrastructures represents one of the greatest wealth creation opportunities since the Industrial Revolution, which Britain led and profited enormously from both in terms of GDP and world-wide influence. We see the same opportunity in the Low Carbon Revolution, and want Britain to be a leader not a laggard. This is a great entrepreneurial nation with a strong science base and the best capital markets in the world. Why should we not feel confident in our ability to profit long term? We must free ourselves from the spiral of shrinking returns that is the consequence of a relentless focus on the short term.

We would place particular emphasis on the opportunity for small businesses to profit from this agenda. Small business should be the drivers of innovation in the British economy but appear stifled, not least by complex regulation and the growing power of 'big business'. Our proposals (Appendix 9.1.2) are designed to give this crucial sector of the economy the information and incentives they need to seize the opportunity.

Opportunity for SMEs

According to research by Shell, the climate change market will grow by 21% in 2007, the biggest projected growth this decade, and will be worth £2.8bn to UK businesses by 2008. James Smith, Chairman of Shell UK said: 'With the climate change market growing, these are serious opportunities for businesses that can help to tackle climate change.'

Major opportunities for SMEs by 2010 include a £1.23bn market created by new environmental building regulations; £800m in renewable electricity; £500m in renewable road transport fuels; and £400m in the domestic energy efficiency market.[524]

9.3.3.8. Opportunity to enhance our competitive position

There are still voices that call for caution lest we jeopardise our competitive position. There is no doubt that it will take political courage but the alternative is to allow the irreversible erosion of our competitiveness.

The politics of climate change is moving fast around the world. If the science is right, our economic competitors will also be forced down this path and advantage should accrue to the early movers. Most of the regulation that will bite will have to be applied across the European single market, and higher European product standards will apply to all manufacturers. Our view is that if managed properly, we will end this journey with our national competitive position enhanced.

A new Conservative administration must be the catalyst for a step change in business attitudes, with an approach rooted in the understanding that what drives business is market opportunity and competitive pressure. To engage business leaders, we need to engage the three audiences that really matter to them – their customers, shareholders and employees. Success will create a virtuous circle whereby the world of business will be driving the politicians to be more ambitious. We want Britain to prove the principle of Green Growth, by growing the economy without damaging the environment. In the context of climate change it is not a choice; it is a moral, economic and strategic imperative.

[524] Shell Springboard Press Release: *Climate Change Innovation Celebrated as Report Predicts Record Year for Climate Change Market*, 7 March 2007: 'The UK market for climate change products is estimated by Vivid Economics to be £2780m in the year to January 2008, compared to £2,295m in the previous year.' www.shellspringboard.org/downloads/press/21.doc

9.3.3.9. Engagement of the Treasury

It is important that the Treasury be more fully engaged with the government response to climate change. The Stern Report was a product of the Treasury and its fundamental conclusion that the cost of mitigating climate change now is significantly less than leaving it until later should appeal to its thinking. Yet, although the Treasury is accountable for the stewardship of the economy and for the cost-effectiveness of government policy, it has been slow on the uptake.

The record of the Treasury

Has climate change been a priority?
Since 1997, Gordon Brown has made only three major speeches on the environment, all of which were made since the beginning of 2005[525]. Between 1997 and 2005, Brown mentioned the word 'climate' only eleven times in total in his Pre-Budget and Budget speeches; an average of only once per year.

Has energy efficiency been a priority?
In March 1995, Gordon Brown announced that a Labour government would lead a major push for energy efficiency in the home[526]. Giving evidence to the House of Commons Environmental Audit Committee, the Association for the Conservation of Energy said that: 'The energy efficiency industry as a whole is extremely disappointed by the painfully slow progress towards introducing new economic instruments to improve household energy efficiency. Frankly, we are beginning to wonder whether it will ever happen or whether the Treasury lingers under the illusion that running consultation exercises on a regular basis is the full extent of the commitment required from them'.[527]

Do we have cost-effective policies?
Ofgem[528], the NAO and external commentators have been lacerating about the cost-effectiveness of a key pillar of government policy – the Renewables Obligation (RO).

The awkward facts are that

- The UK underperforms Europe in terms of sourcing renewable energy despite having superb natural resources
- The very limited renewable energy we do have costs British taxpayers £1.4 billion a year. The cost per tonne of CO2 is a staggering £110.47 versus an average EU ETS price in 2006 of £11.50 per tonne of CO2-eq[529]
- The RO is seen as benefiting a single technology – onshore wind- in which Britain has already conceded technology leadership to other nations such as Denmark and Germany
- The RO was undermined by the failure to develop in parallel the key complementary policy in terms of a) planning and b) network access
- The UK is not seen as one of the most attractive markets in Europe to develop renewable energy projects.

The Treasury is accountable to the taxpayer who should be baffled as to how so little has been achieved at such a high cost

[525] H.M. Treasury: Newsroom and speeches: index; www.hm-treasury.gov.uk/newsroom_and_speeches
[526] Speech by the Rt Hon Gordon Brown MP to the Scottish Labour Party conference, 12 March 1995
[527] Evidence to the House of Commons Environmental Audit Committee , January 2006
[528] Ofgem press release: *'Ofgem puts forward new approach to funding green generation'*, 22 January 2007; http://www.ofgem.gov.uk/Media/PressRel/Documents1/16662-R5.pdf
[529] World Bank: *State and Trends of the Carbon Market 2007*: Average EUA prices in 2006: US$22.10 / €17). EUAs: European Union Allowances, the allowances in use under the EU ETS; one EUA equals one metric tonne of carbon dioxide equivalent

Just as the Climate Change Committee will be required to report on progress in meeting carbon budgets, so, in parallel, we should require the Treasury to report every three years on:

- public investment in support of mitigation and adaptation strategy;
- the cost-effectiveness of each policy instrument;
- their assessment of the impacts of mitigation and adaptation strategy on the competitiveness of the UK economy and the wellbeing of the population;
- the status of Britain in the world market as both a supplier and financier of environmental services;
- the use of taxpayers' money to subsidise the fossil fuel industry; and
- progress in improving the resource productivity of the economy.

9.3.3.10. Conclusion

The world can afford what should be no more than a slight reduction in the speed of wealth creation and consumption in order to safeguard the environment which makes it all possible. The private sector is already beginning to move in pursuit of profit and it is time to reorder our UK public investment priorities to avoid the disconnect between what we say about the importance of climate change and where we actually put the money.

Both the science and the economics tell us that the most cost-effective approach is to take action now to reduce emissions of greenhouse gases. It will be for the Treasury to ensure that the economics do not lag too far behind the science and the politics of climate change. In particular we must support the intellectual effort to reach better understanding of the social cost of carbon which should be the benchmark for policy making. Above all, the Treasury must be ambitious for Britain. We want to lead the Low Carbon revolution just as we lead the Industrial Revolution. As the Conservative Economic Competitiveness Policy Group notes, there is a real prospect of increasing the overall competitiveness of our economy if we lead and a real danger of being left behind.

National commitment is essential but there is no purely national solution to managing the risk of climate instability. Britain can and must lead the way but without others we cannot succeed. Our national response is the means by which Britain can be effective on the international stage. This is, after all, an issue of international policy, intricately interconnected with some of the biggest geopolitical issues of the age. We are facing the first test of whether in peace time the nations of the world can build a global policy sufficiently effective to avert global disaster. In asserting the need for that global action we must not undermine the case for urgent national commitment. But that national action must be designed to support an effective global response.

Section 9.4. Securing an International Deal

9.4.1. The current international process

The International Climate Regime

IPCC
The Intergovernmental Panel on Climate Change (IPCC) was established in 1988 to help increase understanding of climate change and build international consensus on the nature of the problem. The IPCC's first report in 1990 confirmed the basic scientific cause for concern and recommended that countries should negotiate an international treaty to combat the problem. This emerged as the UN Framework Convention on Climate Change (UNFCCC), signed at the Rio Earth Summit in 1992.

UNFCC
The United Nations Framework Convention on Climate Change came into force on 21 March 1994, and sets an overall framework for intergovernmental efforts to tackle climate change. The Convention enjoys near universal membership, with 189 countries having ratified.

Conference of the Parties (COP)
The Conference of the Parties is the supreme body of the Convention, which currently meets once a year to review the Convention's progress.

Kyoto Protocol
The Kyoto Protocol is an international treaty, which stands on its own and requires separate ratification by governments, but shares the objective, principles and institutions of the UNFCCC. It was adopted on 11 December 1997 at COP3 in Kyoto, Japan. The Protocol sets binding targets for the reduction of greenhouse-gas emissions by industrialized countries, significantly strengthening the UNFCCC by committing Annex I Parties to individual, legally-binding targets to limit or reduce their greenhouse gas emissions. It is ratified by 171 Parties and entered into force on 16 February 2005.

G8 process
The Group of Eight (G8) is an international forum for the governments of the United Kingdom, Germany, France, Italy, Japan, Russia and the United States. The G8 hold an annual summit attended by the heads of government of the member states. G8 countries account for over 65% of global GDP, and are responsible for nearly half of the world's greenhouse gas emissions. G8+5 refers to the G8 countries joined by the major emerging economies of Brazil, China, India, Mexico and South Africa.

Climate change negotiations roadmap

- COP 13, Bali, December 2007
- G8 Summit, Japan, summer 2008
- COP 14, Poland, December 2008
- G8 Summit, Italy, summer 2009
- COP 15, Copenhagen, December 2009

This process faces some major challenges not the least of which is that global emissions are rising at an accelerating rate of 3.2% per year (2000-2005) compared to 0.8% between 1980 and 1999. This means that on current trends, emissions are projected to increase by almost 60% by 2030, with developing countries accounting for over three quarters of this increase and overtaking the OECD as the biggest total emitters shortly after 2010. China will be responsible for at least a third of the rise in

global emissions. Fossil fuels are expected to account for over 80% of the increase in energy demand with coal being the energy source of choice.[530].

Those bald statements must be qualified. The rich countries continue to be far and away the biggest per capita emitters. It is also important to recognise that a significant proportion of the increase in energy use derives from our export of manufacturing capacity to the Third World. It is a serious qualification to these figures that, despite the export of so much of our manufacturing, the emissions in the US and Europe continue to rise.

The much maligned Kyoto Protocol was successful in its primary purpose of establishing institutions for future shared action. Critically it has spawned three important market mechanisms:

1. Emissions trading among Annex 1 countries;
2. Joint Implementations which allow Annex 1 nations to buy emission credits from each other; and
3. Clean Development mechanism which allows Annex 1 countries to buy emission credits from non Annex 1 countries.

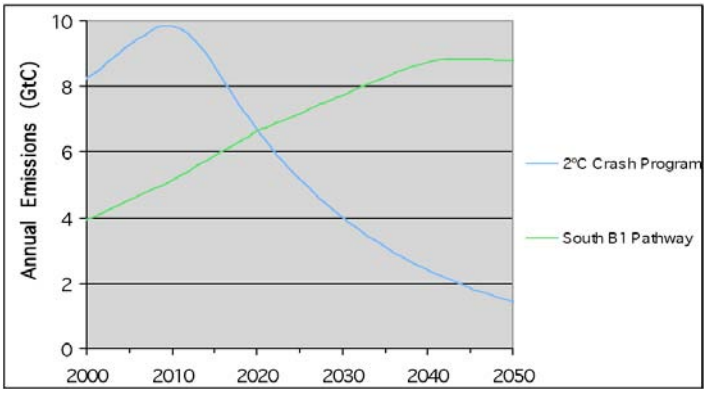
However Kyoto will make a very modest contribution to the reduction of global emissions and its effectiveness was further reduced by the withdrawal of the US and Australia. The question is whether we continue to press for a treaty that looks like Kyoto II in the face of likely hostility from the US.

In seeking to resolve that issue we are relying on processes which are deficient, not least in their urgency. The UNFCCC process is unwieldy, involving 180 nations. It proceeds at the pace of the least willing which is not ambitious enough. Given how long it takes to ratify treaties, we are running out of time to secure a deal in order to have something in place to succeed Kyoto by 2012. In effect, we will need an agreement in place by the end of 2009. The engagement of the US is critical and yet the next US President will not be sworn in until January 2009. We should expect the superpower to want to shape 'the game' according to their rules. This may ask more of China and India than they are prepared to give and we face the prospect of continued standoff between the main players – the US, China and India. Breaking this impasse is further complicated by the prospect of growing tensions between these nations on trade matters and energy security.

[530] IEA: *World Energy Outlook 2006* – Reference Scenario [The Reference Scenario provides a baseline vision of how energy markets are likely to evolve without new government measures to alter underlying energy trends]

Development in a climate constrained world

International climate negotiations must also take into account the opposing goals inherent in a) the urgent need to reduce global emissions to stay below 2ºC, and b) the rights of the South to 'pollute' in pursuit of their social and development needs.



Source: EcoEquity & Christian Aid: Greenhouse Development Rights, 2006

The above graph expresses this tension by way of a simple comparison of two emissions trajectories; the '2ºC Crash Program', a global 420ppm 'peak and decline' trajectory, and the 'South B1 Pathway'[531], a conservative reference projection of the South's future emissions.

It is clear that there is a mitigation shortfall between the two, and that by 2020 emissions in the South will need to decline sharply in order to keep the global average temperature rise below 2ºC (above which climate change will negatively impact on poverty alleviation and development goals).

A viable global climate regime will need to address this shortfall, with developed countries bearing the costs of such mitigation on the basis of equity, according to Article 3 of the UN Framework Convention on Climate Change, 'in accordance with their common but differentiated responsibilities and respective capabilities'.

However, the politics of climate change is moving very fast around the world. In May 2005 a General Election in the UK barely debated the environment, and now the issue is right up at the top of the political agenda. Australia was a non signatory of Kyoto, but is the first country to ban energy inefficient light bulbs[532] and John Howard has been forced to take a very much more principled stand on climate change in the course of his elongated election campaign. So too, in Canada, the incoming Conservative Government has had to ditch its climate sceptic stance in favour of an aggressively environmental policy.

[531] The SRES B1 scenario is the IPCC's 'green' scenario, characterized by relatively low population growth, a high level of environmental and social consciousness combined with a globally coherent approach to a more sustainable development, and the introduction of clean and resource-efficient technologies. Reflecting the SRES terms of reference, the scenario does not include any climate policies.

[532] The Hon Malcolm Turnbull MP, Australian Minister for the Environment and Water Resources: Press Relsease: *Australia slashes greenhouse gases from inefficient lighting*, 20 February 2007 http://www.environment.gov.au/minister/env/2007/pubs/mr20feb07.pdf

9.4.1.1. The US

The critical and well documented shift is in the US, at least at State level is gathering force and is getting increasing support from the corporate world. All presidential hopefuls on both sides of the political fence have found it necessary to take a supportive line on the need for urgent action on climate change.

Popular attitudes are shifting as reflected in national surveys[533]; and the political odds in favour of the US adopting a more proactive and multilateral stance have risen. Under the leadership of Speaker Nancy Pelosi, Congress intends to submit legislation within the next two years for a mandatory domestic cap and trade scheme. The Senate remains a tough proposition but cracks are beginning to appear. For America, the growing issue is one of security.

This is not just an issue of energy security and the cost (financial and political) of maintaining a vast military infrastructure to protect access to a diminishing and increasingly concentrated stock of fossil fuels. There is also a growing realisation that the UN Secretary General is right in signalling that: 'In coming decades, changes in the environment – and the resulting upheavals, from droughts to inundated coastal areas – are likely to become a major driver of war and conflict'.[534]

This scenario has major implications for the superpower and its willingness to get involved in pre- and post-conflict resolution, as recognised recently by a panel of 11 retired US Generals: 'Climate change can act as a threat multiplier for instability in some of the most volatile regions of the world, and it presents significant national security challenges for the United States'.[535]

The most recent G8 summit was disappointing and the Bush administration was successful in putting off urgent action by committing to yet another process. However, it is true that the Bush Administration has had to acknowledge the reality of climate change. Any successor looks set to shift the gears and reposition the US on what is becoming the defining issue of the age. Experience should tell us that when the US decides to move, the development and deployment of technology will be fast.

9.4.1.2. China

Less well known is the level of concern and activity on these issues demonstrated in China. We should not be surprised given that China's authorities recently produced estimates suggesting that economic loss caused by environmental pollution reached 3.1% of GDP in 2004, a not insignificant sum of $64bn.[536] It is estimated that 400,000 Chinese die prematurely each year due to air pollution,[537] with that figure predicted to rise to 550,000 by 2020. 16 of the 20 most polluted cities in the world are in China.[538]

There must be concern about the projected impact of climate change on global grain production since their population of 1.3 billion is expected to consume two thirds of it[539]. Last but not least for China is

[533] Speech by Eileen Claussen, President of Pew Center on Global Climate Change: An Agenda for Climate Action: 'a national survey showed that Americans of all political beliefs are not happy with the U.S. government's leadership (or lack thereof) on the issues of global warming and alternative energy. More than three out of four – including two out of three conservatives – said the federal government is not doing enough on either of these issues. And nearly nine out of ten agreed with the following statement—and I quote: "U.S. leaders should take steps to reduce carbon pollution now and speed up the conversion to renewable energy and other alternatives."' 30 March 2006 http://www.pewclimate.org/press_room/speech_transcripts/agenda_speech.cfm

[534] The Independent on Sunday: *Wars of the world: how global warming puts 60 nations at risk*, 1 April 2007

[535] US Center for Naval Analyses: *National Security and the Threat of Climate Change*, April 2007

[536] Chinese EPA and Chinese National Bureau of Statistics

[537] World Bank estimate; Academy on Environmental Planning, China: Unpublished study

[538] World Bank, 2001

[539] Jeffrey Sachs

the issue of water in a country which is planning to spend billions of dollars constructing pipelines to move water supplied by increasingly unreliable glacial melt. Environmental risk is very obvious in a China that relies on double digit growth to maintain social cohesion and keep the present regime in power, and prevention of flooding and the promotion of reafforestation are high among the Premier's priorities.

Our feeling is that when the US signals change then the Chinese political system will allow it to move fast in response. Nor are they likely to be held back by lack of capital; what they appear to want from the West is intellectual property and access to markets.

Development in a climate constrained world

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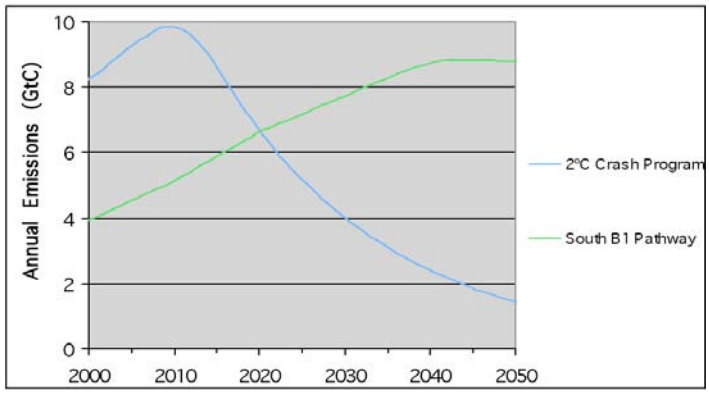

Source: EcoEquity & Christian Aid: Greenhouse Development Rights, 2006

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9.4.1.3. India

We should not underestimate the importance of India, which is going to have a larger population than China in the future. This is the third player whose participation in any new international deal is a necessary condition of credibility. Participants in the international negotiations report that India is

[540] The SRES B1 scenario is the IPCC's 'green' scenario, characterized by relatively low population growth, a high level of environmental and social consciousness combined with a globally coherent approach to a more sustainable development, and the introduction of clean and resource-efficient technologies. Reflecting the SRES terms of reference, the scenario does not include any climate policies.

unyielding in its opposition to mandatory emission reduction targets, and indeed may be less prepared than China to respond to a shift in the US position on climate change.

However this should not be interpreted as indifference to climate change. On at least one analysis, they are the country with the most to lose in a scenario of global warming between 2.5°C and 6°C, with economic costs estimated between 4% and 15% of GDP[541]. A changing climate will also change the country, particularly in increasing the burden of water stress, and may exacerbate existing security issues.

9.4.1.4. Engaging the three major players

What both India and China have in common are growing populations, rapid industrialisation at high levels of carbon intensity, and a ravenous demand for energy in an energy strapped world. Both of them have an understandable sense of injustice when being asked by the developed world to restrain their own use of fossil fuels. Both are understandably determined to use their position to wrest the most from the rich nations in return for cooperation.

No climate change deal will be credible without the engagement of these three major players. No deal can be reached which does not recognise the prime responsibility of the rich nations. Every major player has a clear advantage in getting a deal but none is yet entirely ready to talk turkey. Nonetheless, we believe that there has never been a better time than the present to make it happen.

The prospect of new leadership in the US and the changes in the EU can change the dynamic of the negotiation, and in doing so realise the opportunity to make the breakthrough. Just as we should not expect the climate to respond in a linear fashion, so the politics of climate change are capable of shifting gears very fast.

There is no shortage of plausible frameworks for a long term global deal on the table, not least the intellectually and morally coherent principle of Contraction and Convergence. However their champions underestimate the need first to get the politics right if we are to get a sustainable agreement. The scale of ambition and equity that is required will not make an effective agreement easy and only incrementalism can deliver. The ideal will be the enemy of the good if it delays us from getting agreement on what really counts now.

9.4.2. A new pragmatism

We need to introduce a new pragmatism to negotiations that recognises these things:

9.4.2.1. Developed countries have to take a lead

Developed countries that have profited from industrialisation need to take a more effective lead in committing to reduce emissions significantly and be prepared to be accountable for compliance while also committing resources to help the vulnerable improve their resilience.

This is not just to propound the moral case. It is fundamental to building the trust of the key developing nations that we need to engage with an international agreement. It is also consistent with the first Principle of the UN Framework Convention on Climate Change, which states: ‘The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and

[541] W.D. Nordhaus and J. Boyer: *Warming the World: Economic Models of Global Warming*, 1999

respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof.'

9.4.2.2. Developing countries have differentiated responsibilities

At this stage, developing countries have differentiated responsibilities. They have a right to develop and we have a duty to help them. However the engagement of the key developing economies with an international agreement is a necessary condition of success because they are going to be a big part of the problem, not least because their growth is dependent in great measure on their satisfying the markets of the rich nations.

If the US is to commit to an international agreement it will need to be able to point to their involvement. What's more, a large proportion of low cost abatement options will be in developing countries. This is argued strongly by McKinsey in an article[542] which demonstrates that 26 gigatonnes of greenhouse gases a year could be abated by 2030 (a level compatible with a 450ppm CO2-eq stabilisation target) at a marginal cost per tonne of €40, but that more than half of the lower cost options are in developing economies (with avoided deforestation a major component).

The big decisions we take on the replacement and development of energy and transport infrastructure in the next twenty years will shape our ability to manage climate change risk. This new infrastructure will be a sunk cost for many years. It must be as clean as we can make it. In this context, the priority is to incentivise China and India to expand base load electricity in a low carbon way. For both of them the key energy mix is nuclear (complicated, expensive, carbon 'lite') and coal (simple, cheap, carbon 'heavy').

The world has very large coal reserves and they are located in large, energy hungry countries; notably the US and China. We therefore have to expect that a lot of coal is going to get burned and the key question is whether it gets burnt clean or dirty. If it is the latter, then most of the other things we do will be irrelevant. That's why we need to accelerate the deployment of carbon capture demonstration projects in the UK, elsewhere in the EU, the US and China.

The importance of 'Clean Coal'

According to IEA projections, three of the four top emitters of carbon dioxide in 2030 will be coal-fired power plants in China, the US and India respectively. Under a business-as-usual scenario, CO2 emissions from energy sources will grow by up to 90% by 2030, with coal accounting for 43% of global emissions, unless policy interventions are made.[543]

- Coal presently supplies 40% of the world's electricity
- China builds a new coal-fired plant at the rate of almost one a week
- Coal fuels 82% of China's electricity demand, and 76% of the total power supply; installed capacity is expected to increase from 430GW in 2006 to 650GW in 2030 using standard pulverized coal

[542] McKinsey: Per-Anders Enkvist, Tomas Nauclér, and Jerker Rosander: *A cost curve for greenhouse gas reduction*, 2007 Number 1 http://www.mckinseyquarterly.com/article_page.aspx?ar=1911
[543] International Energy Agency: *World Energy Outlook 2006,* 2006

9.4.2.3. Buying time

Now that we have woken up to the threat, we need to buy some time, not least to develop the supply side technologies. The three most cost-effective ways we can do this over the next fifteen years are to slow the destruction of carbon sinks, raise the standards of energy efficiency, and get rid of HFCs.

Carbon sinks

Slowing the rate at which we destroy our carbon sinks, specifically the tropical rainforests, is the more urgent as we understand the lessening effectiveness of the sea to absorb excess CO2. [544]

Given that land use change and deforestation account for approximately 20% of global greenhouse gas emissions (approximately the contribution of China) this must be a top priority. This agenda is not just about low cost abatement, it carries with it the opportunity to help the stewards of these rainforests find a path to more sustainable development.

Deforestation

According to figures from the UN Food and Agriculture Organization, around 13 million hectares of forests are lost every year worldwide, almost entirely in the tropics. The current annual rates of tropical deforestation from Brazil and Indonesia alone would equal four-fifths of the emissions reductions gained by implementing the Kyoto Protocol in its first commitment period[545].

Forests cover around 30% of the earth's land surface and hold almost half of the world's terrestrial carbon. Tropical deforestation accounts for approximately 20%-25% of global CO2 emissions. According to the IPCC Fourth Assessment[546], about 50% of total mitigation potential could be achieved by reducing emissions from deforestation.

The World Bank estimates that illegal logging costs developing countries up to $15 billion a year in lost revenue. Forest conservation in developing regions requires a major flow of funds from the developed world. Attaching a financial value to forests is paramount. This could be in the form of tradable carbon credits under the Kyoto Protocol, or direct payments under bilateral agreements between donors and developing countries on country-wide forest conservation projects.

There is growing agreement on the urgent need to cut deforestation. In essence we have to structure incentives for conservation, along the principle of agricultural subsidy in the EU for conservation of the environment/countryside.

The debate is whether conservation credits could be brought into existing market mechanisms or whether new ones need to be created. There are also issues around the agreement of baselines; monitoring/compliance/enforcement; carbon values relative to other credits; and the ability of relatively shallow and immature carbon markets to absorb these credits. We note the shift in the Brazilian position on the concept and believe that agreement on this issue should be a diplomatic

[544] UEA, British Antarctic Survey (BAS) and the Max-Planck Institute for Biogeochemistry (published in Science): Four-year study by scientists reveals that an increase in winds over the Southern Ocean, caused by greenhouse gases and ozone depletion, has led to a release of stored CO2 into the atmosphere and is preventing further absorption of the greenhouse gas http://comm.uea.ac.uk/press/release.asp?id=753

[545] Amazon Institute for Environmental Research: *Tropical Deforestation and Climate Change*, 2005 http://www.environmentaldefense.org/documents/4930_TropicalDeforestation_and_ClimateChange.pdf

[546] IPCC Fourth Assessment Report: *Mitigation of Climate Change*, 2007

priority, because the preservation of sinks will buy us some time and the inclusion of forests/conservation helps bring the US and Brazil into the global deal.

At present, the scope for forestry projects in the CDM is limited. For example, avoided deforestation, forest management and agroforestry are excluded. Afforestation and reforestation activities are eligible, but the volume of emission reductions that can be acquired through such projects is capped at 1% of base year (1990) emissions per year per country.

We acknowledge the complexities of managing forestry projects within the CDM, but support the call for credit to be given for all certified activities which increase forest cover and preserve existing forests in the developing world. We would also like to see this taken into consideration in Phase III of the EU ETS, which has also excluded all forms of credit for forestry projects within the developing world.

There are legitimate concerns about the impact on the carbon market of a large supply of new credits from the forestry market. Our plans to accelerate the phasing out of HFCs would reduce the supply of credits from that market and create more space for forestry credits. However, if concerns persist, we could consider forestry credits being initially traded in a separate scheme or at a different exchange rate.

The World Bank is developing a programme that deserves support. It is focused on an umbrella program supporting sustainable rural development and a Forest Carbon partnership facility to harness the potential of carbon finance. The current objective is to build capacity in readiness for a system post-2012, with payments for sustainable forest management based on pilot performance.

Raising energy efficiency standards

At the same time we can reduce demand for energy through the transformation of energy efficiency standards. The energy efficiency agenda is the ultimate 'no regrets' policy focus. It carries the potential for a triple win: economic benefits, lower emissions, and reduced concerns about energy security.

Owing to the lack of advanced technologies and processes, energy efficiency in China is about 10% lower than that of the developed world. The most cost-effective way of solving the China syndrome in the short term is to help them improve their energy efficiency and so reduce their demand for new generation capacity.

The upsides of a real drive on global energy efficiency are enormous. The scope is reflected in the gap between best and worst practice around the world. For example, houses built to PassivHaus[547] standards typically achieve an energy saving of 90% compared to existing housing.

According to the IEA, around 78% of CO2 savings are likely to come from more efficient use of energy and 22% from cleaner energy sources by 2030. For example, the global cost of lighting could be reduced by $2.6 trillion by 2030 by phasing out wasteful incandescent light bulbs from 2008 and implementing better street lighting, with a cumulative saving of 16 billion tonnes of CO2.[548]

[547] Passive Houses use 'free heat sources' such as solar energy and heat from the residents inside. Special windows and highly efficient insulation panels help to keep the heat inside, and the external 'envelope' of the buildings are constructed to be as airtight as possible. Fresh air is delivered constantly by a mechanical ventilation system which eliminates drafts, whilst a heat recovery unit reduces the ventilation losses.

[548] Agence France-Presse (AFP): No silver bullet to combat climate change: IEA chief, 27 April 2007 http://www.wbcsd.org/plugins/DocSearch/details.asp?type=DocDet&ObjectId=MjQ0MDA

The European Commission estimates that energy efficiency measures could cost-effectively deliver a 20% reduction in today's energy consumption in the EU by 2020 with savings of at least €60 billion.[549] We have been careless with energy when it has been relatively cheap. Now that energy prices are rising, it is time for us to become rational and stop wasting money.

Governments need to recognise that this change will not be cost free as we have to break through years of inertia. As the government's Chief Adviser Sir David King put it: 'People simply don't notice when they are using energy… We all need to think about using energy as a precious commodity'.[550]

The UK should seek to get the Council of Ministers and the Commission to promote a common commitment to energy and resource efficiency particularly in establishing a common approach to setting minimum product efficiency standards, with priority given to the efficiency standards of cars and construction products. We should also encourage key industrial sectors to negotiate voluntary agreements based around minimum benchmarks of efficiency. Although this would start within the EU it would be based on the intention to spread worldwide.

Getting rid of HFCs

The most effective single action we could take to cut the growth in world emissions would be to extend the Montreal Protocol, in order to accelerate the phase out of HFCs (hydrofluorocarbon) – a 'super greenhouse gas'. This would be to build upon the one great exemplar of global action that has already worked, CFC abolition, and should be paid for by increased funding through the Multilateral Fund, particularly in developing countries.

Even though the Montreal Protocol was intended to deal with the depletion of the Ozone Layer, it has also cut the greenhouse gas effect. A recent paper[551] has argued convincingly that the Montreal Protocol's phasing out of ozone depleting substances such as CFCs will also reduce greenhouse gas emissions by 11 gigatonnes of CO2-equivalent by 2010.

To put this into perspective, that is approximately 11 times greater than Kyoto's mandated reduction. Further success is vital, since in 2006 scientists recorded one of the largest ozone holes ever over Antarctica.[552]

The EU must pioneer the change in the Montreal Protocol needed to accelerate the phasing out of HFCs. This should be facilitated by increased funding through the Multilateral Fund to pay for the transition, particularly in developing countries.

An aggressive phase-out schedule is technologically and economically feasible. The UK should therefore reverse its previous stance in the EU and promote a ban on HFCs and their family of global warming chemicals. From 2011 these gases would not be allowed in new equipment and from 2016 there would be no further manufacture. The EU decision would then form the basis of a negotiated agreement to extend the Montreal Protocol.

[549] EU Commission: *Green Paper on Energy Efficiency 'Doing more with less'*, June 2005
[550] Global Action Plan: Press Release: *Engaging Communication Crucial to Fight Climate Change*, 4 November 2005
[551] PNAS: Guus J. M. Velders, Stephen O. Andersen, John S. Daniel, David W. Fahey, and Mack McFarland: *The importance of the Montreal Protocol in protecting climate*, 8 March 2007
[552] British Antarctic Survey: 'Ozone levels across Antarctica dropped rapidly in September [2006] and were generally at their minimum in early October. The ozone hole grew rapidly from mid August and reached nearly 28 million square kilometres in size at the equinox. The ozone hole was at record or near record size from mid September until late November, when it began to decline rapidly. The ozone hole persisted until early December. Although not an absolute record in size it was a record for the amount of ozone destroyed.' http://www.antarctica.ac.uk/met/jds/ozone/index.html

This approach, coupled with financial assistance for the transition to superior substances and technologies for the developing countries, would ensure immediate and continuous progress, and avoid the extremely high levels of growth otherwise projected. It also would make it possible for the global carbon market to factor in whatever CERs, if any, the CDM allows for the destruction of HFC-23 from new production beyond that allowed by the current methodology.

A further modification of the Protocol would involve greater incentives for destruction of Ozone Depleting Substance Banks, possibly by linking Montreal to the Kyoto Protocol and providing Certified Emission Reductions under the Clean Development Mechanism for the destruction of these banks.

It is estimated that in CFCs alone the emissions reduced could be as much as seven times Kyoto's mandated reduction.

9.4.2.4. Perspective on the population issue

There is no escaping the fact that climate change policy is first and foremost about developed countries reducing their emissions, particularly as per capita emissions are considerably higher in the developed world – with average CO2 emissions per capita in 2000 at 11.4 tonnes in developed countries compared to 2.1 tonnes in developing countries.[553]

Second it must be about doing our best to help emerging economies develop in the most carbon efficient way possible, through the deployment of new technology and processes which avoid the need to make our mistakes.

Third it must be about taking action, through adaptation measures, to improve our resilience to the level of climate change into which we are already locked. These priorities have to be reiterated before we address the thorny issue of population growth.

The world's population is projected to grow from 6.7 billion today to 9.2 billion by 2050.[554] On that timescale population in the less developed regions of the world, excluding China, is projected to increase by 63%, from 4 billion in 2006 to 6.5 billion in 2050.[555] The majority of this growth will take place in developing countries, principally in sub Saharan Africa. In the past 20 years or so, sensitivities have developed which have prevented open and honest discussion on this subject. It is now important to acknowledge that the expected increase of 50% in the global population by 2050 poses serious threats to human health, development and the environment. With increased resources for voluntary family planning services, it might be possible (without coercion) to reduce that growth and with it the threat.

The UN Conference on Environment and Development in 1992 looked for the first time at the complex relationships between population, environment and development, with the resulting Rio Declaration stating that 'the growth of world population and production combined with unsustainable consumption patterns places increasingly severe stress on the life-supporting capacities of our planet.'[556] According to the World Resources Institute, 'the majority of the countries with the highest amount of greenhouse gas emissions have large economies, large populations, or both'.[557]

There can be no denying the impact of population growth on emissions. Nor can we avoid the fact that development will do most to reduce family size.However**,** before economic development brings about

[553] World Resources Institute: *Navigating the Numbers*, 2005
[554] United Nations Population Division: *World Population Prospects: The 2006 Revision*, March 2007
[555] Population Reference Bureau: *PRB 2006 World Population Data Sheet*
[556] Report of the United Nations Conference on Environment and Development: The Rio Declaration, 2002
[557] World Resources Institute: *Navigating the Numbers*, 2005

a reduction in the population growth in poor countries, it creates an increase in their emissions per capita. If Africa's per capita emissions were to increase to 4.25 tonnes per capita (the world average in 2004), annual emissions would equal those of the United States in 2050 (assuming the US per capita emissions remain level).

The level of population is fundamental to defining what level of development is achievable and sustainable, not least given the demands it places on the education system in a poor country. It is also important to acknowledge the influence of rapid population growth on the ability of developing countries to adapt to the impacts of climate change, such as decreased crop yields and increased water stress.[558]

We would like to see a Conservative government champion wider access to family planning and education for women where there is unmet demand. This is categorically not a policy of coercion. It is first and foremost about enabling more women to exercise their human right to have the freedom of choice to plan their families that we take for granted in the developed world.

Evidence shows that when women learn that there is a safe way to manage how many children they have, they often express a desire for a smaller family.[559] There is also a high correlation between literacy and lower fertility rates; whereby the more educated a woman is, the fewer children she has.[560] While this is undoubtedly true, unless family planning services have been properly resourced and made readily available, even the most educated person cannot choose to plan their family.

Family planning

A substantial increase in funding for developing countries is clearly needed when 200 million women in the world do not have access to safe and effective contraceptive services,[561] while 97% of those living in Africa cannot afford the full cost of contraception.[562] In the developing world, approximately 36% of pregnancies each year are unplanned, and 20% end in abortion.[563]

Specifically we would like to see the current unmet demand for family planning and reproductive health satisfied by increased funding commitments by donor countries. These have been included within the MDG framework under MDG 5 'Improve Maternal Health', and should be mainstreamed into development and poverty reduction plans.

Funding for family planning has declined by $100m in the last decade, from 55% of global funding in 1995 to 9% in 2006.[564] DfID committed £80m in funding to the United Nations Population Fund

[558] IPCC Fourth Assessment Report, *Mitigation of Climate Change*: 'It is projected that crop yields could decrease up to 30% in Central and South Asia by the mid-21st century… considering the influence of rapid population growth and urbanisation, the risk of hunger is projected to remain very high in several developing countries.' April 2007
[559] James F. Phillips, R. Simmons, M.A. Koenig and J. Chakraborty: *Studies in Family Planning*, 1988; M. Campbell: *Consumer Behaviour and Contraceptive Decisions*, Journal of Family Planning and Reproductive Health Care, 2006; The UN International Conference on Population and Development: *Plan of Action* – Governments should 'meet the family planning needs of their populations as soon as possible and should, in all cases by the year 2015, seek to provide universal access to a full range of safe and reliable family-planning methods.' Cairo, 2004
[560] The International Development Research Centre (IDRC): *Indicators of Change: Results-Based Management and Participatory Evaluation* 'At the national level, research indicates that one year of schooling for girls or young women can reduce the fertility rate by 5 to 10 percent. Reduced fertility boosts economic growth rates on a per capita basis. In addition, increased access to credit for women has been found to do more to reduce poverty and spur investment than does increased credit provision for men (World Bank 1995)'; http://www.idrc.ca/fr/ev-88062-201-1-DO_TOPIC.html
[561] UN Population Fund: http://www.unfpa.org/news/news.cfm?ID=943
[562] Russell Green: '*Who can afford family planning?*' unpublished monograph, Berkeley: University of California, School of Public Health, 1998
[563] Alan Guttmacher Institute: *Sharing Responsibility: Women, Society and Abortion Worldwide,* 1999
[564] Third International Parliamentarians' Conference on the Implementation of the ICPD Programme of Action: *Statement by Thoraya Ahmed Obaid, Executive Director, UNFPA,* 21 November 2006

(UNFPA) for the period 2004-2007; we would like to see a continued commitment of funding to the UNFPA and an increased commitment within ODA and bilateral funding.

Women's education

Women's education, particularly literacy campaigns, is crucial in any programme to raise health standards and increase opportunity. The teaching material should particularly concentrate on themes such as safe drinking water, health, family planning, AIDS prevention, and environmental protection. Effective practical education can help towards employment, better child care, and cultural preservation.

9.4.2.5. A greater focus on adaptation

There has to be a programme to ensure that developed countries meet their existing commitments to provide support for vulnerable countries, and develop a dialogue around the most effective approach to adaptation.

Developed countries need to meet existing funding commitments on adaptation made at COP7 in Marrakesh. Future adaptation funding commitments should be linked to historic emissions but we also need to identify sources of new funding. Bearing in mind the World Bank estimate of between $10 and $40 billion a year for 'climate-proofing' investments in developing countries, only a tiny fraction of what is needed is being provided at present.

We also need to initiate a dialogue with the insurance sector, as public/private innovation is needed to develop risk cover in the developing world.

There is need for support in terms of information both on the particular regional impacts of climate change and the best practice in furthering adaptation. One of the main impediments to climate change adaptation in developing countries is lack of information on projections for the particular impacts of climate change at regional and local level. There is a similar need for training in better water and soil management as well as necessary crop diversification. It is imperative that best practice on adaptation is shared amongst development agencies and policy makers, particularly in the most vulnerable countries, and that up to date and regionally focused information is easily accessible to local communities and agencies on the ground.

One of the key pillars of the adaptation agenda must be the development of human capacity in vulnerable countries with the full support of the existing government institutions. The private sector will play an important part, not least in the key area of water management. The development of inclusive water resource management plans which incorporate adaptation procedures and risk management practices for the water sector must be considered a priority for areas at risk from droughts and floods.

Against a background of rising overseas aid budgets, we must be more effective at integrating climate resilience and adaptation into the traditional development agenda. No longer directing funds into an area without 'climate proofing' the proposed changes would be a foolhardy investment carried out without the necessary due diligence. We must acknowledge the serious potential consequences of climate change on poverty alleviation in developing countries.

This demands a culture shift that is made harder by the uncertainties that will continue to surround any assessment of the particular impacts of climate change. DfID has started down this path, and should seek to help other agencies do the same.

We also need to build the right institutional framework to develop this adaptation policy. We need to learn lessons from the past. The Marshall Plan led to the establishment of the OECD as the coordinating agency to invest $13.3 billion between 1948 and 1952, with a staff of less than 1,300 people across Europe.

As the Conservative Globalisation and Global Poverty Policy Group has forcefully argued, improving the efficiency, transparency, and credibility of our delivery mechanisms must be a priority for Conservatives. To demand value for money in aid projects implies no lack of generosity. It simply is that, in the light of global poverty and the scale of the challenge of adaptation to climate change faced by low-income countries, and analysed in the Conservative Globalisation and Global Poverty Policy Group Report, means that every pound must deliver a hundred pence worth of difference.

9.4.2.6. A more focused dialogue, and acting now

Our new pragmatism needs to recognise that the 80/20 rule applies to climate change and argues for a more focused dialogue between the major stakeholders:

- 25 countries account for 83% of global greenhouse gas emissions, and 90% of cumulative global emissions,[565] while 4 sectors represent almost 70% of global emissions[566] and those sectors tend to be dominated by a relatively small number of companies; and
- 50% of land use emissions are from just two countries – Indonesia and Brazil.

Any new dialogue must be clearly complementary to the UN process – another necessary building block of trust with the developing world. Given the uncertainties, we should not feel obliged to seek an agreement that is too long term or broad in scope. As the successful Montreal Protocol shows, agreements can evolve as our knowledge grows, and we should focus now on what we can agree on.

9.4.2.7. Act on all fronts

There is no silver bullet, and we should not rely on a single dramatic negotiation at a global level. We need to review the impact of all relevant international institutions and treaties and our concern is that opportunities are being missed by concentrating solely on the UNFCCC and G8 processes. A good example is provided by the Montreal Protocol. We believe that it is urgent to review the climate impact of all other existing multilateral environmental agreements.

On a similar basis we should re-examine the contributions of all other international organisations. The Commonwealth has been undervalued in this context. Careful re-examination of the role of the OECD, various UN agencies and even apparently peripheral bodies such as the Organization for Security and Cooperation in Europe (OSCE) can yield important dividends. For example the OSCE is currently considering adding 'Environment and Security' to its mandate and building on its heritage of compliance and enforcement in the northern hemisphere.

An overall review of the impact of the World Bank and its policies on climate change is overdue. The bank is a very important mechanism for testing new concepts and leveraging private sector capital but it has been 'climate deaf' and too closely associated with the US. The UK should be lobbying for the next President to come from the developing world as a symbol of change.

Perhaps most importantly we need to look again at the functioning of the World Trade Organisation to examine how its rules bear on climate change issues.

[565] World Resources Institute: *Navigating the Numbers*, 2005

[566] World Resources Institute: *Navigating the Numbers*, 2005: 'At the sector level, the largest contributors to global emissions are electricity and heat (collectively 24.6 percent), land-use change and forestry (18.2 percent), transport (13.5 percent), and agriculture (13.5 percent)'

This is a very challenging agenda which touches on some very sensitive areas. However, we need to have an insistent voice in the international climate change negotiations, determined to keep the world focused on the issues that really matter and where there is hope of agreement.

9.4.3. Britain's Role – much more than 2% of the solution

We think Britain is uniquely qualified to be that voice, individually and within the powerful context of the EU. Already we are a recognised leader on the issue of climate change. We must now use it more effectively, not just on our own, but enhanced by our unique international position in the EU, the Commonwealth, the G8, and the Security Council.

However, there are siren voices that say 'we are only 2% of the problem'.

In fact, that number understates:

- our share of historic emissions – 6.3% cumulative CO2 emissions[567] from 1850 to 2002;[568]
- our share of international aviation – the UK accounted for 4.9% of total air emissions (and 6.1% of international air emissions) in 2002;[569]
- the contribution of the City of London in financing a high proportion of global emissions – the combined product emissions from all the oil, gas and coal sold by FTSE 100 companies is estimated to be close to 15% of the global total of emissions from fossil fuels;[570] and
- the contribution of the products sold by the five largest UK oil and mining companies, which account for 10% of total global emissions.[571]

We are, therefore, more than 2% of the problem and we need to be more than 2% of the solution. That means playing to our strengths and focusing on:

- being the backbone of the EU as it fills the leadership vacuum;
- leveraging our relationships; relative 'climate credibility' and diplomatic skills to build what we describe as the 'coalition of the ambitious';
- exporting our intellectual capital in our understanding of the science and economics of climate change;
- enabling our capital markets to lead the world in promoting 'best carbon practice' and developing the City of London as the centre of the carbon market; and
- proving by example the principle of green growth – growing our economy and reducing our emissions at the same time.

In order to raise our game on the international stage, we recommend that the FCO assume the lead role in negotiating an international agreement, with the new DSG and DfID in support. An 'A' team should be dedicated to the task and incentivised to stay with it until negotiations are complete. If Britain were to lead on this, the transfer of responsibility would send a strong signal that climate change is not just about the environment.

The British government should also continue to support British led parliamentary and business networks such as Globe[572] which exist to promote better understanding on environmental politics between politicians and the business community in different countries.

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[567] Cumulative emissions = historic emissions calculated on an equal basis, regardless of when they occurred. A tonne of CO2 emitted in 1850 has the same 'value' as that of a tonne emitted in 2007

[568] World Resources Institute: *Navigating the Numbers: Greenhouse Gas Data and International Climate Policy: Chapter 6: Cumulative Emissions*, 2005 p.32

[569] World Resources Institute: *Navigating the Numbers: Greenhouse Gas Data and International Climate Policy: Chapter 12: Transport, 2005* p.67

[570] Trucost/Henderson Global Investors: *The Carbon 100*, June 2005 p.13

[571] Trucost/Henderson Global Investors: *The Carbon 100*, June 2005 p.13

9.4.4 Action in Britain

Exports

If we want wider acceptance of climate change as a prime driver in decisions on aid and trade then we need first to reform our own institutions, notably the Export Credits Guarantee Department. Its mandate must be aligned with the government's sustainable development and climate change policies, as well as its international commitments.

Research by Greenpeace reports that the ECGD has supported an average of £1.76 billion worth of non-renewable power generation projects every year since the UN Framework Convention on Climate Change was signed in 1992[573]. At present the ECGD contributes to the emission of 86 million tonnes of CO2 due to its support of the aviation industry, and approximately 49 million tonnes[574] due to its support of the energy industry.[575]

The ECGD Business Principles need therefore to be aligned with the government's sustainable development and climate change goals, and our international commitments in the Kyoto protocol, the Convention on Biodiversity, CITES, and similar obligations. The ECGD should be required to provide clear, transparent public reporting of the greenhouse gas emissions resulting from the projects it supports.

This should be accompanied by a commitment by government to amend the legislation that sets the remit of the ECGD. The changes would allow it to insist that all exporters should contribute to the reduction in emissions; prove that their products at least meet the requirements of domestic legislation, so that products are not sent abroad that would emit there what we would not allow here; and provide a publicly available return of the contribution to emission reduction that their products would make.

Imports

In 2005, the UK was the biggest importer of illegal timber in Europe. The total made up to 26% of our imported wood[576]. Although Defra established the Central Point of Expertise on Timber (CPET) to advise central government and its agencies on sourcing timber from legal and sustainable sources, nothing has been done to stop others continuing to contribute to deforestation.

We need legislation to ensure that only legal and sustainable timber products are sold in the UK We would also like to see further Voluntary Partnership Agreements (VPAs) developed between the UK and producer countries, within which emphasis should be placed on the principles and criteria of the Forest Stewardship Council (FSC). We would also recommend increased resources be made available to FSC for the purpose of expanding its role and working to raise awareness within the UK of sustainable timber and related issues.

The legislation should be framed in such a way that it would give powers to ministers to introduce temporary banning orders of other imports found to be in flagrant contradiction of our international obligations, thereby acting quickly to prevent abuse.

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[572] www.globeinternational.org
[573] Greenpeace UK. "Exporting global warming – the UK's support for fossil fuel energy in the developing world" http://archive.greenpeace.org/earthsummit/docs/expGW.pdf
[574] The quoted 13.3 million tonnes of carbon = 48.77 million tonnes of carbon dioxide
[575] WWF: *Flying Low: The UK Export Credit Guarantee Department and Climate Change*, November 2006
[576] WWF: *Failing the forests: Europe's Illegal Timber Trade*, November 2005

Innovation

Britain should not rely on government coercion but build a reputation for the ability of government in the innovative encouragement of sustainability. This should make use of opportunities offered by private and voluntary initiatives where a limited injection of funds or other public support could lift them to a new level of effectiveness or enable their influence to reach areas hitherto closed to them.

We have already suggested using the FSC in our action to stop deforestation. We would urge the development of a similar relationship with the Marine Stewardship Council in our plans to make our fisheries more sustainable. These are but examples of the change in official thinking that we would encourage. These partnerships would not be accompanied by interference but would recognise success and offer genuine help to give opportunity for expanded activity.

One practical example will suffice. We would recommend offering matched funding to the British based Ashden Awards.[577] They are in the business of rewarding sustainable energy solutions around the world free from the clutter of government bureaucracy. We should leverage their expertise. For under £200k, the government could double the international prizes available. That money would be transformational both in terms of the communities directly affected and the lessons that can be applied elsewhere.

9.4.5. The importance of the EU

We must act through the EU in order to maximise our leverage. Already it is the EU that has got the global agenda under way and, without it, every advance, from Montreal to Kyoto, would not have been possible. Now further effective co-ordination of the response to climate change is a major opportunity for the EU to redefine its relevance to a new generation. Peter Carl, Director General of DG Environment at the EU Commission rightly sees the evolution of the climate change agenda as similar in scale and importance to the development of the single market.

A Conservative government should encourage the EU to seize this opportunity because it is in the British national interest. Moreover we think it is quite possible to reconcile the desire to see the EU be more effective in tackling cross border issues with healthy scepticism about federalism and single currencies.

The EU has a platform to build on, with a credible track record in encouraging member states to take management of the environment more seriously. We British have to accept that we would have been much further behind without the pressure of the Water Directives, the Producer Responsibility Directives, the Landfill Directive, and a host of other common initiatives which made us respond when we were still reluctant. Our experience is common to most other member states. Like us, they have found that, in this area at least, the EU structures have pulled us all up to the standards of the best.

However there are some key issues for the EU to address if it is going to make its voice heard by the US, China, India and Brazil – let alone carry member states with it.

9.4.5.1. Key issues for the EU to address

Conservatives know that the market will deliver the most cost-effective route to reducing our carbon emissions. However we must recognise, as Stern does, that the failure to price carbon effectively is a key market failure which must be corrected. Without an effective carbon price, low carbon technology will not be deployed on the scale required.

[577] http://www.ashdenawards.org

The policy tool of choice at this moment is emissions trading between a pool of parties who agree a cap on their emissions, negotiate their individual allowances, and establish mechanics that allow trading of allowances between parties. The theory is that this market mechanism delivers a) certainty via an agreed cap, and b) economic incentives to create surpluses that can be traded at a profit. It also creates an explicit price for carbon which is driven by the scarcity of allowances, almost all of which are allocated for free at the moment. The alternative is a carbon tax, which would be simpler and raise more money for governments, but arguably lacks the certainty and cost efficiency potential of a 'cap and trade' scheme.

The EU Emissions Trading Scheme is the most mature scheme in existence, and is important as the potential nucleus of a global carbon trading market. However we should not delude ourselves into thinking that it yet has credibility as the template. In fact the evidence is that other markets are learning from our mistakes in designing their own schemes.[578]

It is widely acknowledged that the first phase of the EU at scheme was helpful in terms of testing mechanics, but has been a failure in terms of reducing emissions or driving innovation. The failure has been a political one in that a cap and trade scheme is only as good as the cap, negotiated in this instance by national governments.

Quite simply allowances were too generous and the UK Government contributed to that failure by its own refusal to take a robust position. This was largely under the influence of Sir Digby Jones, then Director General of the CBI and now a Government Minister, whose consistent antagonism to effective action against climate change did much to damage the credibility of the CBI.

Britain must raise its game and help other EU governments to prove that emissions trading can deliver a significant and sustainable price for carbon beyond 2012. This will require some reforms for Phase III of the European Emissions Trading Scheme.

Negotiations will commence in 2007/8. We propose that Britain should look to achieve the following principles in those discussions:

Auction allowances

To date allowances to pollute have been given away because that was the most expedient political course. However we believe that the principle of 'the polluter pays' now needs to be applied more rigorously, with 100% auctions for the utility sector, which does not compete outside the EU.

Given the windfall profits that have accrued to utility companies across Europe, estimated to have totalled around £1 billion from Phase I and up to £6 billion by the start of Phase III, the industry does not have a substantive argument against this move.

We also propose a harmonised ratcheting down across other sectors of free allowances to pollute, in favour of agreed minimum levels of auctions.

[578] New York Times: *When Carbon is Currency*: 'Officials have closely watched the European Union, which started its carbon trading market in 2005; analysts say the Europeans have stumbled on some fronts. "We've learned a lot from the Europeans," said Judith Enck, adviser on environment issues to Gov. Eliot Spitzer of New York. "The way we distribute the allowances will be vastly different than the European experience."' 6 May 2007; http://www.nytimes.com/2007/05/06/business/yourmoney/06emit2.html?ex=1180670400&en=c24535191f9830ad&ei=5070

Recycle the proceeds of auctions

Estimates on the potential scale of receipts range from $3 billion for 100% utilities (base case) to the $37 billion(the current value of all permits in the system). The inclusion of aviation could add between $1 and $3 billion.

We cannot disguise the fact that auctions will represent an additional cost on business. They should therefore be seen as part of the evolving 'Green Tax' strategy that the Conservatives are developing to reinforce the principle of 'the polluter pays'. A fundamental tenet of the strategy is that increased green taxes should be revenue neutral. In the case of auction proceeds, we have made clear in our Chapter on Energy that they should not result in a net increase in tax on British business. We would go further and say that auctions will be more acceptable and sustainable across Europe if proceeds (or a proportion of) were seen to be recycled as 'green' investment to manage climate risk.

Our favoured UK options are:

- the eventual replacement of the structurally flawed Renewables Obligation with a mechanism, whereby energy suppliers would bid for financial support for projects based on their cost of reducing carbon;
- investment in the transition to low carbon transport infrastructure;
- increased R&D and incentives for innovation; and
- protection of the poor from transition costs to low carbon infrastructure.

However, we should expect that the policy on auctions will be developed at a European level, and that this will include debate on a common approach to the proceeds of auctions. Good arguments will be made for using some of the proceeds for a common good such as:

- the creation of a global technology fund to help developing countries 'leapfrog' dirty technology and develop on the back of clean technology;
- the funding of more substantial investment in adaptation; and
- support for European companies in sectors (such as steel and aluminium) that have legitimate concerns about competition but which are demonstrating commitment to reduce emissions.

There is a need for significant transfers of capital to the developing world, in order to reduce the carbon intensity of development and improve their resilience to climate change. We see Emissions Trading as a logical source of that capital redistribution through a combination of a) trading flows through the CDM mechanism, and b) the recycling through some credible institutional framework of a growing 'pot' of auction proceeds raised from polluters in the developed world.

Reduce political risk

Critically, political risk should be reduced by the development of a consistent and transparent methodology for determining caps, and allocating any allowances that are not auctioned. Serious consideration should also be given to the independent setting of both the European cap and the national allowances, to ensure coherence with EU targets under any international agreement. We also believe that it is worth pursuing the idea that remaining allowances should be allocated on the basis of transparent sector benchmarks for best practice in terms of carbon efficiency.

The structuring of longer time periods for the phases of the scheme would also help reduce risk, through a process of forward looking, rolling allocations that give some visibility beyond the formal end of the phase. For example Phase III should be giving visibility at least to 2020, which would also coincide with the EU target periods.

A public/private underwriting facility could give comfort to those structuring potential carbon credits that they will have a value after 2012, and while being clear about the need to keep the scheme as simple as possible, we see the argument for setting an effective floor for the carbon price which business planners can rely on.

Expand the market carefully

We note that the Environment Agency 2006 report[579] recommended the aluminium / chemicals / coalmine methane, and refrigeration and air conditioning / oil and gas flaring sectors for inclusion in the EU ETS. These sectors accounted for around 9% of total EU ETS greenhouse gas emissions in 2003.

We propose that the scheme should be expanded to include aviation by no later than 2012, but our support for inclusion is not unconditional. We would like to see the process evolve towards full auctioning of permits, and believe that the long term goal must be a global cap and trade scheme that captures the full environmental impact of aviation, including any radiative forcing[580] effects that are proven.

In this context, the current EU proposals for a CO2 only, two stage process (intra-EU flights only in the first phase, extended to all flights in and out of the EU in the second), is a practical starting point only. In the event that the ETS remains a CO2 only cap and trade scheme, there is scope for governments to take parallel measures to control other emissions, for example through airport charges.

We also need to accelerate agreement on the regulation and acceptance of credible forestry (including avoided deforestation) and the sequestration of carbon, two new potential sources of credits which have great strategic importance.

Rationalise the scheme

In the face of evidence that 50% of the installations included in the ETS account for only 0.8% of emissions,581 we believe that there is a strong case for rationalising the scheme and excluding small emitters. This is consistent with our desire to keep the scheme simple and reduce the bureaucratic burden.

Work towards a global carbon market

On the basis that a tonne of carbon makes the same contribution to global warming wherever in the world it is emitted, we should be working towards the goal of a global carbon market and a single carbon price. This should result in deeper, more liquid markets with lower volatility and transaction costs.

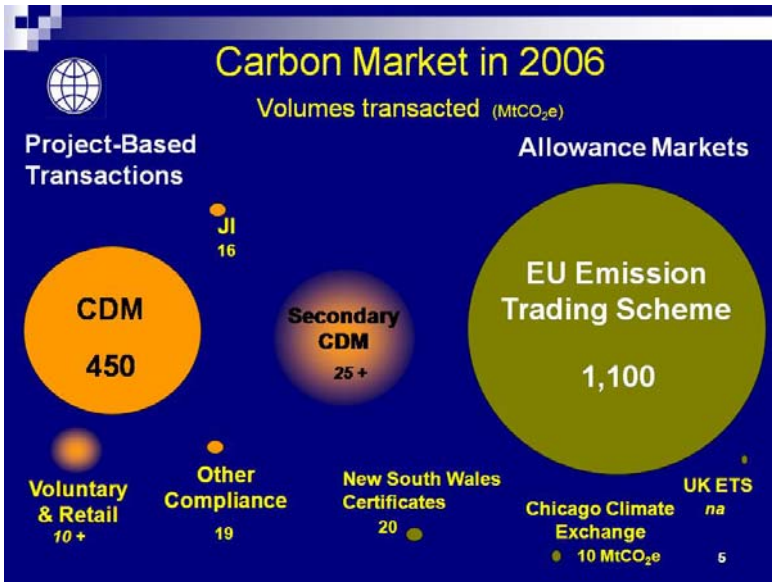
However, pragmatism makes us cautious about finite political capital being spent on talking about a visionary long term goal when there is still some work to be done to prove and implement the concept of effective emissions trading. For the British government, the priority must be fixing the EU scheme, as the cornerstone of UK and EU climate change policy.

[579] Environment Agency: *LETS Update: Decision makers summary*, April 2006
[580] IPCC: Radiative forcing is a measure of the influence that a factor has in altering the balance of incoming and outgoing energy in the Earth-atmosphere system and is an index of the importance of the factor as a potential climate change mechanism. Positive forcing tends to warm the surface while negative forcing tends to cool it.
[581] IPPR: *Trading Up: Reforming the European Union's Emissions Trading Scheme*, December 2006

That said we recognise that a mosaic of emissions trading schemes are being created around the world.[582] If the emissions trading mechanism can be proved to be effective in reducing emissions, then government has an important role to play in facilitating the linkage of carbon markets to maximise depth and liquidity by encouraging a common set of design standards and agreeing a common approach to regulating the integrity of markets.

In the context of the EU ETS, the concern is that the integrity of the scheme should not be compromised by linkages with other trading systems that operate under different terms, targets, and mechanisms.

Figure 9.3. Carbon Market, 2006



Source: Financial Mechanisms: 'Transitioning to a Low Carbon Economy', World Bank 2007[583]

We are cautious about the idea of a new institution to regulate a global carbon market. It will be a complicated process securing agreement on what it should do, and how it would be constituted. We are not sure of the need, and believe that we need to distinguish between two issues: the linkage of trading systems; and the regulation of the CDM mechanism as it scales up.

Linkages of cap and trade schemes

There is an existing process of dialogue between the architects of new trading platforms to minimise design differences. For example, within Europe, the Norwegian and the Swiss trading schemes are designed to be compatible with the EU ETS. In parallel with this government driven process, the private sector is active, with companies such as the London based European Carbon Exchange setting

[582] The Norwegian and Swiss national emissions trading schemes (both designed very similarly to the EU ETS); the Canadian emissions trading scheme; the Japanese Emissions Trading System (JETS); the Regional Greenhouse Gas Initiative (RGGI), involving North East and Mid-Atlantic States of the US [Regional Greenhouse Gas Initiative, signed by seven states: Connecticut, Delaware, Maine, New Hampshire, New Jersey, New York, and Vermont in December 2005. They have since been joined by Maryland, Massachusetts, and Rhode Island. The Western Regional Climate Action Initiative, signed by five states: Washington, Oregon, Arizona, New Mexico, and California in February 2007 - plans to develop a market-based system, such as cap and trade, by August 2008]; the Greenhouse Gas Abatement Scheme (GGAS) of New South Wales, Australia; and the California Climate Action Registry.

[583] World Bank: Presentation given by Kristalina Georgieva, G8+5 Climate Change Dialogue, Berlin Legislators Forum, 4 June 2007

up offices in South America, Australia, India, China and the US, now trading a baseline of over 350 million tonnes.

Just as we leave it to the financial markets to integrate the different oil markets, so can it be with carbon. The role of government is to create the scarcity that delivers a proper price and then regulate the integrity of the markets that arise. In many cases no new institutions will be required as, for example, the London based carbon exchanges are regulated by the FSA.

There is little doubt that existing institutions may need strengthening, not least in the regulation of the CDM market. As it scales up, the Clean Development Mechanism is likely to be an important instrument in transferring significant amounts of capital. Emissions trading is set to play a key role in engaging key countries that may not be intending to set up domestic cap and trade schemes. China, India and Brazil are already alive to the financial opportunity in structuring specific emission reduction projects for investors in the developed world. It is in the economic interests of the City of London to support this market, as the epicentre of trading.

However, we need to be sure that the money is well spent on genuine carbon reductions that would not have happened otherwise. This will require provisions in relation to transparency; methodology of base lines; and compliance mechanisms. In this context, national regulation is insufficient and we should seek to strengthen the UNFCCC, which has considerable expertise in the form of the CDM Executive Board. Our priority should be to ensure that an institution governing the international flow of billions of dollars should be adequately resourced.

We cannot underestimate the importance of an effective market price. It is the key to unleashing the power of the market to drive innovation and accelerate potentially key technologies such as carbon capture and storage.

An effective EU trading scheme will make an enormous contribution to our correction of the market failure to value carbon. However, emissions trading is not the only opportunity for the EU to play a groundbreaking role in shifting attitudes to carbon.

9.4.5.2. Product standards: leveraging the power of the single market

We have already indicated that a large proportion of emissions from the developing world are embedded in products that end up in the UK and the rest of the developed world.[584] This increases the importance of the EU agenda to drive up product standards, which a Conservative government should support.

The proposal is to build on the success of driving up standards in refrigeration over the last five years by applying minimum performance requirements across a range of fourteen products supported by dynamic labelling.[585] These requirements would have to be EU wide, and would need to be reviewed

[584] WWF: *Counting Consumption*, 2006: 'The total carbon emissions in imports for consumption is between 10 and 30 percent of the total UK emissions'.

[585] EU Commission: *Action Plan for Energy Efficiency*, 2006 EU Commission Staff Working Document - Accompanying document to the Communication from the Commission (Action Plan for Energy Efficiency: Realising the Potential): *Analysis of the Action Plan for Energy Efficiency: Realising the Potential*, 2006: The Commission will develop eco-design requirements for 14 priority product groups that have been identified for early implementation. These products offer a high potential for cost-effective energy efficiency improvements in relation to the associated costs and benefits of measures to reduce their environmental impact. The product groups being studied are: boilers and combi-boilers (gas/oil/electric);water heaters (gas/oil/electric); personal computers (desktops & laptops) and computer monitors; imaging equipment: copiers, faxes, printers, scanners, multifunctional devices; consumer electronics; televisions; standby and off-mode losses of energy-using products; battery chargers and external power supplies; office lighting; (public) street lighting; residential room conditioning appliances (air-con and ventilation); electric motors (1-150 kW); commercial refrigerators and freezers,

regularly given the speed of development. Experience has shown that the articulation of a minimum standard can lead industry to outperform the minimum and often to leapfrog intermediate standards for commercial advantage. We are attracted to the principle that today's 'best standard' should be the minimum standard within an agreed timeframe, so that industry can prepare for a rolling programme of improvement.

For government it costs the public purse practically nothing. For companies it offers the opportunity to get ahead of the competition and find more efficient processes. For consumers it should mean the opportunity to choose from a wider range of more efficient products. We want to reach a point where the greenest choice in any category matches the other choices on price and performance criteria.

It is also fundamental to influencing the thinking of the US and Chinese leadership. As we raise the bar on the standards we expect in the EU, we will put pressure on our suppliers to improve their performance, which in turn will encourage them to pressure their governments to engage and create a level playing field. Going further, we could start signalling within the EU that the terms of international trade may need to be adjusted, so that we consider goods from countries that do not meet their environmental responsibilities in the same way as we do those who exploit labour.

It is time for the EU to be robust in maximising our leverage of the single market to push the agendas we really care about. Trade is a powerful lever that has not been used in the context of climate change negotiations, because it is so complicated. Demanding higher product standards will be a powerful start.

9.4.5.3. The EU as the nucleus of a 'Coalition of the Ambitious'

We see the EU as the nucleus of a 'coalition of the ambitious'. This is the grouping that is needed to get the politics right and shift the gears in international negotiation. The aim is a comprehensive deal, struck within the UN framework for maximum legitimacy.

The coalition would be bound by a shared sense of urgency; moral responsibility; national or state interest being served by being a leader in this process; the need for a pragmatic and flexible portfolio approach that maximises the freedom of nations to take their own decisions within the limits set; and the need for a final deal to be struck within the UN framework for maximum legitimacy.

Membership should not be restricted to nation states, but should seek levels of understanding with local and regional government and credible non-government organisations representing the business community and civic society.

It would be active within all the appropriate international bodies and endeavour to build common ground around as many of these key elements as possible.

9.4.5.4. Summary of ambitions for European policy

We must keep in constant sight our common, long term climate stabilisation goal. Given the uncertainties, it must be flexible and reviewed in the light of the science, but today, the most powerful call is 'we are not going to give up on 2°C'.

The intermediate goal must be a binding and absolute emission reduction target for developed countries to cover the key period out to 2020 and ideally 2030. This should have some logical and transparent link to the long term stabilisation target**.** We believe that the EU 2020 target of 20%

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including chillers, display cabinets and vending machines; domestic refrigerators and freezers; domestic dishwashers and washing machines.

reduction in greenhouse gas emissions (upped to 30% if there is broad international agreement) is the minimum level that is appropriate.

This does not rule out some flexibility on acceptable commitment packages and mechanisms for delivery (for example, financial payments or sectoral emission reduction targets could be considered). The credibility of those targets will be enhanced by the introduction of rolling carbon budgets which were introduced in the British Climate Change Bill.

There needs, too, to be commitment by major developing countries to start on a journey towards binding emission targets. There are a number of options as to how that journey should start, including with a minimum preliminary agreement to reduce the carbon intensity of GDP before adopting **absolute** emission reduction targets in a secondary phase.

Again at this stage we may have to show flexibility in terms of the mechanisms proposed by countries, as long as they are consistent with the goal. We should for example be encouraging incentives to reduce deforestation as well as encouragement to participate in cross border sectoral agreements.

Concrete measures to reduce emissions in key sectors such as steel, cement, and energy could be combined with commitments for a minimum level of renewable energy to be deployed by 2020 and technology sharing protocols with focus on sharing best practice on energy efficiency.

At the moment EU countries are working in silos to develop a range of technologies, each one aiming to be the first in the field. There may be an argument that resources should be pooled in the interests of developing a global, public good. Carbon Capture and Storage (CCS), Concentrating Solar Power (CSP), and long distance Ultra High Voltage DC power lines are all major concerns that might well be better developed on a multilateral basis within the EU.

Domestic and international policy are interconnected in a complex way. We have reached the stage where international leadership can only be built on a credible domestic track record. However we will not take the British people on the journey at home unless they feel that they are part of a collective, international effort that has credibility. Striking the right balance between domestic and international action is critical.

Section 9.5. Getting Our Own House in Order

Britain has established a reputation as a pioneer in the field of climate change policy, but in fact our greenhouse gas emissions have risen since 1997,[586] with an 8% increase in emissions between 1999 and 2004.[587] From this point on, leadership should be defined by action not rhetoric. In order to be credible in the leadership role we seek on the international stage, Britain first needs to get its own house in order.

9.5.1. Lessons learnt from the Labour Government

A new Administration must absorb the lessons of the past. Under Labour, despite Mr Blair's efforts to drive climate change up the international political agenda, the problem has been lack of delivery at home, largely because of the perceived lack of real commitment within the Treasury under Mr Brown.[588] In common with other policy areas, too much weight has been placed on the value of targets per se rather than the design and implementation of coherent policies that will give us a chance of hitting those targets.

There is in fact no shortage of innovative domestic policies but they are complicated, cautious, and often undermined by incompetent implementation. As a result, for example, we have managed to both miss our renewable energy targets and end up with the most expensive wind energy in Europe.[589]

Too much weight has been placed on the power of central government to drive change with insufficient engagement of key partners – local government, business leaders, and the public. Yet, it is these who can drive change as consumers, employees, investors and voters. There has been a fundamental failure to engage the British people with a vision of how we can all make a difference and why it is in our interest to act now collectively[590]. Their communication strategy has been under-resourced and misdirected. The range of incentives deployed to date has been too weak to shift behaviour either at the consumer level or at the upstream supplier level.

The bottom line is that despite a domestic target to reduce emissions by 20% by 2010, carbon dioxide emissions have risen since 1997, and a crucial opportunity has been missed to build on the emission reductions triggered by the 'dash for gas' and prove to the domestic and international audience that a nation can grow its economy and reduce emissions at the same time. Credibility has been undermined by missed targets and inconsistency across government. If you are serious about climate change risk, you don't build homes on flood plains. If you are genuinely concerned about the growth in emissions from aviation you don't adopt a 'predict and provide' approach to new airport capacity.[591]

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[586] The Government often relies on the statistic that emissions of carbon dioxide fell by 5.6 per cent between 1990 and 2004. However, emissions increased in 5 of the 10 years since 1997 (from 549 million tonnes CO2 to 561.5 million in 2006). After the rise in 2006, carbon emissions were 2.2 per cent higher than in 1997 – at 5.5%, only a quarter of the way towards Britain's Kyoto target of a 20% cut in emissions above 1990 levels by 2010.

[587] Defra: *Sustainable development indicators in your pocket 2006*, July 2006 p.30

[588] House of Commons Environmental Audit Committee , Fourth Report of Session 2006-07: *Pre-Budget 2006 and the Stern Review*, 2007

[589] National Audit Office: *Renewable Energy*, February 2007; Dr Dieter Helm: *From Review to Reality: The search for a credible energy policy*, October 2006

[590] MORI: *The Day After Tomorrow. Public Opinion on Climate Change,* May 2004 'There appears to be a lack of engagement with the public on the issue of climate change. Research for The University of East Anglia's Centre for Environmental Risk found that few people (8%) feel the Government provides all relevant information about climate change to the public. Recent research has shown that four in five (79%) have never heard of The Carbon Trust, the organisation set up by the government in 2001 to help businesses and the public sector reduce carbon emissions. This reflects the targeting of The Trust's advertising and media campaigns at businesses and the public sector. [need further refs]

[591] Sustainable Development Commission: *Missed Opportunity - Summary Critique of the Air Transport White Paper*, June 2004

As a result few people outside government believe that we are on track to deliver emission reductions on the scale that is required. A recent study by Cambridge Econometrics forecasts that 'the 20% carbon-reduction goal originally set for 2010 seems, on current policies, unlikely to be met even by 2020'.[592]

9.5.2. Leadership by example

Leadership is not just about saying the right thing and pointing the right way. It is also about being seen to lead by example.

The disconnected nature of the present Government has meant that, however well-meaning, they have not been able to deliver on their rhetoric. A series of reports from the cross party Environmental Audit Committee reinforce this point.

The DBERR and Defra look at the energy challenge through different prisms and the climate agenda is not in the DNA of the Department of Transport. DFID has been slow to integrate the environment into their agenda and the Foreign Office is only just getting to grips with the fact that climate change is a foreign and security policy issue. The Department for Communities and local government is struggling with the concept of sustainable communities and sustainable housing. It is not surprising, therefore, that most Departments have failed to meet targets on sustainable procurement or deployment of renewable energy.[593]

The bottom line is that the public sector must demonstrate best practice in everything that it controls such as procurement, recycling, the use of energy and the organisation of car fleets. Our principle should be that the public sector must set the standard for energy efficiency and deployment of low carbon technologies.

9.5.2.1. Sustainable procurement

Both the EAC[594] and the Sustainable Development Commission have criticised the Government for showing inadequate leadership in failing to resolve a perceived conflict between efficient and sustainable procurement. The Government has responded with a new strategy in response to the Sustainable Procurement Taskforce[595] but we would go further.

The delivery challenge requires two fundamental shifts. We must accept the value of whole-life costing and we must instil a different level of accountability. We therefore recommend extending the government's Sustainable Procurement Action Plan by requiring that all government departments, agencies and local authorities should consider and report on the environmental impact of their procurement process, including the carbon impact.

We recommend requiring the Office of Government Commerce to report annually to Parliament on progress towards more sustainable procurement as defined by the Task Force: 'A process whereby organisations meet their needs … in a way that achieves value for money on a whole life basis in terms of generating benefits not only to the organisation but also to society and the economy, whilst minimising damage to the environment'.[596]

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[592] Cambridge Econometrics: *UK Energy and the Environment,* March 2007
[593] Sustainable Development Commission: *Sustainable Development in Government 2006*, March 2007
[594] Environmental Audit Committee: *Sustainable Public Procurement*, 2005
[595] H.M. Government: *UK Government Sustainable Procurement Action Plan*, March 2007
[596] Defra: *Procuring the Future – Sustainable Procurement National Action Plan*, 2006: 'Footnote: Sustainable Procurement should consider the environmental, social and economic consequences of: Design; non-renewable material use; manufacture and production methods; logistics; service delivery; use; operation; maintenance; reuse; recycling options; disposal; and suppliers' capabilities to address these consequences throughout the supply chain.'

We would expect government to implement mandatory whole-life costing with a requirement on procurement officers to give preference to the product or service with the lowest environmental impact unless there is a clear price disadvantage, based on whole life costing. Government should publish a whole-life cost analysis for major contracts and PFIs and list what environmental improvement requirements had been imposed on businesses winning contracts above a certain financial value.

Employment Contracts of Permanent Secretaries should make clear the priority attached to sustainability outcomes from procurement process and build these into their remuneration package. They should be required to make the necessary investment in capacity building to ensure that procurement officers were equipped and motivated to implement the new priority.

Government performance

Currently the government estate emits over 800,000 tonnes of carbon per year

Headline findings of the Sustainable Development Commission in 2006: Departments have only partially met the Government's sustainable operations targets for its own estate. Government is not on track to meet the target to reduce carbon emissions from energy use by 2010. Most departments are using energy less efficiently compared to previous years.

Absolute carbon reductions from the government estate
Target: 12.5% reduction in absolute carbon emissions by 2010/2011 (relative to 1999/2000)
The Government made poor progress overall in 2005/2006, achieving only a 0.5% reduction in emissions. Only four departments have so far met the target – the Department of Health, the DBERR, the Food Standards Agency and the Treasury. The government departments collectively need to reduce their absolute carbon emissions (from 2005/2006) by nearly 97,000 tonnes by the deadline of 2010/2011. The reduction in 2005/2006 was largely due to progress made by the Ministry of Defence, with an emissions reduction of 27,800 tonnes.

Deployment of renewable energy and CHP across Government departments
Target: At least 10% of electricity from renewable sources by 31st March 2008 (2010 for MOD) and at least 15% of electricity from Good Quality Combined Heat and Power (GQCHP) by 2010 (with allowances for departments that already purchase 100% renewable energy. Overall, in 2005/2006 of electricity used on the government estate 23% was from renewable sources, although ROC retirement associated with renewables procurement is understood to be low. Three departments – the Department of Health, the Food Standards Authority, and the Treasury – all reported that 100% of their electricity was from renewable sources. Four departments have not yet met the target – DfES 9%, the Export and Credit Guarantees Department 8%, the Office of National Statistics 8%; and the Ministry of Defence 6%. The take up of Good Quality CHP remained low in 2005/06; THE DBERR led the way with 14.3% of electricity sourced from GQCHP.

Energy efficiency of real estate
Target: An increase of 15% by 2010/2011 (relative to 1999/2000)
As a whole across the government estate, energy efficiency has only improved by 2% since 1999/2000, which is a decline in performance from 2004/2005's improvement of 3%. Only three departments have already met the target – the Food Standards Authority, the Home Office, and the Ministry of Defence, although this needs to be maintained until 2010/2011. 14 departments were less energy efficient in 2005/2006 than they were in 1999/2000, with energy efficiency decreasing significantly in the Export Credit Guarantees Department by 98%; the Forestry Commission by 93%; DFID by 34%; the Department for Transport by 29%; the Treasury by 27%; Revenue and Customs by 23%; and the Cabinet Office by 22%.

Transport
Target: Reduce road transport vehicle CO2 emissions by at least 10% by 31st March 2006 (against a baseline year of 2002/2003). Progress in meeting the target was inconsistent across the government estate with only six departments meeting the target for 2005/2006[597]. There were considerable gaps in the reporting of data which made it difficult to make comparisons. Five departments did not provide 2005/2006 CO2 emission data from transport. These targets were introduced in 2002 and it remains a cause for concern that 24% of departments are still unable to quantify their emissions.

Summarised from the Sustainable Development Commission report
Sustainable Development in Government 2006

[597] The Foreign and Commonwealth Office, DfES, DTI, the Department for Work and Pensions, Revenue and Customs, and the Forestry Commission

9.5.2.2. Reflect priorities in the structure of government

Elsewhere in the Report, we have argued for the creation of a powerful new Department of Sustainable Growth. We also believe that the Prime Minister himself should actively chair an Energy and Climate Change Cabinet Committee whose function should be to coordinate policy development and its implementation and communication across government. This Committee needs to be adequately resourced with an effective Secretariat, which could be the current Office of Climate Change.

The Climate Change Bill and the introduction of carbon budgets have the potential to transform the performance of government. To maximise their effect, there will need to be further reform in the mechanisms for delivery.

We recommend a new requirement on the Chancellor of the Exchequer to deliver an annual Carbon Budget, broken down by department, together with a biannual review of the cost-effectiveness of current climate change policies and their impact on national competitiveness and wellbeing.

We also believe that each relevant department should be required to table an annual 'output plan' to Parliament for which a specified minister must be accountable. Both the Secretary of State and the Permanent Secretary would be accountable to the Environmental Audit Committee for performance against output plan. The EAC would then publish an annual review of the department.

At the moment, new policies are required to go through Regulatory Impact Assessments (RIAs) that quantify the cost benefit of a policy. These RIAs are widely recognised to attach insufficient weight to environmental cost and the principles of sustainable development.[598]

A new Conservative administration should, therefore, require RIAs to quantify specifically the carbon impact of new domestic policies and EU directives. The UK should also push for a similar approach at EU level.

The RIAs should include a statement of compliance with 5 principles of Sustainable Development and be drawn up earlier in the policy making process, therefore having more of an influence on decision.

9.5.2.3. Better forecasting

Both the NAO and the EAC have published concerns about what the EAC called 'the ability of government to model reliably and in a timely fashion future energy and emission forecasts.'[599] We therefore propose that a Conservative government should put in place a transparent and credible process for updating forecasts. The key to this is putting assumptions underlying the forecasts out into the public domain.

9.5.3. The role of the state

We have argued that the challenge of climate change requires a unique partnership between government, civil society, and business. Each must be clear about their own role and what they require of each other.

[598] House of Commons Environmental Audit Committee : *Regulatory Impact Assessments and Policy Appraisal*, Third Report of 2006-07

[599] House of Commons Environmental Audit Committee : *Keeping the Lights On*, Sixth Report of Session 2005–06, "We have serious concerns about the ability of the Government to model reliably and in a timely fashion future energy and emissions forecasts", March 2006; National Audit Office: *Emissions Projections in the 2006 Climate Change Programme Review*, December 2006

Labour have placed too much faith in the power of central government to drive behaviour change and control emissions. A more effective agent of change should be business, responding to its customers, its sources of capital, and its providers of insurance. The market is the most cost-effective way to drive behaviour change and raise standards.

This makes the central domestic role of government the setting of a credible target and policy framework that gives the market a clear direction of travel. A crucial element in that task is correction of the market failure to put a value on carbon. Conservatives can be relied on to defend freedom of choice but that freedom must be based on prices that reflect real costs, including external ones.

However, the government corrects the market to free it – not to replace it. This role should not therefore lead to centralism, nor should it put government in charge of everything. People rightly recognise that such an approach is judgmental and seeks to edit consumer choice, thus impinging on personal freedoms.

Sustained change can only be built from the 'bottom up'. Rather than preach and complicate, government should persuade and simplify. Rather than impose solutions from the centre, it should look to empower people to find out for themselves how best to do what is right for them.

We only have to look at the British high street to see the impact of consumer power. In the UK our major retailers are racing each other to persuade a more demanding customer that they have the interests of the planet at heart. We can be cynical about the motive but the change is real and it is being driven by customers and not government.

9.5.3.1. Setting a clear and credible framework

The primary role of government, here, is to set the framework of carbon limits. In this context, we proposed and now support the introduction of a ground breaking Climate Change Bill. The introduction of an independent Climate Change Committee is a particularly important innovation which must not be compromised.

Our recommendations in relation to targets, budgets and the remit of the Committee are summarised in Section 9.3.2.

However, we should have learnt from this Government that targets on their own are inadequate. If we are serious about becoming a low carbon economy with high levels of resource productivity we have to send much stronger and more consistent signals about the consequential changes in our values and priorities. People must know that it means we shall use land differently, expect products to meet different standards, and make different demands on our infrastructure.

At the moment, the market receives very mixed signals in each of those areas. We are told how important it is to reduce emissions from our driving but our planning system encourages us to spend more time in the car, and the loss of key local services such as post offices, bank branches and high street shops which force us to travel more, not less. We are told that one of the consequences of climate change will be increased risk of flooding and yet we read about the Government wanting to build a significant number of new homes on flood plains.

The market complains with considerable justification of over regulation. However, it is not just that there is too much regulation; it is often over-prescriptive, confusing, and counterproductive.

What we need is a process which gives the clear direction and speed of travel that business needs while freeing business to find ways of meeting the ends rather than prescribing the means. We need regulation to become a much simpler, dynamic process where the best standards of today become the

minimum standards of tomorrow because business finds the ways of achieving cost-effective improvement.

Such regulation will stretch companies to innovate and become more efficient rather than focus on meeting prescriptive detailed requirements. The ends will be clear, the signals constant, and the means will be left to the market.

Standard setting is a proper role of government and it is often essential if consumers are to have confidence in making choices. Two valuable examples of this are the government's role in the matter of offsetting, and in transport infrastructure.

Offsets

Offsets will play an important part in managing the change to a low carbon economy, but already there is great cynicism in the market about their validity. A framework of credibility is essential. An industry is growing up around the opportunity to offer people the chance to mitigate their carbon footprint by investing in projects that reduce emissions.

There are two markets: compliance and voluntary. There is growing concern about the integrity of both. The latter has been effectively unregulated although there are several initiatives to develop voluntary carbon standards.

The Compliance market exists for companies and countries participating in the Kyoto protocol and EU Emissions Trading mechanism. The Clean Development Mechanism is the instrument that allows participants to buy Certified Emission Reductions which are verified by a UNFCCC body called the CDM Executive according to an agreed standard. The current size of the market is estimated at 50m tonnes but there is a large pipeline of projects expected to deliver more than 1 billion tonnes of greenhouse gas emissions reductions by 2012.

The voluntary market exists for everyone else. It is a small market relative to the compliance market (less than 10 million tonnes of CO2 in 2005) but is growing rapidly. Defra estimate that the market was worth £60m in 2006 and will grow to £250 m in 2009. A myriad companies offering carbon offsetting have emerged over the past eighteen months. Without a price attached to carbon, at present no two companies charge the same for a tonne of carbon dioxide.

The voluntary market has a role to play in stimulating innovation and structuring smaller scale projects that are credible and may well have wider social benefits. In particular it may be the key stepping stone that helps us find a way to structure credible forest conservation credits in the compliance market. We are clear that the voluntary carbon market requires stringent standards, with independent verification of offsetting projects, but we are concerned that the proposed Government Code would restrict and fossilise particular approaches to carbon offsetting.

The government should restrict itself to enumerating the checks that due diligence would require, ensuring that consumer protection legislation covers the claims made by these initiatives, and encouraging the creation of a voluntary code of conduct to which these schemes would adhere, without cutting off the oxygen of private enthusiasm and voluntary initiative.

The government also has to make it clearer where offsetting should sit in the hierarchy of desirable actions to reduce our carbon footprint. In our view it must sit clearly at the bottom to be seen as a last resort, once every possible reduction in emissions has been made elsewhere. Offsets must not be used as an excuse to continue to consume and pollute on a wholly unsustainable basis.

Transport infrastructure

There is no area where the signals from government are more important than in the provision and running of infrastructure, even where privatisation has released the energy of the day-to-day management. As rail passenger numbers and freight carriage have risen sharply since the hand of the State was at least partially removed, the pressure on the infrastructure grows all the time. Plans to divert traffic from road and air are therefore rendered useless. On the day that France opened the latest of its TGV lines, we announced a programme of station improvement, thus underlining the continued failure of the British system. No wonder we don't find it surprising that there are 39 flights a day between Manchester and London.

The 2003 Aviation White Paper set out the Government's aviation policy until 2030. It expected to see a near trebling in the number of passengers using UK airports; this would require up to 5 new runways, with 'full use' made of the existing runways at all UK airports.

However figures from Airport Watch show that of the 473,000 flights from and to Heathrow last year, 100,000 of these could have been replaced by rail to ten destinations, which would have cut flight numbers to below the levels they were at a decade ago.

Instead, government should have the vision to set out a long term strategy for the public and private sector, not only in the interests of reducing carbon emissions, but also of improving our quality of life and competitiveness. It wouldn't, of course, just be a matter of capacity, but of sustainability.

The strategy would be driven by the need to reduce our dependence on the least carbon efficient modes of energy and transport. It would favour development that made walking and cycling easy and public transport convenient. It would concentrate on the better use of slots for flights for which there is no alternative instead of the development of new runways.

Our objective is to put sustainable transport at the heart of land use planning. Planning guidance would be redrafted to ensure the achievement of 'Smart Growth', enabling Britain to compete as it becomes a low carbon economy. It would use climate change as the spur to create the kind of infrastructure that would turn the UK into the role model of sustainable growth.

9.5.3.2. Clarifying the priorities of regulators

Once we have greater clarity on the strategic policy framework, we can address the current blur of obligations on regulators.

For example, the water regulator is caught between his sustainable development duty and the pressures to permit energy intensive investment to comply with the European Clean Water Directive. Water companies will soon have to start investing to upgrade our urban drainage to cope with different patterns of rainfall, but the response of the regulator is 'least cost now' complying with political priorities.

In relation to OFGEM, the statutory duty that determines the DNA of the agency remains protection of the consumer even though energy policy priorities have arguably shifted to climate change and energy security. The Government response has been to tag on sustainable development as a secondary or tertiary duty but it is not clear that this is driving major change.

Rather than tinker with remits, the role of government should be to set clear policy priorities from the top. In the face of climate change it may require the political courage to begin a dialogue about the need for us collectively to invest in the long term upgrading of our infrastructure. In relation to 'who pays?' the current discussion on consumer price increases between regulator and politician is 'what

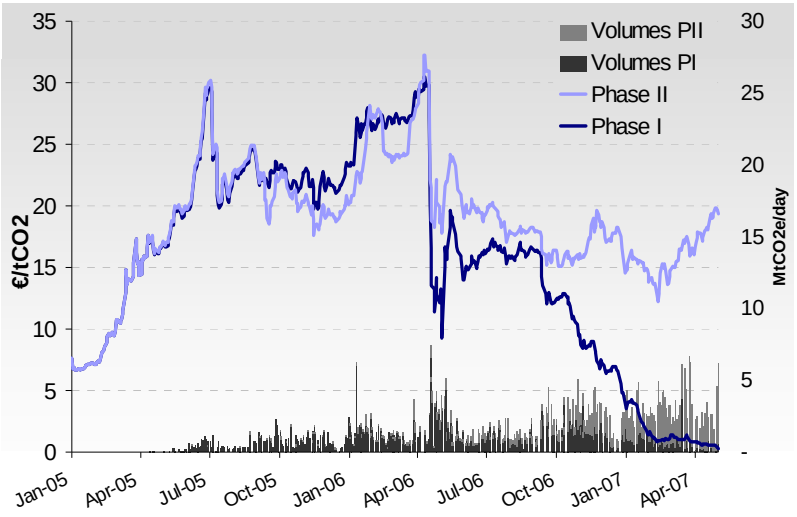
can we get away with this year?' It ought to be 'what do we need to make the improvements we have to?'

9.5.4 Putting a value on carbon

9.5.4.1. Business carbon trading

The UK has been at the forefront of emissions trading and is one of the most robust supporters of the EU Emissions trading scheme which covers 46% of emissions across the EU, with a heavy weighting towards the power sector and energy intensive industries.

Figure 9.4. EU ETS Price Trading History



Source: ICE, New Cabon Finance

We want the EU Emissions trading scheme to continue as the cornerstone of UK domestic policy as long as our proposed reforms to Phase III are implemented to a meaningful degree. They are summarised on Section 4.5.1. and a fuller discussion is set out in Appendix 9.2.

The other consideration is whether the scope of the scheme should be extended to other sectors, notably aviation and surface transportation sectors.

We support the inclusion of aviation but the case for surface transportation may need further discussion. Any discussion of emission trading should not distract government from effective implementation of other important policy mechanisms. Indeed, our Transport Chapter recommends regulation of fuel efficiency and incentives to encourage people to buy the cleanest car in the class that is appropriate for them. These other measures have the merit of being transparent and relatively simple.

This logic leads us to question the value in the Government's proposal to construct a complementary scheme to the EU ETS aimed at approximately 5,000 organisations whose energy use accounts for 1-3% of total operating costs and who are not touched by the EU ETS or the Climate Change Agreements. The Regulatory assessment suggests that over fifteen years the present value of the administrative costs alone will be between £250 and £500m. The potential benefits (1.2 million tonnes of carbon per year by 2020) look relatively small against that cost and the downsides of adding to the

clutter of the policy landscape. Our instinct is that resources could be better directed for example at incentives to promote energy efficiency now.

9.5.4.2. Personal carbon trading

Some believe that we have reached the point where the principle of carbon rationing which underlies any 'cap and trade scheme' must be extended to individuals.[600] The Government takes this proposition seriously, and David Miliband floated the idea when he was Defra Secretary. Conservatives should not dismiss it out of hand because it is the most radical proposal for engaging people with their individual responsibilities and, furthermore, the urgency of the situation may require such a radical response. The scheme also gives opportunities for ensuring social justice which the price mechanism does not always make possible.

Individual carbon trading refers to emissions trading for individuals, whereby credits are allocated on a per capita basis. Carbon related goods and services, such as electricity, heating and petrol would be covered by such a scheme, with the potential to include personal air travel.

Such a scheme limits the total emissions from the population by allocating every individual an allowance for emitting carbon dioxide. Credits can then be bought and sold, with those who want to emit more than their allowance able to buy credits from those who emit less.

The minutiae of a potential future individual carbon trading scheme are as yet unresolved. We need to understand whether such a scheme is technically possible and how it can be introduced at the most efficient point on the curves of cost, effectiveness and convenience. We also need to think through how such a scheme would relate to other policy instruments; and what the economic, equity and distributional impacts might be.

The RSA is conducting a three year project, CarbonLimited,[601] to explore the idea of personal carbon trading. They have brought together expertise from the commercial, social and financial sectors for rigorous analysis and field testing in Lewisham, Southwark, Birmingham and Manchester. The £500,000 project will lead to policy recommendations in December 2008, tackling many of the key areas of concern.

In this context, we recommend that an incoming Conservative government should await the outcome of the RSA CarbonLimited initiative before commissioning a larger pilot study, possibly in partnership with a large retailer who has the customer base and the card technology to support such a pilot on an incentivised and voluntary basis.

9.5.4.3. Carbon taxes

The Conservative Party has already committed itself to a fundamental shift in the direction of taxation, with more tax on 'bads', such as pollution, and less tax on 'goods', such as employment. 'Pay as you burn, not pay as you earn.'[602] Reforming certain taxes and casting them as explicit carbon or climate change taxes will ensure not only that freedom of choice is based on correct prices, but will give us the chance to align the incentives, and complement our constructive approach to regulation in growing the market for low carbon choices.

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[600] The idea of 'Domestic Tradable Quotas' was devised in 1996 by Dr. David Fleming, who now refers to them as Tradable Energy Quotas. Research into such schemes is ongoing at both the Tyndall Centre for Climate Change Research (Domestic Tradable Quotas), the Oxford Environmental Change Institute (Personal Carbon Allowances/Rations), and by Dr. Fleming.

[601] http://www.rsacarbonlimited.org/uploads/documents/CarbonLimitedBriefingPaperOct06_6.pdf

[602] Speech by George Osborne MP to the CBI conference, London, 27 November 2006

However, the British people feel fully taxed. Therefore, tax changes should be revenue neutral, with 'green taxes' offset directly by a reduction in tax in other areas. Messages driven by taxation policy need to be consistent across all sectors of the economy; and we need to take account of the effect of any increase of green taxes on low income families.

The priority sectors for tax reform must be those that fall outside the scope of the ETS and which demonstrate growth in emissions; and those which offer the scope for high levels of low cost emission reductions with the right fiscal nudge.

These should include the taxes recommended in our Transport Chapter, and should emphasise the need to take seriously the proposals put forward in our Built Environment and Energy Chapters for reducing emissions from the built environment and for transforming the level of energy efficiency in our building stock.

Such a coherent and transparent carbon tax strategy over time would be linked with our evolving view on the social cost of a tonne of carbon. We believe that this is consistent with Recommendation 2 of the Better Regulation Commission's appraisal of the regulatory implications of the Stern Review. It recommended that the government should 'publish an updated view of the appropriate future path of the price of carbon for use in the UK'.

Consistent with the requirement for greater transparency is the recommendation that certain taxes be reformed and cast as explicit carbon or climate change taxes – as recommended in our Chapter on Energy.

We support reforming the Climate Change Levy to make it a tax on carbon and not energy[603]. At present, the Climate Change Levy would tax energy from a carbon capture and storage plant by the same amount as that produced from the worst polluting coal powered station. Clean energy needs to be properly incentivised through a new Carbon Levy.

This process of transparency and explicit linkage with carbon will send a clearer signal to the market that there are costs explicitly connected with high carbon choices that will continue to rise but can be mitigated by behaviour change.

9.5.4.4. Using regulation to put a value on carbon

There is also a role for constructive regulation in putting a value on carbon. We have already argued that business is the key agent of change through its network of customers, suppliers, employees, and competitors.

Britain has the most powerful capital markets in the world. By requiring greater emphasis on principles of sustainable finance, we can use the power of capital more effectively on behalf of the environment. In doing so, we can reinforce the position of the City of London as the centre of carbon finance.

In the equity markets, the key agents of change are the UK pension funds who are worth over £700 billion and control almost a fifth of the UK FTSE 350. Insurance company portfolios have a similar weighting. Between them they own 50% of the FTSE 350.

[603] Conservative Party, 'An effective Carbon Levy for the UK: A Consultation', November 2006.

Pension funds and insurance companies

There is a requirement on pension funds to publish their Statement of Investment Principles (SIP). Following reforms to the 1995 Pensions Act in 2001, this should include a statement of whether trustees have considered the environmental impact of their portfolios. According to the Fair Pensions Campaign, the current levels of basic disclosure to members of pension schemes are minimal, and enforcement non-existent.

Furthermore, insurance companies are under no obligation to consider the environmental impact of their portfolios.

Pension funds have a legal duty to invest in the best interests of their beneficial owners. We would argue that there is a growing fiduciary risk associated with climate change as has been pointed out by leading consultants.[604]

On the evidence we have heard, pension fund trustees and insurance companies are insufficiently engaged with the need to consider the environmental cost of their portfolios; therefore neither are the fund managers whom they contract to manage those portfolios. Lack of interest by mainstream fund managers feeds the chain of apathy further down into the companies that they invest in. We believe that a simple change to their Statement of Investment Principles is capable of triggering significant change down the investment chain.

We propose that the SIP should be strengthened, to define, for the first time, the actual meaning of the existing requirement to cover 'social, environmental or ethical considerations'. The FSA should require all pension funds to include a Climate Change clause in their mandates to fund managers. This would insist that 'In the selection, retention and assessment of managers, trustees will give consideration to how the fund manager invests with regard to Article 2 of the UN Framework Convention on Climate Change.'

The government should facilitate the development of a Quality Assurance scheme that would establish a minimum standard for disclosure of governance information by pension funds to their members. This could be expected to evolve over time towards a fuller review of how trustees implement the Statement of Investment Principles. This would be achieved through the existing mechanism of the Statement of Recommended Practice ('SORP') for pension scheme report and accounts published by the Pensions Research Accountants Group ('PRAG').

There is also a need for the government to enter into consultation with stakeholders to consider the most effective mechanism for monitoring compliance by pension funds and insurance companies; and encourage investor engagement with the governance of their scheme. This could be accompanied by the new Chancellor leading a drive in the City to encourage UK based asset managers to sign up to the United Nations Principles for Responsible Investment and to support the Global Framework for Climate risk disclosure.

There is a need for much more transparency about insurance companies' policies and practices in relation to climate change issues and SEE considerations generally. This is particularly important in view of the continuing shift from defined benefit schemes to defined contribution schemes.

[604] Freshfields Bruckhaus Deringer: *A legal framework for the integration of environmental, social and governance issues into institutional investment*, 2005: In October 2005, Freshfields produced a legal framework for the integration of Environmental, Social and Governance issues into institutional investment. Mercer Investment Consulting: *A climate for change A trustee's guide to understanding and addressing climate risk*, November 2005: In August 2005, Mercer Investment Consulting also produced a guide for Trustees on understanding and addressing climate change risk

In so far as significant amounts of pension assets are moving out of the regulatory regime for trust-based schemes and out of the scope of the existing Myners Principles for best-practice scheme governance, it is essential that equivalent rules, adapted to the different legal structures, be put in place. If this is not done, individuals will have even less influence over the SEE impacts of their pension funds. As it will not be possible to deal with this issue within the framework of pensions law, it will be necessary to consider other ways of securing socially responsible investment and transparency on the part of insurance companies.

Carbon disclosure

As public policy focuses more on correcting a market failure by attaching a value to carbon, so will the importance of carbon as a business risk grow. As public concern about climate change grows, so private investors will become more interested about the impact of their investments. Government can act in the interests of private and institutional investors by requiring disclosure of carbon emissions to a common standard which will facilitate comparisons between companies. In doing so we would be accelerating a market trend.

There is evidence from both the Carbon Disclosure Project and TruCost that companies are more prepared to make environmental disclosures, not least in response to the EU Accounts Modernisation Directive. However the same sources show that the level of quantified disclosures is still too low and not easily comparable.

So we recommend that large companies, as defined by the EU (turnover of more than £22.8 million or more than 250 employees), with a public listing in the UK should be required to disclose in the audited section of the Report and Accounts their CO2 emissions in a way that satisfies Scope 1 of the GHG Protocol 605. This refers to greenhouse gas emissions the company is directly responsible for. We should also signal a direction of travel with express intention of adding at a later date the need for disclosures to be confirmed by a limited assurance from a firm of auditors and the requirement to disclose in a way that satisfies Scope 2 and in certain sectors Scope 3 of the GHG protocol. Over time this requirement could be extended to all companies based or listed in the UK.

We believe that these proposals go with the grain of the Myners Review[606] and the need for more robust and transparent principles for institutional investment decision making.

We want to break the current chain of 'carbon apathy' between sources of capital and the companies they own in order to make businesses think more about carbon and be more accountable for their impact on climate change. Compliance will not be onerous and we believe is in the long term commercial interest of British business and the City of London.

9.5.4.5. Government procurement

Public procurement is an underutilised tool in this effort to put a value on carbon. The UK government and wider public sector buys £150 billion worth of goods and services each year. Local government is responsible for around a quarter of that. We want to see government drive behaviour change down in its own supply chain as effectively as big blue chip companies such as M&S (Plan A) and GE (Ecomagination).

The UK Government Sustainable Procurement Action Plan[607] simply states that Defra will lead on work 'with key government suppliers to develop voluntary commitments to achieving low carbon

[605] GHG Protocol Initiative: http://www.ghgprotocol.org
[606] H.M. Treasury: *Myners principles for institutional investment decision-making: review of progress*, December 2004
[607] http://www.sustainable-development.gov.uk/publications/pdf/SustainableProcurementActionPlan.pdf

activities and supply'. However DHL were awarded in 2006 the largest outsourcing contract from the NHS with no consideration being given to their environmental performance at all.

We would like to see a Conservative government establish a procurement policy, which places a requirement on procurement officers to give preference to the product or service with the lowest environmental impact unless there is a clear price disadvantage. Judgements would be based on whole life costing. They would also have to disqualify from the bidding process any company that had not made a minimum commitment to reducing their greenhouse gas emissions by 2020, which should be linked to the national target of a reduction range of 26-32%. All bidding companies should be required to prove that they have made progress towards that commitment.

In this way the message will go out that if you want a public sector contract, you have to be a partner in the national effort to manage climate change.

9.5.4.6. Impact on low income families

In structuring a coherent strategy for putting a value on carbon, the government must be concerned with social justice, and carefully consider the impact of measures on low income families. The average British family has monthly disposable income of £146 based on a £28k household pre tax annual income.[608]

In this context badly formulated green taxes can be regressive, particularly for low income families dependent on motor cars. The party of low taxation, rediscovering its tradition of social justice, should not be adding to financial hardship of the poor. Nor should the party of aspiration be in the business of restricting air travel to the rich. That is a matter of philosophy but it is also a concern of practical politics. If the 'green crusade' is seen as the preoccupation and preserve of the affluent, then we will not sustain the broad consensus we are seeking.

In the meantime, our recommended annual Climate Change or Carbon Budget should include a report on the impact of policy on low income families. As mentioned above, the Conservatives have pledged that green taxes will be revenue neutral: this Report has recommended that new green taxes should be used to reduce taxes elsewhere, and we now go further by recommending that a further element of tax cuts be focused on low income groups that might otherwise be losers in the carbon strategy.

We must also recognise in 2004, approximately two million households in the UK were in fuel poverty,[609] defined as the need to spend more than 10% of income on maintaining a satisfactory level of heating[610].Given that energy prices are likely to rise in the medium term, we believe that a Conservative government should review the adequacy of funding for schemes which aim to assist low income families, such as the Defra-sponsored Community Energy programme, Warm Front and the Decent Homes programme. There is scope for bringing these together and providing a more effective delivery vehicle, thus releasing more of the money spent for actual provision.

9.5.5. Empowering change

Reducing UK emissions on the scale needed will require significant change in values and behaviour, sustained across generations and over economic and political cycles.

[608] ASDA Press Release: *Research Shows Average Family's Disposable Income is £146,* 15 June 2007 http://www.asda-press.co.uk/pressrelease/117
[609] DTI & Defra: *The UK Fuel Poverty Strategy: 4th Annual Progress Report 2006*, 2006 p.8
[610] According to the DBERR, this is 21 degrees for the main living area and 18 degrees for other occupied rooms

The environment has become fashionable but the battle for hearts and minds has only just started. There is a 'green gap' between what we say and what we are prepared to do. Growing concern about climate change is almost everywhere, coupled with significant resistance to lifestyle changes.[611] This means that building a broader consensus for action is critical.

It will demand a coalition of different interests and values, bringing together the traditional environmentalists and the faith based communities motivated by the idea of stewardship; those who understand the threat climate change poses to the world's poorest; those living in areas of risk; or who just want to reduce their energy and petrol bills. There is an urgency about building this coalition.

People will grow disillusioned if it isn't done soon, and there is a growing pessimism within the scientific community about the political will to take the action required. We need to create a virtuous circle where consumers push business and politicians to be more ambitious and in turn businessmen and politicians provide the public with information, choices and incentives knowing that it will make customers and electors push them even further.

Two recent precedents show how it might be done. The switch from leaded to unleaded petrol owed its success to the fact that the Conservative Government had got the information and incentives correctly aligned. We knew why we were doing it, it wasn't complicated, and it was clearly the future. Those same elements can be seen in the recent upswing in recycling rates. Where success has been achieved, it is because local authorities were well incentivised through landfill tax and have made it easy for people to do what they see as 'the right thing'.

These examples identify some keys to behaviour change. People have got to feel that the change is normal and reasonable, because it is being made by other people who share their values. It has to be relatively easy and in their own interest or the interest of people they care about. This suggests that to change behaviour requires clear and consistent leadership; information that people can trust; incentives that people can act on; and practical support that makes it easy for people to do the right thing.

Politicians are not easily trusted and our strategy needs to reflect that. We won't gain people's active cooperation by banging on about climate change. Instead we need to engage key opinion formers and harness the power of the internet to create networks of people who will share information and influence each other to change.

9.5.5.1. Develop a network of Climate Change Ambassadors

We should learn from successful models such as the UN Goodwill Ambassadors and create a network of Climate Change Ambassadors. These ambassadors would be recognised opinion formers from across all strands of society and their role would be to tell people why climate change matters to them and help people connect with what they can do to make a difference. Rather than broadcast one impersonal message through the mouth of a Secretary of State whom no-one who needs to be persuaded is listening to, we should be narrowcasting personal messages into different communities through the mouths of people they trust.

[611] New Statesman: *Climate change: Why we don't believe it*: 'A survey by the polling organisation MORI, published at the end of last year but unreported by the mainstream media, found that about a third of the population - 32 per cent - still knows little or nothing about the threat of climate change. Of those who had heard of it, half thought it was at least partly a natural process, and only 11 per cent of those questioned thought it was up to individuals to change their behaviour.' 'An ICM poll last month found about half the people questioned in some parts of the country were quite clear about their unwillingness to change their lifestyle at all.' 23 April 2007; IPPR: Positive Energy, 2007 'The public acknowledges that it makes some contribution to the problem. In a recent government survey, over 70 per cent of people accepted that they personally contributed to the production of CO2 emissions and thus climate change. But they said they did not believe that they had a responsibility to act to reduce their contribution, and just 7 per cent felt they personally could influence it to a large extent. Far too many say there is little they can do about climate change themselves.' p.7

The Government has started down this track with the concept of Climate Change Champions, an initiative for young people aged 10–18 years to help spread the word about climate change. This is a good idea that is moving at a snail's pace. Only nine have been appointed since the announcement in 2006. We should be looking for at least one in each school connected to a local community champion who could be sourced through existing networks of Residents Associations, churches, faith groups, or social clubs. They could also use the new initiatives such as 'Street Champions' and 'Friends of Parks' with which progressive local authorities like Hillingdon are experimenting.

These community champions could be connected in turn to a local authority Climate Change champion, preferably at Cabinet Level, who would in turn be plugged into a network of national champions, 'chaired' by a highly credible figure such as Sir David Attenborough. At the top of this pyramid should sit the Prime Minister, and in this 'age of celebrity' it should be liberally sprinkled with stardust.

Such a network would require financial support and access to high quality information. Effort would need to be rewarded, successes would need to be shared, and failures learnt from.

9.5.5.2. Community groups and voluntary organisations

We should also learn from the success of voluntary organisations such as Global Action Plan – an environmental charity which helps people to make positive changes at home, work, school, and in the wider community.

The organisation was set up in 1993 as a 'different kind of environmental organisation', focusing on how people can take practical action in their everyday lives. Global Action Plan offices have since opened around the world. Their framework for change is 'a supportive, structured approach recognising the importance of tailoring projects to the priorities and cultures of individual communities'.

The Government has committed only £80,000 per annum to support community group initiatives such as Global Action Plan. That is less than £200 per local authority area and sends an appalling signal about the importance of this endeavour. We would recommend that the scale of budget required is ten times this amount, with the extra revenue coming from the changes we recommend in the Landfill Tax. Administered by Entrust, that already has the community links, the money would be used to fund community groups, give advice on best practice, and gather and share the local intelligence that these networks will deliver.

However the challenge is not just money; it is about capturing people's imagination and sense of responsibility. The internet makes simple ideas easy to implement and brilliantly effective. One good example is the Freecycle initiative,[612] which allows people to give away unwanted things without throwing them away. The initiative was set up in 2003 to promote waste reduction in Tucson, and is now a global grassroots and non-profit movement of people giving (and getting) 'unwanted' things for free in their own towns.

All this fits with David Cameron's theme of encouraging people to assume more social responsibility. It can also be a catalyst for bringing communities together in a more collective effort. It is a very Conservative approach; supporting local institutions, building community, and focusing on enabling people to find what is right for them.

[612] http://uk.freecycle.org/

9.5.5.3. Information you can trust

We must recognise that few people read political speeches and even fewer read IPCC reports. Although the government and media are raising awareness on climate change, people feel confused by the mixed messages. The NGO community tends to consolidate but does not extend their existing constituency of 'already concerned'. Their priority is often to persuade government rather than the people.

Worse, the messaging tends to focus on 'what you can't do' rather than 'what you can do'. A classic example of this is the way in which aviation has become a totemic issue among the green community. It's not about doing better but about not doing at all. History and experience should teach us that a negative approach wins few converts and the hair shirt is rarely a successful fashion statement.

For many, climate change registers far down their list of priorities when compared to other quality of life issues.[613] Money, health, education, crime, litter – even dog mess – score much higher. The challenge is therefore to make the sustainability message a normal part of everyone's agenda rather than the preserve of the committed. That means that the messages must not only be carried by people who are trusted, the content must be simple and consistent.

At the moment, there is too much contradiction among the agencies charged with climate change communication. The Energy Saving Trust and the Carbon Trust are only two of the 70 national and 90 regional agencies offering advice to businesses on resource and energy efficiency. Soon there will be the Committee on Climate Change and the Office of Climate Change to add to the list.

As the private sector gears itself up to tap into the greening consumer, we can anticipate a growing demand for this information landscape to be de-cluttered. We believe there is a need for a central point of research and communications where people can go for clear and up to date information that they can trust.

Our recommendation is to create one integrated research and communications agency as the source of information on climate change. We would bring the Energy Saving Trust and the Carbon Trust together and make the merged organisation the enabler of local initiatives. It would also continue the good work on innovation and business opportunity that the Carbon Trust has made a speciality. Renamed the One Planet Trust, it would get simple messages for change direct to those who wanted it and through all the many organisations who increasingly want to join in.

Remit of the One Planet Trust

The Trust would assemble the most authoritative research on climate change in the country in order to:

- provide up to date information on the carbon footprint of the UK;
- break that information down so as to help communities, large and small, to measure their footprint and seek to diminish it;
- provide an authoritative basis for individuals to compute their carbon footprint and enable them with the necessary information to reduce it;
- provide the answers to frequently asked questions and bust the myths; share 'open source' data bringing together information from NGOs, the private sector: local authorities; and schools; and
- share best practice and experience in an online database.

[613] As identified in a 2006 survey by the Office of National Statistics, groups who were less concerned and had relatively low levels of knowledge were those in routine/manual occupations, those with no educational qualifications, those with relatively low levels of income or those living in the most deprived areas

Thus, all the information needed for collective action on climate change would be readily available in a form that most suited the recipient. The One Planet Trust would link in to schools, SMEs, local authorities and every kind of group and also link them with each other. It would be the super highway that made sure that local energy, waste and regeneration networks; local communities; social enterprise and finance initiatives; and NGOs shared what they were doing and got the best out of each other's initiatives.

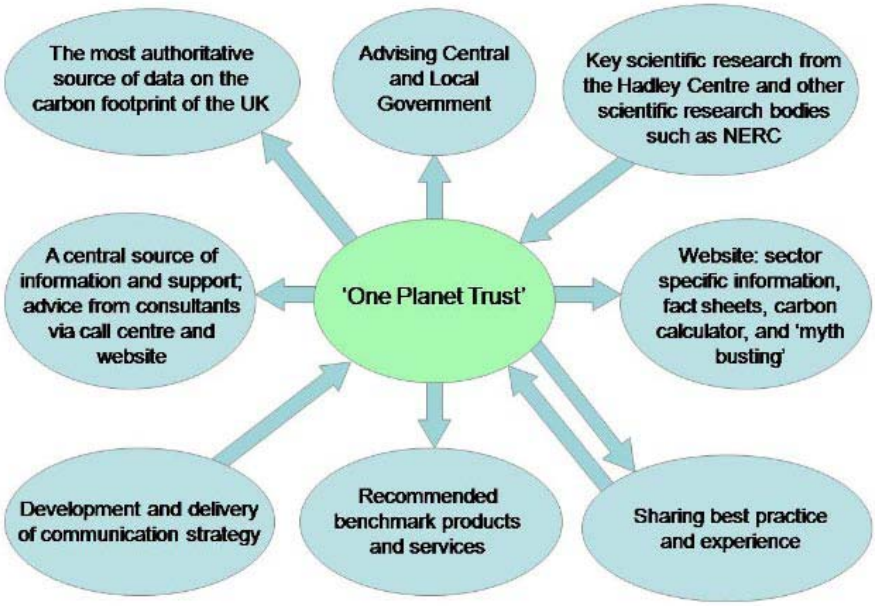
The One Planet Trust would use the understandings gained in fulfilling its role in information gathering and communicating to provide a national support service that would:

- be the gateway for access to grants and financial mechanisms;
- recommend 'A' products and services where it would cooperate with the National Consumer Council in contracting out its testing;
- provide this information on-line, learning from the experience of Germany where the government's information is accessed by 70% of the population, as a result of which products with a minus or unsatisfactory rating are taken off the market within a matter of months;[614]
- work with the government Procurement Agencies to provide information on the most carbon efficient products;
- cooperate with the Private Sector in establishing agreed methodology for measuring the carbon footprints of products and services; and
- encourage participation of individuals and groups, and link initiatives to maximise common action.

The One Planet Trust would have a special role in schools where it would provide a single, reliable source of information and ideas for head teachers on how to 'green the school', access grants and finance mechanisms, and link with partners.

[614] Karlson Hargroves (Editor) & Michael Harrison Smith (Editor): *The Natural Advantage of Nations,* 2006 cites: Suzuki and Dressel: *Good News for a Change*, 2002: Stiftung Warentest (SW) is a consumer watchdog that assesses and rates all aspects of thousands of products annually, including whether the product is environmentally sustainable. The results are published online and in a monthly magazine that is read by 700k people. Director of SW, Peter Sieber 'A product with a minus or 'unsatisfactory' rating is off the market in a very few months time'. SW also release their findings to the media and TV networks. There are now 2500 TV spots per annum dealing with their specific findings on products. Polls show that more than 70% of Germans follow SW's advice when making a purchase.

Figure 9.5. The One Planet Trust



9.5.5.4. New communication strategy

Help people prioritise

A number of reports have highlighted the shortcomings of the Government's communication strategy to date.[615] These provide the necessary information to build a different kind of information strategy which would be designed first to help people prioritise. There is no shortage of advice on what people can do to combat climate change or green their lifestyle. The One Planet Trust would simplify this and communicate key actions that will make a difference in ways which are immediately accessible. Information and incentives would then need to be aligned behind these key changes.

Find a common language

If this is to be successful, the One Planet Trust would have to tackle the general incoherence of the language used about carbon and energy. It is important to design a language that addresses different sectors in a way that still enables everyone to talk about carbon and energy in the same terms. Those terms need to be applicable across the range of issues from motor cars to domestic heating and from electrical standby to short-haul flights. In this way new issues can be raised in a context already established and the priority of old issues can easily be assessed. We seriously need a commonality of language that NGOs, campaigners, and politicians can also utilise.

Target the young

We recommend a more sustained approach to engaging children in school with the issue. This is a fundamental opportunity to shape awareness and future behaviour. We want to see our schools equipping children with an understanding of and connection to the natural world, whilst being examples of best energy practice and engaging the whole community in the need to place a greater value on natural resources and the environment.

[615] Green-Engage: *Painting the Town Green*, January 2006; Sustainable Consumption Roundtable: *I Will if You Will*, May 2006

We place a great deal of emphasis on this opportunity and it is the subject of a fuller analysis set out in our Case Study on Schools (Appendix 9.1.1).

9.5.5.5. Information that reaches its target

The message on climate change is too remote from people's lives to really engage them. The new One Planet Trust should harness the increasingly granular analysis available from the Met Office's Hadley Centre – once computer capacity is increased. This would provide localised information for presentation in every city, town and region of the country. Every local authority Cabinet should receive a presentation on the anticipated impacts of climate change in their area and be required to publish a response; every city should host an exhibition similar to the Greater London Authority initiative 'Green London'.[616] This would set out the impact of that city on the problem and simple ways in which people can make a contribution to the solution.

If granular information is the key to community understanding, so too, it is the way to individual buy-in. However, this means a complete change in the way that consumers receive information. At the moment we have every excuse for inaction because the facts of our own personal impact on the planet are hidden from us. A National Consumer Council report[617] found just how little information is available when it comes to energy efficiency. Out of 350 items researched, only one item, a television, had an energy label sticker on it.

Our proposals in this Report for smart meters, carbon labelling of electrical products, details of emissions on all transport advertising including tickets, as well as the presentation of information on car emissions would change this. If we want people to engage more closely to their energy use, we must express usage in money terms and in carbon terms. The first provides a ready reckoner for today, the second will become increasingly available in the future as carbon becomes a much more common currency.

The importance of information is dramatically conveyed by the 2002 Department of Transport study showing that only 1 in 8 air passengers made any connection between flying and climate change. Of course that has improved, but how many people, even now, recognise that flying return to New York has as big an impact on the climate as the average Indian person does in a year?

[616] For example, the 'Future London: Footprints of a Generation' exhibition in 2006 enabled visitors to explore ideas on sustainable living

[617] National Consumer Council: *Information blackout: why electronics consumers are in the dark*, March 2007 http://www.ncc.org.uk/responsibleconsumption/blackout.pdf

'Putting collective action into context[618]:

Standby	If everyone in the UK turned appliances off and avoided using standby, we would save enough electricity to power 2.7 million homes for a year
Lights	If we all turned off lights when not needed, we could save enough money to pay the wages of 10,000 new nurses
Thermostat	If we all turned the thermostat down by one degree we could save enough energy to heat 1.7 million households for a year
Light bulbs	If all UK households replaced one ordinary light bulb with an energy saving efficient one, we would save enough money to pay around 75,000 family fuel bills for a year
Appliances	If everyone in the UK upgraded their appliances to Energy Saving models, enough energy would be saved to run all UK street lighting for over 6 years

9.5.5.6. Responsible media and advertising

Communication of climate change within the public domain takes place mainly through the media, with an increasing amount of newspaper articles, radio and television broadcasts on the subject.

Yet at a time when public understanding of climate change has increased tenfold in as many months, we now find ourselves in a crowded information space where articles on energy efficiency jostle for column inches with reviews of the latest 4x4 or offers of cheap flights from low budget airlines. The communications landscape is cluttered with contradictory advice and 'facts'.

Government needs to enter into a dialogue with the media about the scope to improve the consistency and accuracy of communication on climate change. There is a way in which the media can play a fundamental role. We have already argued that one of the keys to success will be to make sustainable behaviour seem normal. Given the power of television and film, one of the most effective ways to get people comfortable with behaviour change is if the 'green' products and actions are visible and familiar within the programmes they watch and discuss with their family and friends.

We also recommend that government should consult on consistent application of advertising standards across a range of products and services that have a high carbon impact. Our illustrative starting point is that airlines should be required to disclose the emissions of specific flights that are being promoted.

The One Planet Trust would also be responsible for building joint initiatives within industry sectors. It is often possible for all the players to act together in a more effective way than individual companies, fearing competitive disadvantage, can afford to do.

[618] Energy Saving Trust: *Habits of a Lifetime*, October 2006

Joint Industry Initiatives

Case study: Washright campaign

Washright is a joint-industry, pan-European campaign, launched in 1998, which aims to persuade consumers to take four simple steps to wash their laundry in a more environmentally friendly way. The campaign has the commitment of more than 170 companies in 18 countries.

Since 1998, 90% of European household laundry detergent products have featured the Washright label, at over 500 million packages across Europe each year. The targets of reducing detergent per capita by 10% and energy use per capita by 5% have largely been met.

Approximately €35 million was spent on the campaign over five years, mostly on television advertising which was launched in 2000. Supportive governments have been able to negotiate media discounts/rebates for the television advertising. The 15-second Washright adverts carry campaign messages and are designed to reach approximately 70% of European households. In 2002, the industry committed a further €10 million towards the television and print advertising campaign.

(Three case studies in Appendix 9.1. show how this focus on information, incentives and support can be applied to three key stakeholders in our collective effort to mitigate and adapt to climate change: schools, SMES and local government.)

9.5.6 Removing barriers to 'green' innovation

Having set the limits and aligned the information and incentives, government needs to remove the obstacles that get in the way of people who want to develop and deploy low carbon technology or reduce their carbon footprint and help others do the same.

9.5.6.1. Support the innovators

Government's role is not to pick winners but to focus on the framework and incentives for innovation which, in this context, primarily means an effective carbon price. It must also seek to ensure a level playing field, and monitor safety and public good issues associated with new technology development.

In the critical short and medium term, we do not have a technology gap. We resist deploying existing and emerging technologies at the scale which would make them cost-effective. We may therefore need some public subsidy or regulatory requirements to break through the inertia. Innovation is not just about technology, it is also about process and getting people to think differently.

Government has a role to play in helping the market accelerate our understanding of the technical and economic feasibility of key long term technologies such as next generation nuclear and carbon capture and storage.

Any assessment of the barriers to 'green' innovation would include lack of an effective carbon price; relatively poor links between the worlds of science and industry; confusion about the role of the public sector in innovation; failure to certify new technology; the early stage venture capital gap; and the imbalance of key policy levers such as the Renewables Obligation which is seen to favour one technology – onshore wind; and lack of easy access to examples of best practice.

Our recommended policy response to these barriers is:

- An effective strategy to put a value on carbon as we have outlined.
- Supporting the development of an Innovation Projects Agency in the UK to procure development and support programmes that address known social and environmental needs. This is being proposed by the Conservative Task force on Science and Technology, led by Ian Taylor.[619]
- Reviewing the priorities of our publicly funded science to ensure that adequate weight is being given to the goal of 'an environmentally sustainable UK'.
- Supporting the EU programme, particularly in relation to certification and joint development platforms.
- We are uncomfortable with the role of government as venture capitalist but would support an approach that was limited to:
    - developing new markets of strategic importance such as energy from waste; and
    - leveraging funds from the private sector that would not have taken risk otherwise.
- We recommend that the Treasury review the opportunity in tax incentives for special purpose 'green' savings instruments directed at the equity gap. We also suggest changing the Renewables Obligation in the way that our Chapter on Energy proposes.
- Our proposed One Planet Trust should showcase best practice and continue the work of the Carbon Trust in helping companies understand their full impact (for example through developing standard methodologies for measuring new things such as the carbon footprint of supply chains).

9.5.6.2. Removing barriers to consumer action: fighting inertia

Our policy weapons in the battle against inertia are information, standards, targets, and financial incentives. However in the battle to sustain mainstream change, we should not underestimate the importance of giving people a real sense of empowerment.

Already, the foundation has been laid in the Sustainable Communities Bill, a Private Members' Bill sponsored by Nick Hurd. The objective of the Bill is to address the social and environmental cost associated with community decline and loss of local services. The Bill contains the seed of a revolution in the way that decisions are made about the future of local communities.

The premise is that 'local people know best'. It is highly relevant to the process of breaking down inertia, because it gives people real power to influence the future of their community.

It requires the government to invite proposals from local authorities on what government can do to help them sustain their local community. The process will be aided by the publication of a full breakdown of public expenditure in each local area. For the first time we will be able to see that central government is spending in our town or district.
In making proposals, local authorities will have the right to recommend the transfer of functions and resources from another government agency. They will be required to demonstrate that they have consulted effectively with the community they serve, including under-represented groups. Proposals from local authorities will then be consolidated and prioritised by the local government association and the government will be required to cooperate with them in reaching agreement on a short list of proposals which will form the basis of a national action plan. The government will then be required to publish any reasons for refusing proposals from local authorities.

[619] http://www.iantaylormp.com/type2.asp?id=90

The Bill is not prescriptive about policy; it simply enables local communities to have much greater influence over how decisions are taken. Its premise is that policy should be driven from the bottom up because local communities know what the priorities should be.

We believe that this power will rekindle a sense of community. This is fundamental to the protection of the environment because there is truth in the saying that 'if you don't own it, you don't care for it'.

We believe that the Sustainable Communities Act is the basis for a future Conservative government to make localism a reality. By empowering people and enabling them to build their community from the bottom up we would give them the confidence and determination to change behaviour so as to meet the challenge of climate change.

9.5.6.3. Helping communities adapt

Climate change will pose some big challenges to various sectors of our economy, not least agriculture, tourism, insurance and the health system. As Stern makes clear: 'At higher temperatures, the costs of adaptation will rise sharply and the residual damages will remain large'. It will also mean different pressures on different parts of the country.

Projected UK impacts[620]

Increasingly warmer weather with the average annual temperature expected to increase by between 0.5 and 1°C by 2040, and by between 1°C and 5°C by 2100.

Hotter, drier summers with the average summer temperature expected to increase by between 0.5 and 2 °C by 2040 and by between 1 and 6 °C by 2100. Summer rainfall is expected to decrease by up to 50% by 2100. There are likely to be more summer droughts.

Warmer, wetter winters with the average winter temperature expected to increase by between 0.5 and 1°C by 2040 and by between 1°C and 4°C by 2100. Winter precipitation is expected to increase by up to 30% by 2100. There are likely to be fewer frosts and cold winter spells.

Extreme weather, with the number of very hot summer days is expected to increase, and high temperatures similar to those experienced in August 2003 or July 2006 (more than 3°C above average) are expected to become common by 2100.

Sea level rise, with extreme sea levels expected to be experienced more frequently; by 2100 storm surge events could occur up to 20 times more frequently for some coastal locations:

- Global sea level is expected to continue to rise;
- Greater sea-level rise is expected in the south of England than in western Scotland due to variations in natural land movements.

The impacts of climate change are likely to vary across the country, with changes expected to be most prominent in the south and east of the UK.

The UK Climate Change Impacts Programme is the lead agency for adaptation. It has proved innovative in developing web based tools to help organisations integrate climate change into decision making. Under our proposals it would become part of the One Planet Trust and provide the information on which local communities could plan their response to climate change.

[620] UKCIP02 projections with 'high' or 'medium' confidence; based on current understanding of the climate system

We would add the importance of high quality information on 'best practice'. On the domestic level we can see also great value in a service that shares best practice within industries such as farming who will face particular challenges.

However, that good quality information is only of use within the right framework for action. That's why we believe that an incoming Conservative government needs to align the Adaptation Agenda with that of the Sustainable Communities Act.

It would be required to draw up a national action plan to run for the period of each Comprehensive Spending Review, after full consultation with local communities and industry. This would allow much greater local discretion over targets and public spending. The stakeholders engaged in Local Area Agreements/Local Strategic Partnerships should be required to draw up Sustainable Community strategies, and should be encouraged to set local targets on adaptation to ensure 'sustainable communities'.

Two issues should dominate the adaptation agenda – flood defences and urban drainage. Recent experience makes this even more certain. The flooding this summer, which affected thousands of homes and businesses, is estimated to have cost insurers billions of pounds.[621]

Nevertheless, the Government persists in seeking to build 200,000 new homes in four growth areas in the south east that are known to face a growing risk of flooding. Research by the Association of British Insurers showed that moving properties off the flood plain and relocating them in lower risk areas reduced flood risk by 89-96% for all growth areas except the Thames Gateway, where the reduction was 40-52%.

Britain is one of the few countries in which you can get home insurance against flood risk in the private market. However the industry has warned through the ABI that this may change unless the government meets its obligation to invest adequate amounts on flood defences. According to their figures, 570,000 homes and businesses face a high risk of flooding; more than double the assessment when spending levels were set in 2002; annual flood damages now average £2.3 billion a year, double the level in 2004; and spending on flood defences needs to rise from £570 million a year to £750 million a year by 2011, an increase of 10% per annum.

This Report's Chapter on Water contains proposals as to how we should approach this crucial issue, and we add to this our recommendation for an immediate review of all large scale development applications in flood risk areas to assess the scope for more effective land use planning. None of this will be of use unless we tackle the problem of land use. The Stern Report is robust on the importance of the planning system: 'Land use decisions leave a substantial legacy …the planning system will be a key tool for encouraging private and public investment towards locations that are less vulnerable to climate risks'.

[621] ABI: Press release: *Flood insurance claims to reach £1 billion*, 2 July 2007: 'ABI estimates that 27,000 homes and 5,000 businesses have been affected by the recent floods and storms'; http://www.abi.org.uk/Newsreleases/viewNewsRelease.asp?nrid=14778

Section 9.6. Conclusion – Conserving a Better Future

> ‘What modern Westerners lack is community… environmentalists need to build a world where we rely on each other for something real again.’
> *Bill McKibben*

Our quality of life depends on our natural environment in a way that we have until now underestimated. We have reached a critical stage in terms of the need to turn rhetoric on environmental crisis into effective action.

A Conservative administration will have to develop an honest dialogue with the British people about the need for more responsible stewardship. We won’t take people with us if we frame climate change in the negative language of cost and sacrifice. We can take people with us if we set out a positive, long term vision of investing to conserve a better future and taking actions that will prove to be in the national interest regardless of the undoubted need to reduce greenhouse gas emissions.

The path we are proposing will balance the need for growth with a greater emphasis on wellbeing and environmental protection. The economy will benefit because we will be more cost efficient and will be creating new jobs and profits in the vanguard of the low carbon future. Our energy and food security will be enhanced. Restoring the trust and connections between town and country can only help to rebuild a sense of one nation; whilst our increasingly fragmented society will be stronger for rediscovering a sense of community in working together for a collective good, for the benefit of present and future generations.

At this pivotal moment we stand with the optimists. We believe that this country is ready to be led towards a future where our lifestyles are healthier both for ourselves and for the environment on which we depend; where Britain can once again take pride in our infrastructure; and where we live in better designed communities in which people feel they have a real stake and a sense of shared responsibility.

It is time to take action: for ourselves, for our one planet, and for the future generations who will inherit it.

Appendices

Contents

The Built Environment

Appendix 3.1. National Building Standards 451
Appendix 3.2. Domestic energy efficiency measures and relative cost-effectiveness 455
Appendix 3.3. Comparative Certification Schemes 457
Appendix 3.4. Voluntary Initiatives between industry partners and NGOs for Sustainable Buildings 459
Appendix 3.5.Objectives on Planning and Land Use 463
Appendix 3.6 Enquiry by Design 465
Appendix 3.7. University of Oregon Study on Walkability 467

Waste

Appendix 6.1. National Resources Trust 469
Appendix 6.2. Extended producer responsibility 473
Appendix 6.3. LATS Calculations 477
Appendix 6.4. Landfill bans 479
Appendix 6.5. Planning for New Waste Infrastructure 483
Appendix 6.6. Waste Treatment 485

Climate Change

Appendix 9.1.1. Case Study – Schools 489
Appendix 9.1.2. Case Study – SMEs 501
Appendix 9.1.3. Case Study – Local Government 505
Appendix 9.2. International Emissions Trading 509
Appendix 9.3. Scale of the Carbon Challenge 523
Appendix 9.4. Population 533

Appendix 3.1.

How will the proposed NBS replace building regulations?

The NBS are based upon setting minimum outcomes that the building has to achieve. The recently launched Code for Sustainable Homes provides a good example of what is being suggested. The NBS defines the outcome in terms of the performance to be achieved in a manner which can be objectively assessed and measured (e.g. airtightness less than $5m^3/hm^2$ @ 50pa). The NBS would be developed by a new Building Standards Agency (see below) to replace all existing Building Regulations.

Making the change

Once the NBS were complete, local authorities would cease to have a need for Building Control Departments and their responsibilities would pass to the independent Building Standards Agency (BSA) which would ensure consistency within England and Wales. We already have Competent Persons Schemes (CPS) and those companies who wished to work in this field would be licensed by the BSA and operate competitively to common scheme standards. They would use Qualified Approved Experts (QAEs) who would undertake compliance verification on a competitive basis. The BSA would be established to create the National Building Standards and once created it would be entirely financed by fees.

The new coherent compliance verification and enforcement framework

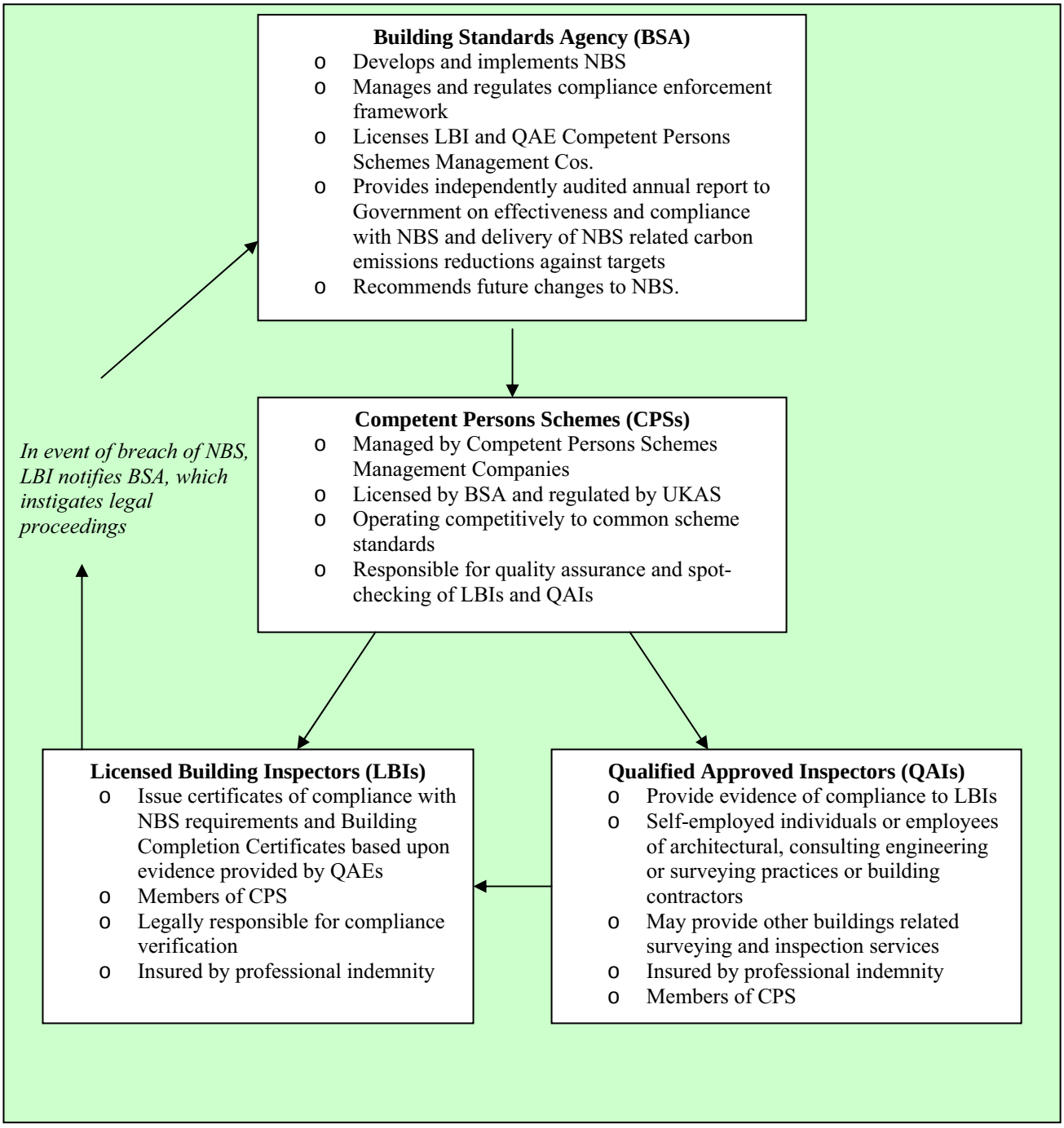
- The new framework will be based upon a hierarchy of expertise with Qualified Approved Experts (QAEs) operating within licensed competent person schemes. The QAEs will be responsible for submitting evidence to licensed building inspectors (regulated by a new Building Standards Agency). The Licensed Building Inspector's (LBI's) role will be to obtain and compile the evidence of compliance from the QAEs. This system will be web-enabled and designed to ensure that information is compiled and submitted by QAEs in a consistent and coherent manner. A QAE may be deemed to be an expert in one or more aspects of the building codes but would have to have demonstrated competence by being registered with one (or more) licensed competent person scheme management company.
- Responsibility for issuing a Certificate of Compliance will reside with the Licensed Building Inspectors (LBI's) who will be legally responsible for ensuring that the building is fully compliant with all building code requirements. LBI's would also operate within a licensed competent person scheme and would also be subject to minimum quality assurance requirements, random checking of their work and effective complaints handling procedures.
- In the event of a significant or material breach of building code requirements (and refusal by the building developer to undertake remedial works) the LBI would notify the Building Standards Agency which would (if appropriate) instigate legal proceedings.
- In the event of such a breach, the Building Standards Agency would have the power to order the demolition of a non-compliant building.

Abolishing the current Building Control system will deliver considerably higher levels of Building Code compliance by ensuring that all members of Competent Person Schemes:

- are suitably qualified;
- independently quality assured (with random routine quality checks of their work carried out by the Building Standards Agency and/or the CPS Management Company);
- undertake continuous professional development (CPD);
- provide effective complaints handling procedures (with rights of appeal to the Competent Person Scheme management company);
- maintain adequate Professional Indemnity Insurance (PII);
- maintain records and file returns to the Building Standards Agency;

- are legally responsible (and potentially liable) for failure to deliver the Building Code requirements.

Individuals currently employed as Building Control Officers (and/or Approved Inspectors) may opt to become an LBI or QAE, provided their able to demonstrate competence requirements specified by the relevant Competent Persons Scheme management company.



It is anticipated that higher levels of compliance with the Building Codes in achieving greater thermal performance outcomes will act as an indirect incentive, not only to the simple energy efficiency and insulation measures, but also – and more importantly for longer term carbon savings – to the generation and use of renewable energy sources and installation of microgeneration technologies at the point of design and construction.

Enforcement would be subject to a competitive process. The objective measurements now required would remove most of the present subjectivity. It would no longer be for local authorities to opine on

the technical methods used to meet the specified standards of thermal efficiency. That would be a matter for the developer or builder. The QAEs would measure outcomes, ensure that the proper new-build insurances were in place, check that planning conditions had been properly met and, finally, submit the evidence to the LBI. That certification would then form part of the EPC which could well be issued at the same time. Whether the QAEs are employed in-house (see section on self-certification below) or outsourced, the compliance enforcement process would be justiciable. The public would therefore have a redress against failure to meet the standards required that is now denied them.

Self-Certification

A high proportion of construction is done by a small number of large construction companies and volume house builders. These companies would be encouraged to train their staff to become QAEs and register as members of a recognised Competent Person Scheme(s). Directly employed QAEs would submit proof of compliance to an independent LBI (as described in Section 1.6.3 above) with the LBI having responsibility for issuing both the Permit to Build and the Completion Certificate. The Competent Person Scheme Management Companies would undertake regular audits and random checking to ensure that the QAE's were meeting minimum levels of performance and competence. Where a failure in self-certification were identified and/or evidence of non-conformity to scheme standards by a QAE, an audit report would be prepared and the Competent Person Scheme Management Company would take action to address any issues of non compliance with scheme standards.

If the QAE is unable to provide the information required to demonstrate compliance to the LBI action would be taken to ensure remedial works are undertaken prior to the LBI issuing a Completion Certificate of Compliance (CCC). If remedial works are not undertaken to a satisfactory standard and if as a consequence the LBI is unable to issue a CCC, legal action would be taken by the BSA, which in exceptional circumstances could result in a demolition order being issued. It is intended that such action would be necessarily punitive wherever breaches were other than minor and certainly wherever there was any intention to cheat. It would be understood that the normal result of such a breach of trust would be the demolition of the buildings concerned.

Appendix 3.2. Domestic energy efficiency measures and relative cost-effectiveness

	Low costs	**High costs**
Loft insulation	DIY cost	Contractor cost
Cavity wall insulation	Contractor cost – bulk rate	Contractor cost – one-off rate
Solid wall insulation	Marginal cost of DIY internal wall insulation (assuming the walls are being refurbished anyway)	Marginal cost of contractor installed external wall insulation (assuming the walls are being refurbished anyway)
Double glazing	Low DIY cost of secondary glazing	Marginal cost (relative to single glazing) of contractor installed sealed units (assuming that the windows need replacing anyway)*
Low-e double glazing	Low marginal cost (relative to standard double glazing)	High marginal cost (relative to standard double glazing)
Draught proofing	DIY cost	Contractor cost
Hot water cylinder insulation	DIY cost	Contractor cost
Condensing boiler	Low marginal cost (relative to a conventional boiler, assuming the boiler needs replacing anyway)	High marginal cost (relative to a conventional boiler, assuming the boiler needs replacing anyway)
Improved boiler controls	DIY cost for installing room-stat, cylinder-stat, programmer and seven TRVs	Contractor cost for installing room-stat, cylinder-stat, programmer and seven TRVs
Solar water heating	Contractor cost – bulk rate	Contractor cost – one-off rate
Low energy lights	Cost of purchasing compact fluorescent lights to replace all the lights in an average home (17 lights)	Cost of a whole-house refit requiring dedicated fittings
Efficient appliances	Low marginal cost (relative to a standard appliance)	High marginal cost (relative to a standard appliance)

Appendix 3.3. Comparative Certification Schemes – BREEAM and EcoHomes

BREEAM (BRE Environmental Assessment Method)

BREEAM is the world's longest established and most widely used environmental assessment method for buildings. It sets the standards for best practice in sustainable development and measures achievement. Created by BRE in 1988, BREEAM is a tried and tested system both in terms of its robust technical standards and its commercial delivery, (especially the independence of is licensing, quality, assurance and certification procedures). 65,000 buildings have been certified to date and a further 270,000 are currently registered for assessment. BREEAM certification is undertaken by Licensed Assessors - this ensures that the assessment is undertaken competitively by Assessors operating within a rigorous Quality Assurance Framework.

Current BREEAM schemes include offices, retail, industrial, schools, courts, prison accommodation, multi-residential, hospitals, homes (Ecohomes), existing housing portfolios (EcoHomesXB) and bespoke buildings. Details on fee scales, pre-assessment checklists and licenced assessor details are available on the BREEAM website.

BRE's Environmental Assessment Method for Schools (BREEAM for Schools) is a mechanism for assessing and certifying the environmental performance of a school design. A building can achieve a 'Pass', 'Good', 'Very Good' or an 'Excellent' rating, based on a wide-ranging performance criteria that covers energy used in the servicing and construction of a building, health or internal comfort levels for occupants, impact on the landscape and promotion of the use of public. The breakdown of criteria is as follows: Management; Health and Wellbeing; Energy; Transport; Water; Materials; Land Use; Ecology and Pollution.

A prerequisite for schools realised under the Government Building Schools for the Future (BSF) programme is that designs achieve a BREEAM 'Very Good' rating. The BRE offers a service to help design teams meet this requirement, through consultancy advice in assessment prediction during the design process.

EcoHomes Standard

Other than the energy and water efficiency requirements of the Building Regulations, there are currently no mandatory obligations for house builders to meet minimal environmental standards in the construction of new dwellings. However, BRE introduced the EcoHomes standard in 2000 as an independent and voluntary measure of the environmental impacts of housing developments, based on its already existing BREEAM scheme for commercial buildings. EcoHomes covers houses as well as apartment buildings and can be applied to both new and renovated homes. Other types of accommodation, such as sheltered homes, student flats or nursing homes, can be assessed using BREEAM Multi-residential.

EcoHomes balances environmental performance with the need for a high quality of life and a safe and healthy internal environment. The issues assessed are grouped into seven categories: energy; water; pollution; materials; transport; ecology and land use; health and well-being. Many of the issues are optional, ensuring EcoHomes is flexible enough to be tailored to a particular development or market. Weighted scores are given a rating of Pass, Good, Very Good or Excellent awarded.

EcoHomes assessments are carried out by independent assessors who are trained and licensed by BRE. The assessment is based on a series of sheets to be completed by the developer/designer. The cost of assessment will depend upon the level of advice and assistance required from the assessor, and the complexity of the scheme. For example, each different house type on a development requires a degree of separate assessment. For the first few EcoHomes sites a developer builds, BRE advises and the maximum involvement of an assessor from the earliest design stage. The assessor's advice helps ensure that simple, cost-effective measures are adopted at the outset, and that the highest possible rating can therefore be achieved for minimum capital costs

According to BRE, 9,564 homes have been certified to EcoHomes standards since 2000 and it has another 10,000 registered that will be aiming for certification in the near future. This is encouraging, but when put within the context of 140,000 houses started in 2003-03, and the possibility of this increasing up to 260,000 a year in view of Barker Review's proposals, the impacts of the EcoHomes standard on the quality of homes being built so far is minimal and in the foreseeable future mainly limited to housing in which Government bodies have an influence on standards of construction. The Housing Corporation for example, requires all of its developments, currently around 13,000 homes a year, to achieve an Eco Homes 'Good' standard, and will shortly be changing that to 'Very Good', something that English Partnerships already does in all its housing developments.

The EcoHomes standard is widely accepted among the industry and the Code for Sustainable Buildings proposed by the Sustainable Buildings Task Force was largely based on this standard. One of the impediments to the more widespread use of this voluntary code, other than the reticence of a generally conservative housing industry, is the industry's concern regarding the increased costs of compliance with the standard. BRE estimates that the costs of achieving the highest, 'Excellent', standard is about £1800 per property, although this is dependent on various requirements being met regarding infrastructure, local facilities and public transport, and costs can be as much as £3000 per property. The average price of a new build home in November 2004 was £261,645. Therefore construction to the 'Excellent' standard would add between 0.7% and 1.2% to the final asking price. Although these costs are not insignificant, the costs of implementing these standards are more than offset by the lifetime savings in energy and water efficiency. In addition, there are significant economic benefits to be had from reduction in environmental damage as a result of a sustainable use of materials and reducing carbon emissions.

Appendix 3.4. Examples of voluntary initiatives between industry partners and NGOs for Sustainable Buildings

UK Green Building Council (UKGBC)[622]

In November 2006 over thirty organisations joined together to form the UK Green Building Council, which will become the UK affiliate and a major voice in the growing International Green Building movement. The UK Green Building Council has been established as an industry led, independent, not-for-profit, membership based organisation. The 'Founding Members' have made a substantial, long term commitment to establishing the UK Green Building Council and ensuring its independence.

The UKGBC's declared mission is: "*To dramatically improve the sustainability of the built environment by radically transforming the way it is planned, designed, constructed, maintained and operated"*.

The objectives are ambitious:

- provide leadership and cohesion to the UK Green Building Movement
- ensure that sustainability is built-in
- promote the further development and application of the UK's world leading environmental assessment tools
- transform the market for genuinely sustainable products
- raise the International standing of UK industry
- provide a single, powerful, pan industry voice to Government
- act as a catalyst and facilitator to bring people together and share knowledge
- provide a 'single source' knowledge base on sustainability matters
- facilitate research and innovation

In its first year the UKGBC intends to make substantial progress in:

- raising the profile and understanding of the sustainability of the build environment
- providing a technical forum for the further development of sustainability assessment tools
- influencing government policy on planning, Building Regulations and sustainability
- constructing a sustainability knowledge bank
- adopting sustainable development standards to support product and service innovation and remove market barriers
- introducing the concept of 'Accredited Design Professionals'
- providing opportunities and support for networking and the development of 'communities of interest' around issues and topics
- offering a substantial event and training programme

Its founding members include: Aggregate Industries UK Ltd; Arup; Atelier Ten; Barratt Homes; Battle McCarthy; Bennetts Associates; BRE; British Land Company plc; Canary Wharf Group plc; Colliers CRE; Ecobuild; Faber Maunsell; First Base; Fulcrum Consulting; Grimshaw; Halcrow Yolles; Hammerson UK Properties; Hanson PLC; HBOS PLC; Johnson Controls Ltd; Jones Lang LaSalle; Kingspan; King Sturge; Laing O'Rourke; Land Securities Group; Lend Lease; Monodraught Ltd;

[622] See http://www.ukgbc.org

Nationwide Building Society; NG Bailey; ProLogis; PRP; Schroders; Sir Robert McAlpine; Slough Estates; Stanhope plc; Willmott Dixon Construction.

Good Homes Alliance (GHA)[623]

The Good Homes Alliance is a voluntary initiative, comprising housing developers, building professionals and sustainability experts whose aim is to build and promote sustainable homes and communities, and to transform the whole of mainstream UK house building into a sustainable endeavour. The GHA activities include building developments; learning, research and information sharing; lobbying Government and landowners to encourage fully sustainable house building; and promotional activities to advocate the benefits of sustainable homes as an aspirational choice to both the general public and media.

All GHA Developer Members have signed up to the GHA Code, which pledges:

- A reduction in carbon emissions in the use of new buildings by at least 70% from the average use in UK building stock, according to building type, in 2003.
- Ecohomes Excellent standard
  - 2 year post construction monitoring and assessment (GHA will be looking at the most effective method of retrieving meaningful information about building performance and in particular about CO2 emissions).
- Adherence to the Good Homes Alliance Charter.

For Developer Members of the GHA, over 50% of all homes built must meet the GHA Code standard and all homes must achieve a minimum of the EcoHomes 'Good' standard. The Code is seen as part of a process and will be revised every two years. In order for members of the GHA to be able to use and develop the code, it is proposed that a GHA Quality Mark body be set up to co-ordinate and drive the process and to check compliance. This will act in a similar way to the Organic Certification Arm of the Soil Association in that GHA members will decide the parameters and rules of certification but assessment and administration of the certification process will be independent. Developer Members who are compliant with the GHA Code and Non-Developer Members who sign up to the GHA Charter will be able to use the GHA brand as part of their corporate literature and bidding documents.

Good Homes Alliance Charter

The members of the Good Homes Alliance subscribe fully and unequivocally to the following charter:

House building and renovation in the UK is an essential activity which, though an economic and market driven process, should also be undertaken for the **common good**.

The common good refers to the **well being** of **all individuals** and **all communities** both present and future. This well being is about security (physical, economic and environmental), health, social cohesion, pleasure and meaning. It is about our human needs and desires, and about our relationships with others and with our environment.

Consequently, well being in house building and renovation must take account not only of the relationship of **people** to the **built environment**, but of the relationship of the built environment to the **natural environment** both nationally and globally.

[623] See http://www.goodhomes.org.uk

It is considered that an active commitment to the common good in house building and renovation in both policy and activity is necessary to avoid serious short and long term problems in terms of environmental impact, human health, community cohesion, quality of life, and national economics. In this way house building can help to transform our society for the better and reduce the very real and imminent threats to our world.

The members of the Good Homes Alliance therefore commit to working to substantially reduce the negative impacts of housing and renovation, and to substantially increase the factors that make for well being. In particular they commit to the following principles:

1. ***The minimisation of negative impacts on the environment*** wherever possible, particularly as regards global warming, resource use, pollution of land, sea or air, habitat destruction, and waste creation and disposal. This refers to both construction activity and building use over the long term.
2. On the other hand the re-establishment of ***a positive long term link between housing/construction and the natural environment***, for example through designs which increase interaction with nature and local agriculture, and through natural, local and sustainable materials in construction.
3. The development and construction of ***healthy buildings***, ensuring healthy internal environments by good building design and materials.
4. The development and construction of ***future proof buildings***, which are simple to build, maintain, and alter, and which are adaptable for changing environmental and social conditions.
5. The development and construction of both ***beautiful and practical buildings*** and landscapes, which contribute positively and measurably to individual and social well being.
6. The development of ***well being on site*** by fair and healthy working practices, proper training and education of workforce. We believe that happy workers produce better buildings.
7. The positive encouragement of ***sustainable individual lifestyles*** (ie minimising travel, local industry and food production, low waste and energy use) through education, good planning and design.
8. The positive encouragement of ***community activity and cohesion*** (ie social amenities, mutual support networks, inclusivity and diversity) through the location of and access to community facilities such as shops, healthcare facilities, workplaces and open spaces, through good planning and design.

In all the above there is an absolute requirement for rigorous, frank and self critical analysis of aims and the means of achieving these aims, for monitoring of developments in practice and for reassessment of aims and means in the light of this experience. Codes will be developed as part of this process to ensure that this knowledge is transferred into practice in a measurable way. The Good Homes Alliance is therefore **a learning process** which requires the openness and integrity of all its members for it to achieve its aim of transforming housebuilding and renovation in the UK for the better.

The GHA was launched in February 2007. Its founder members and supporters include: Bioregional Quintain; Cornhill Estates Ltd; Natural Building Technologies; Kingerlee; Swan Country Homes; Sustainable Development Foundation; Working Group Architecture Design and Planning.

Appendix 3.5. Correlation between general objectives of Built Environment Working Group proposals on Planning and Land Use and Quality of Life (other working group) Objectives

Objective	Mechanism	Other QoL Crossovers
Rethinking land use to achieve sustainable (environmental/social/economic) outcomes and smart growth, both locally, regionally and nationwide to include allocations for new uses such as local power generation and waste processing.	Revision of PPSs; adoption of principles of *'location efficiency'* and *'balanced, walkable neighbourhoods'*	Transport; Energy; Water; FFRA; Waste; Wellbeing
Using planning to move towards **carbon priced development** and achieve a low carbon economy	Reform of VAT to favour renovation and maintenance over new build; strengthening of section 106 regime in delivering *walkable neighbourhood* infrastructure; encourage the regions to move towards a higher level of economic self sufficiency while at the same time promoting regional specialism	Energy; Waste; Water; Transport; Climate Change
Emphasis upon **accessibility rather than mobility**; promotion of ***'location efficiency'*** as a criterion of development allocation	Embedding principles of *'location efficiency'* in PPSs and RPGs and in development allocation; introduction of *'accessibility testing'* on proposed developments; higher level of consideration given to resource availability in development allocation and spatial planning	Transport; FFRA; Wellbeing
Promotion of *'balanced, walkable neighbourhoods'* as primary building block of land use, enabling individuals to live, work and benefit from services within walkable radius, thus reducing reliance upon car	Revision of PPSs; LDF roll out; Sustainable Communities Action Plans; reuse of appropriate surplus public land assets to accommodate new mixed use/community provision	Energy; Transport; FFRA; Wellbeing
Streamlining of planning procedures to **enhance efficiency and certainty**	National Strategic Framework; use of Planning Timetable agreements; reform of right to appeal process; front-loading project identification process	Energy; Transport; Energy; Water; FFRA

Facilitating desired national and large-scale infra-structure, eg. sustainable energy generation/supply/storage, public services, waste management, transport links	National Strategic Framework to set national policy on broad need, priorities and general criteria for the siting of desirable development; use of Planning Timetable agreements; reform of right to appeal process; better regional spatial planning	Energy; Transport; Waste; FFRA; Water
Devolution of decision-making to the most local workable level	Combination of proposed measures to produce a strengthened, more democratically accountable planning system; use of Enquiry by Design; roll out of LDFs	Wellbeing
Downgrading housing targets relative to a **new objective of creating *'balanced, walkable neighbourhoods'***	Embedding of principle of *'balanced, walkable neighbourhoods'* in PPSs and RPGs	Wellbeing
Develop **more efficient project decision making/public engagement structures**	Embedding practice of *Planning Delivery Agreements* and *Enquiry by Design* and giving both legal status within the planning system	Wellbeing
Reconciliation of urban / rural divide interlinking of policies for growth containment; encouragement of local food supply chains and regional self-sufficiency; diversification of economic opportunity; protection of rural economic use through planning; improved delivery of local services and growth in rural infrastructure to make settlements more sustainable.	Embedding principles of local and regional self sufficiency within RPGs; Embedding principles of *'balanced walkable neighbourhoods'* in PPSs and RPGs; strengthening sequential approach; new Use classes of Permanently Affordable Housing, small-scale sole traders and Rural Land-Based Economic Activity	FFRA; Wellbeing

Appendix 3.6. Enquiry by Design – example of best practice – Government of Western Australia

Enquiry-by-Design Workshops are used to bring together major stakeholders at one time and place to discuss, develop and draw possible urban design and planning solutions to specific, place-based problems. Through the Workshop process, options are investigated interactively through design, debated, and illustrated to reach preferred outcomes. The actions needed to achieve the implementation of Workshop outcomes are also identified in an implementation framework that can form the basis for ongoing action.

Enquiry-by-Design Workshops are typically *non-binding*, to encourage participants to think creatively, to step outside the, sometimes limiting, constraints of their formal roles, and to provide the flexibility to consider and debate a wide range of options.

Each Workshop facilitated by the Department has been based upon the principles of best practice, sustainable urban design applied to planning and development in a participatory manner. Workshops have fallen into two broad categories:

- The application of the WA Planning Commission's *Liveable Neighbourhoods* trial policy approach for the structuring of 'green-field' urban growth areas and major infill opportunities in Perth and regional centres.
- The application of traditional, mixed use and transit-oriented development principles to town centre change and development in the Perth metropolitan area.

The Enquiry-by-Design Workshops detailed on this site have generally been initiated by either the relevant local government, another government agency or a major landowner, with facilitation and management by the Department.

In order to encourage the use of the process by others, the Department has developed a Manual on the process of preparing for, and holding Enquiry-by-Design Workshops[624]. The Manual includes both general guidance and suggested task schedules for the pre-Workshop phase, the management of the Workshop itself, and post-Workshop requirements. The Manual or relevant pages may be reproduced for information purposes, and some of the Tables may prove useful as checklists for Workshop organisers.

[624] Available at: http://www.planning.wa.gov.au/udmp/documents/EBDprep_manual.pdf

Appendix 3.7. University of Oregon Study on Walkability[625]

The findings, which include the discovery that people often walk farther than they had thought despite their desire to minimize time and distance, are detailed in an award-winning paper by researchers at the University of Oregon and San Jose State University. A goal of the research – conducted in Portland, Oregon, and the San Francisco Bay area in California – was to build on the idea that walking is healthy; it gets people out of cars and into public transportation, which helps the environment.

Marc Schlossberg, a professor in the University of Oregon Department of Planning, Public Policy and Management, and graduate student Vanessa Bekkouche, along with San Jose State team members Asha Weinstein, a professor, and student Katja Irvin, were honored for their research, which was entitled 'How Far, by Which Route, and Why? A Spatial Analysis of Pedestrian Preference'**.** Their efforts earned the 2007 Outstanding Paper Award from the Transportation Research Board during its annual conference Jan. 21-25 in Washington D.C. Their award was presented by the Committee on Pedestrians, which selected two papers out of 52 entries. The paper investigated pedestrian access to light rail transit sites in the two West Coast urban areas.

In part, the study suggests the importance of proximate destinations and an absence of major walking barriers, rather than beautifully designed pedestrian environments, Schlossberg said:
"Perhaps the key to increasing the number of walking trips is not to design pedestrian environments full of amenities such as benches, tree cover, awnings and wide sidewalks … While there is no doubt those assets can enhance the pedestrian experience, the real key is to have somewhere to walk to and to have an environment that isn't horrible."

A lot of communities around the country are looking at walkability issues. There are a growing number of state and federal initiatives on Safe Routes to School, as well as concerns over a national obesity epidemic and a wide range of policy initiatives designed to convince travelers to switch from automobiles to more environmentally sustainable bicycle and walking trips. Policymakers recognize walking as a key mode of travel, Schlossberg said, and they believe that increasing the number of walk trips is a key goal: *"Despite the seeming simplicity of the goal, we know very little about how far people actually walk or about how street design affects people's willingness or capacity to access their desired destinations by walking".*

The researchers looked at activity near five rail transit stations in both areas and sought to uncover how far pedestrians walk to light rail stations and what environmental factors influence their routes. The paper concluded with five major findings:

- Pedestrians walk farther to access light rail stations than commonly assumed, with a mean distance of about a half-mile rather than the prevailing notion of a quarter to a third of a mile.
- Pedestrians say that their primary concern in choosing a route is minimizing time and distance.
- Secondary factors influencing route choice are safety and, to a lesser extent, attractiveness of the route, sidewalk quality, and the absence of long waits at traffic lights.
- Pedestrians vary considerably in how accurately they estimate the distance of their walks.
- Asking respondents to trace their walking route on a local map is an effective research technique.

[625] **Media Contact:** Jim Barlow, 541-346-3481; **Source:** Marc Schlossberg, assistant professor of planning, public policy and management, 541-346-2046

The study was sponsored by the Mineta Transportation Institute, a San Jose State University Transportation Center. Since the project began, a similar national university transportation center has been established in Oregon. The Oregon Transportation Research and Education Consortium (OTREC) is a partnership between Portland State University, the University of Oregon, Oregon State University, and the Oregon Institute of Technology. Schlossberg is an associate director of OTREC. OTREC is dedicated to stimulating and conducting collaborative multi-disciplinary research on multi-modal surface transportation issues; educating a diverse array of current practitioners and future leaders in the transportation field; and encouraging implementation of relevant research results. The project investigators are partnering with transportation agencies, industry and other universities in the Northwest.

Appendix 6.1. National Resources Trust

To establish a National Resources Trust within the new Department for Sustainble Growth to lead and coordinate all aspects of waste and resource management

Key objective

To improve the monitoring, coordination, funding and delivery of waste management in the UK, overseeing policy development, delivery of infrastructure, and funding; to deliver the main focus of the overall objectives of developing economy-wide carbon rationing and trading programme and producer responsibility.

Why?

Regulation, funding coordination and general oversight of waste and resource issues is muddled and money is being wasted. The duties of the Environment Agency, local government, various government departments and funded organisations and the industry itself overlap and lines of responsibility are confused. A single location for the necessary expertise is needed, answerable to the Secretary of State, to provide strategic oversight of resource management as a key part of the Climate Change Agenda.

Main Proposal

The National Resources Trust should be based in a reconfigured Department of Sustainable Growth would coordinate and oversee all aspects of waste management, including policy, funding, communications and planning, leading the way in helping all parties to make the change to resource stewardship as part of the Climate Change Agenda.

The three core tasks would be:

- collation of accurate data and management for all waste and material streams including product data and lifecycle/carbon footprint data;
- development of standards and benchmarks for collection, processing and other waste and recycling services, materials, products and costs; and
- implementation of coordinated policy measures including extended producer responsibility, regional planning and infrastructure delivery.

The NRT should implement the commitments made by the UK in April 2004 upon signing up to a Recommendation by the OECD Council on material flow and resource productivity[626]. This underlines the direction in which waste policy should be moving, to become more material specific.

The NRT should be chaired by the Secretary of the new Department for Sustainable Growth and would be guided by a Board made up of representatives from key departments including:

- the Planning Inspectorate;
- the Environment Agency;
- local authorities;

[626] The OECD agreement included: 1) Take steps to improve information on material flows, including development of methodologies and measurement tools; 2) Further develop and use indicators to better integrate environmental and economic decision-making, and to measure environmental performance with respect to the sustainability of material resource use; 3) Promote the development and use of material flow analysis (MFA) and derived indicators at macro and micro levels; 4) Link environmental and economic related information through material flows; 5) Cooperate to develop common methodologies and measurement systems.

- existing Defra waste and DBERR Renewables officials – especially for grants, subsidies, etc., as well as policy advice to the Board;
- the Treasury in respect of duties including the landfill tax.

The NRT should take representations from industry and commerce.

In the short term, the NRT would oversee the delivery of key infrastructural requirements. Meanwhile, it would prepare the way for more substantial changes towards resource stewardship. The NRT would:

- develop statements of national and regional waste / resource management need, and scrutinise, evaluate and report on strategies and plans, their ability to satisfy strategic objectives and progress towards meeting targets;

- oversee the collation of all data including detailed tonnage data for all material and waste streams and all product material flows;

- take forward proposals to extend producer responsibility to additional products and sectors, develop sustainable public procurement initiatives and advice, and oversee landfill bans;

- develop standards and benchmarks for collection options, processing and treatment technologies and the flow of carbon through the economy;

- oversee funding and performance of waste programmes including the existing BREW, R&D, WIP, data collection and national communications strategies and their successors;

- propose and control any further discretionary spending / funding necessary to establish sustainable resource markets; oversee the effectiveness of a revised landfill and disposal tax regime, including distribution of a proportion to local environmental projects;

- set regulations and targets, draw up policy and legislation and work with EU partners to manage the interrelationship between business & business and business & government; and

- drive innovation, best practice, technology development and an efficient waste and resources sector as part of the Climate Change Agenda.

The NRT's effectiveness would be monitored through the publication of annual and long term targets to be met by the NRT and the Secretary of State, and the publication of an annual Resources Report.

Secondary proposals

- Responsibility for licensing would be overseen by the NRT, with specific attention to development of benchmarks and standards to include a carbon assessment for all waste and recycling facilities including logistics costs. Powers of prosecution and investigation would remain with the EA.

- Responsibility for licensing of waste carriers should rest with local authorities, along with powers of prosecution. The national database, published on the Environment Agency website, would continue.

Rationale for recommendations

- Significant improvements to the coordination of policy and delivery.

- Integration of funding with targets and regulation.

- Streamlining of spending by the various funded organisations with often conflicting responsibility for waste and resources action. These include the Business Resource Efficiency and Waste (BREW) programme[627], the Waste Implementation Programme (WIP), Waste and Resources Action Programme (WRAP), the National Industrial Symbiosis Programme (NISP) and the Resource Efficiency Knowledge Transfer Network (KTN), the Carbon Trust and Envirowise. Some BREW funding goes to many of the partners listed above and a proportion is also distributed to Regional Development Agencies.

- A decisive process that ensures clear communication of need for facilities, clear direction and setting out of national and regional requirements and oversight of their delivery.

- A well planned, coordinated programme of extended producer responsibility.

- A method of ensuring that money spent on promotion and capacity is joined up and gives confidence to industry to invest in a significant growth sector.

- Presents a clear platform to improve the way strategy, policy and regulation work with and for industry and local government.

- Strengthens the message to the private sector to invest in new technology and bring forward proposals for new developments.

- Coordination of planning with delivery in the short term and establish clear regional statements of regional resource management need, thereby supporting local decision makers.

Background – Laying the foundations for an environmentally sound policy base

See recent ICE IMechE strategy published March 2007. They recommend the establishment of a leadership body, similar to the proposals set out here.

Year 2 BREW funding has been allocated as follows[628]:

- DBERR Technology Programme – Research and development for waste minimisation and resource efficiency, **8 million**
- WRAP - Market development for recycled materials, **3.775 million**
- Business Development Service, start-up funding for recycling, **0.7 million**
- Small Business Waste Collection Pilot, **3.5 million**
- Capital support for recycling infrastructure**, 1.25 million**
- Protocols for recovery of waste materials (with EA and WRAP)**, 0.5 million**
- Envirowise - Resource Efficiency Advice, **17.082 million**
- Waste Minimisation Clubs, **2 million**

[627] BREW is the Business Resource Efficiency and Waste programme. HM Treasury has asked Defra to develop the programme to return £284 million of the additional receipts from increases in Landfill Tax, from April 2005 for three years, to business, in a manner that will encourage and support resource efficiency.
[628] http://www.defra.gov.uk/environment/waste/brew/questions.htm

- Market Transformation Programme – Improving resource efficiency of products used by business, **3.3 million**
- Environment Agency – Flytipping/Waste Carrier Registration, **2 million**
- Enhancement of NetRegs, **1.75 million**
- National Industrial Symbiosis Programme - linking businesses through waste as a resource, **6 million**
- Regional Funding (RDAs) - regional coordination of the projects, **11.71 million**
- Defra Waste Data Strategy, **2.1 million**
- Pilot projects, agricultural waste and contingency, **3.596 million**

NISP and Envirowise have both employed regional coordinators; meanwhile, RDAs have received funding to support and "coordinate" similar regional initiatives. Although the money is for "business resource efficiency and waste" it seems strange that some of the money is being spent on the Government's own waste strategy review. Were a business to be responsible for spending this money, it would not spend it in such a way.

Appendix 6.2. Extended producer responsibility

The NRT should extend producer responsibility through setting resource efficiency-based targets

Key objective

To ensure that the NRT establishes a detailed programme to extend producer responsibility legislation to cover a much more significant proportion of the household, commercial and industrial waste streams.

Why?

The current scope of producer responsibility is based on specific product categories (for example packaging, vehicles, electrical products) and only covers the waste generated by these products at the end of their lives. This represents only around 16% of total controlled waste generated. Ways must be found to extend this mechanism to include the waste materials in many other product categories as well as the waste generated in producing and distributing these products through the whole supply chain.

There is often far more waste generated in the production phases than at end of product life. Producer responsibility should be extended to assign responsibility for minimising and recycling waste materials throughout supply chains.

Complete reform of the current differentiated approach to producer responsibility is needed. It should be the norm rather than the exception that end of life recovery costs are included in the point of sale price for all tangible goods traded. Single point responsibility backed by government supervision and audit of costs will accelerate implementation compared with shared responsibility systems.

Current regulations do not go far enough. The producer or importer of all goods and materials must take responsibility for:

- durability, ensuring consumer goods are built to last;
- recyclability, maximising recyclability at the end of the product's life; and
- ultimate cost of disposal for non-recyclable elements.

Commerce and industry must be driven towards greater resource efficiency, with set recycling targets monitored nationally. The NRT would be responsible for this, once detailed data has been established and verified and carbon footprinting undertaken[629]. The waste which is produced, such as packaging, needs to be made more recyclable – we should seek to influence the design of what is produced so as to increase the recyclability of waste materials. This can be achieved through extending producer responsibility, assigning value to the flow of carbon through the economy and public procurement, backed up by landfill bans and environmental taxes.

[629] WRATE – a new assessment tool developed by the Environment Agency – may provide this but requires extensive testing

Main Proposal

Solutions are best delivered by whole supply chain thinking in terms of product redesign and far greater accountability on single point players in different supply chains (generally manufacturers or importers) to be responsible for sectoral waste arisings at the end of the consumption process. This in turn can be expected to drive improved product design which would deliver lower carbon impacts from these products over their life cycle.

Single point Producer Responsibility (with liabilities resting on single corporate brands or consortia – most probably at the manufacturing or importing phase) is an essential prerequisite. Sharing liabilities between manufacturers or importers through to the retail phase has resulted in weak market incentives and the emergence of "traded pollution permits" (where it is cheaper to pay the fine than adopt behaviour changes). The unintended consequence in the case of packaging is that, whilst transit packaging has been significantly reduced, the volume of packaging ending up in domestic bins has not noticeably reduced.

The signals are there. Marks and Spencer has publicly stated its commitment to significantly reduce the amount of waste is sends to landfill. Adverts run in national newspapers set out a clear objective to "By 2012 we aim to ensure that none of our clothing or packaging needs end up as landfill"[630].

A report by Green Alliance for the Advisory Committee on Consumer Products and the Environment considered the "Potential for a Product Body and for product EIA in the UK"[631]. The report noted that "product policy catalogue we have developed suggests gaps in the coverage of product related measures and little evidence of co-ordination between them… hence there is no single body championing and driving progress in this area". It sets out the gaps:

- There has been no systematic evaluation of the efficiency or effectiveness of existing measures.
- Stakeholders emphasise the need for a specific product focus and a body to champion product issues.
- The Sustainable Development Strategy indicates the UK Government's desire to lead in the field of sustainable consumption and production, but there are no specific mechanisms for setting product standards across the board and no new product-specific targets to drive change.
- There is no clear view of priority products within the broad categories of tourism, construction, transport and food.
- Other countries are looking to establish product related bodies in order to engage with international processes and to drive their own domestic product policy agendas.

Whilst there are a number of initiatives in place, including a consultation early in 2006 on the potential to set up an organisation, progress on this important issue is slow. It requires prioritisation and coordination in order that the gaps are plugged and real progress is made.

There are currently three main areas of producer responsibility that have been implemented. These encompass packaging, vehicles and electronic and electrical equipment. Each has been implemented separately and differently. Local authorities are left holding much of this material, without the necessary support and funding to manage it effectively. Producer responsibility needs to be reviewed.

[630] "…there is no plan B" - advert in the Sunday Times, 25 Mach 2007 p8-9; www.marksandspencer.com/planA
[631] Green Alliance, March 2005 http://www.defra.gov.uk/environment/consumerprod/accpe/pdf/EIAreport050429.pdf

Packaging is vital to protect consumer goods and prevent these goods from becoming waste, and much packaging waste – bottles and cans in particular – is easily recycled.

Although packaging waste does not make up more than 10% to 20% of average domestic waste, there is a perception that packaging waste is a huge problem. As more waste is recycled by householders, the material they are left with is often plastic and other packaging.

The Packaging Regulations have succeeded in lightweighting much packaging and reducing transit packaging, but there is still concern that presentational as well as protective packaging is a problem when it has to be disposed of, which remains the responsibility of the consumer and ultimately local authorities.

The Waste Electronic and Electrical Equipment (WEEE) Regulations do not take the same approach to apportioning responsibility as the Packaging Regulations do, at least in the UK where they have been implemented differently. This means each scheme for different products requires separate management and infrastructure, creating additional costs for many of the organisations involved in more than one system.

Producer responsibility has been fairly successful in increasing the collection and recycling of materials at the end of products' lives. It has been much less successful in altering the nature of products from the point of design, so that they are easier to recycle, and have less impact throughout their life. And it has not been successful in ensuring appropriate funds are apportioned to those left "holding" the material, in many cases local authorities. The way the WEEE Directive has been implemented is an example of this.

An additional complication in developing producer responsibility is the need to ensure that waste policy does not have an adverse effect on business competitiveness or employment opportunities and consequently harm the economic competitiveness and wellbeing of the UK.

Moreover there are opportunities for manufacturing and other economic activity in the UK that arise from a secondary resources market and associated drivers.

In particular, encouraging recycling and in some cases closed loop systems for materials and products is a key area for economic development. The Closed Loop London[632] plant, being constructed in East London, is a good example of the opportunities that are available.

Producer responsibility should be extended to specific product sectors, including[633]:

- newspapers and magazines;
- furniture and furnishings;
- nappies[634];
- pharmaceuticals;
- clothes;
- building materials; and
- paint and decorating products[635].

[632] http://www.visyclosedloop.com/index.php?page=219 and http://www.londonremade.com/mgpc_cll.asp

[633] The Batteries Directive was agreed by the European Union on 26 September 2006, and is currently being considered by Defra and the DBERR[633]. The Directive must be transposed into UK law by 26 September 2008 and will extend producer responsibility to cover this important product sector.

[634] This would be focused on disposal and drive take-up of reusable nappies/residual energy recovery

[635] This would cover used paint pots (in effect packaging); perhaps incorporated with building products

Extended producer responsibility will ensure all materials and products (with the exception of food) are dealt with by the industries producing them. This will in turn lead to a reduction in the cost burden on local authorities and ensure all sizes of business, large and small, know what they are supposed to do with a product and how to recycle or dispose of it safely and legally. Trading schemes would be based on carbon emissions, through an extended emissions trading scheme.

Reducing the disposal cost burden on local authorities will reduce the cost of waste management at the local level. It will also ensure facilities are built to cater for all waste streams rather than just municipal waste. The cost is paid by the producer and the consumer of a product.

However, local authorities will remain key to delivery. One unintended consequence of producer responsibility could be many more collection vehicles dedicated to the collection of a specific material clogging congested urban centres. Local authorities would be responsible for arranging the collection of materials in conjunction with the single point producer responsibility organisations. In this way the activity would be properly funded and coordinated.

Local authorities would be responsible for leading on the implementation of schemes to manage food waste – the one area where producer responsibility is not able to be easily assigned.

Secondary proposals

- Producer responsibility should in the long term be extended to cover the entire supply chain, in other words that it takes into account the resources used to manufacture the product. With an average of just 10% of resources used in the manufacturing process ending up as product, this is a key area for resource efficiency action.

- An information campaign should be aimed at ensuring that consumers are aware of the total costs of consuming different products (environmentally responsible versus less environmentally responsible).

- The UK should cooperate with other EU countries in order to collect comparable data on the impact of different policies on producer responsibilities and work towards sensible revisions of future product policy, producer responsibility and competition/procurement regulations.

Implementation of recommendations

- The development of incentives to encourage the production of more resource efficient products should be introduced gradually, in order to allow companies to take advantage of innovation and technological change. We propose that this should form part of an expanded carbon emissions trading scheme.

- The NRT would have powers to require manufacturers to adapt packaging which had an adverse environmental impact, and to reduce unnecessary packaging of goods.

- It would have expertise available to businesses to give advice on packaging materials, promote best practice, and advise on recyclability.

- Overall, the NRT would have the ability to ensure maximum recycling of packaging and, through extended producer responsibility, expand the range of products covered once volume and carbon footprint data was gathered and analysed.

Appendix 6.3. LATS Calculations

There are statutory drivers which prevent Waste Disposal Authorities from engaging in participative arrangements with the commercial, industrial or agricultural sectors because of the undue influence these tonnages would have on Landfill Allowance Trading Scheme (LATS) calculations. Current legislation, in particular the Waste & Emissions Trading Act 2003, interprets 'municipal waste' as "a) waste from households and; b) other waste that because of its nature or composition, is similar to waste from households". Yet this same legislation constrains the scope of the Landfill Allowance Trading Scheme to wastes which fall within the control of Waste Disposal Authorities. This means that all industrial and commercial wastes produced and managed by the private sector are exempt from the LATS, regardless of their composition and potential for environmental harm when landfilled.

Local authorities may be well positioned to offer beneficial waste collection and treatment arrangements to this sector. However, if they do so, that waste is deemed to be under the control of the local authority and thus within the LATS regime, possibly leading to fines for the local authorities in question if their LATS targets are as a result exceeded.

In order to facilitate more joined up and efficient delivery of waste management infrastructure, change is needed to the legislation to allow local authorities to directly manage a greater proportion of industrial and commercial wastes without the threat of increased risk of exposure under the LATS.

Appendix 6.4. Landfill bans

A phased introduction of a ban on the landfilling of specific recyclable and compostable materials from municipal, commercial, industrial and agricultural sources.

Key objective

To divert material from landfill and into valuable use as a product or energy source and avoid millions of tonnes of greenhouse gas emissions.

Why?

The focus of UK waste management policy is placed on municipal waste, which represents just 9% of the 335m tonnes of waste disposed of in 2004, according to Defra figures. Much of this waste consists of construction, demolition, mining and quarrying and a large proportion of this is either inert or recycled, or both. Around 25% arises from the commercial and industrial sectors.

Whilst there are requirements to reduce or recycle some commercial and industrial waste through various producer responsibility regulations, a vast amount of valuable material from these sectors is sent straight to landfill. For example, in 2005 in England alone, 28 million tonnes of construction and demolition material was sent to landfill as waste. This is more than the entire municipal sector.

Progressive bans on landfilling of certain recyclable and compostable materials will reduce methane emissions and improve resource efficiency. The bans will send a clear signal to investors and decision makers and speed up the process of delivering infrastructure.

Linked to the proposed changes to national and local administration, and to the proposed revisions to producer responsibility and emissions trading, the private sector will quickly react and invest in new methods of reducing, collecting, processing and gaining value from waste materials, driving innovation, economic development and contributing to the Climate Change Agenda.

Main Proposal

The NRT should oversee policy development including the introduction of progressive bans on specific recyclable or compostable materials from landfill. This should be linked to the development of extended producer responsibility.

The objective of these bans is to provide an absolute time limit to an activity. It presents an ultimate signal. A ban will reduce emissions and encourage investment in and delivery of new facilities for recycling, composting and reprocessing. The bans will be pre-empted by a steady extension of producer responsibility and a rise in the cost of disposal, which send an economic signal to the market.

The progressive bans will give confidence to local decision makers in the short term who need to take urgent action to provide facilities in order to meet challenging European targets for biodegradable municipal and other wastes. Bringing in a ban on food waste, for example, would encourage the development of facilities to treat not just domestic sources of food waste, but all sources of food waste in a local area.

Each of the bans will be pre-empted by a series of actions carried out by the NRT:

- collation of data on volumes of products and waste, material flows and carbon assessments;
- regional planning and capacity evaluation;

- consultation with industry and local government; and
- revision/implementation of producer responsibility scheme.

A landfill ban will drive forward the development of local facilities to manage resources from all sources (municipal, commercial etc).

Extended producer responsibility should be incorporated into the landfill bans to send early signals to producers to prepare for change and invest in new facilities. Overhauling local procurement to drive markets for environmentally responsible goods will also add to these other market signals and drive demand for alternative products and services, ahead of a signalled ban.

A ban on aluminium to landfill is justified not just on environmental grounds. The amount of embedded energy in an aluminium can is significant, and recycling is much cheaper than the production of a new can from raw materials. The market for the material is established and a ban would drive increased capture, currently estimated at around 42%.

The approach, driven by the NRT, ensures policy, investment and drivers such as environmental taxes and purchasing decisions are targeted and work with each other rather than against. It also makes communications simple: for example, a ban on disposal (as opposed to recycling) of aluminium cans is something that we can all respond to at home, at work, at school or at the shops; and it drives home the fact that recycling and resource efficiency are part of wider agendas such as climate change, deforestation and impacts on global environments.

Locally, planning for and delivering new facilities and providing opportunities for economic development is made simpler and more effective, and will be driven by the actors affected by the ban. Through producer responsibility, the key actors will be industry. A ban on food waste will need to be a shared responsibility, led by local authorities and the NRT. The progressive material bans provide an extra dimension to the decision making process.

Secondary proposals

Tougher penalties for fly tipping should be brought in ahead of a landfill ban in order to reverse the increasing fly tipping trend. A proportion of the money raised from fines following successful prosecutions should be able to be kept by local authorities to carry out more surveillance. Fly tippers' vehicles should be seized and sold or recycled.

Implementation of recommendations

- The ban should be introduced in stages, starting with the materials which can be recycled easily and which provide the greatest environmental gain, for example aluminium. Aluminium recycling uses only 5% of the energy needed for primary production, and as it can be recycled time and again without loss of quality it makes no environmental sense to continue to allow aluminium to be landfilled. Whilst only representing a small fraction of waste produced, its impact is substantial. A ban on aluminium waste going to landfill could be phased in by 2010. Currently only 42% of aluminium cans are recycled in the UK.

- Biodegradable materials such as paper, cardboard, and organic wastes produce methane when landfilled. Although they are being targeted under the LATS scheme, the impact of reduction will be gradual and limited.

- Phased bans should be prioritised according to their carbon and financial cost and benefit, with research and prioritisation led by the NRT and driven by extended producer responsibility and carbon rationing and trading across the economy.

- All of the above should be partnered by progressively working to reduce waste and eliminate the use of materials which were hard or expensive to recycle, through procurement initiatives and industry partnerships.

Appendix 6.5. Planning for New Waste Infrastructure

To accelerate and streamline the planning and appeals process for waste treatment facilities, and ensure appropriate, sufficient and necessary infrastructure is delivered in time.

Key objective

To streamline the decision making process and support decision makers to take difficult decisions necessary to deliver the required infrastructure in time.

Why?

The planning system in its current state will not deliver sufficient facilities to meet government and EU targets. In fact, it acts as a barrier to progress with significant delays despite the introduction of PPS 10. Urgent action is required to address this issue, to ensure valuable materials do not continue to be sent to landfill at the expense of local communities, whose local authority could be fined for failing to meet recycling and composting targets.

There is a huge need for new infrastructure as we move away from landfill. The Government's own calculations show that Britain needs to spend some £11bn on new waste management infrastructure to meet new European rules.

Main Proposal

Urgent action should be taken to ensure sufficient sites for new recycling, composting and processing infrastructure are identified by Waste Planning Authorities. Similarly, developers of waste infrastructure should be encouraged to bring forward plans for new developments at an early stage, to ensure they are considered as part of the strategic planning process and to reduce the likelihood of delays later on.

The responsibility for overseeing planning and strategy implementation will be given to the NRT, with local authorities responsible for delivering this function at the local level. The NRT will develop regional plans that take account of capacity needs and national requirement, which local authorities will implement. Opportunities for developing facilities for commercial and industrial waste, as well as municipal waste, will be necessary, building on PPS10 and in order to deliver their wider responsibilities set out above.

The mechanics around local authorities granting planning permission need most work.

Non-determination should not be used as a method of "passing the buck" by local authorities. Tough decisions must be made and local authorities are best placed to do this. If an application is timed out, it should automatically be referred to the Secretary of State for consideration by the Planning Inspectorate.

We recognise that some decisions need more time to consider than others, and the NRT should set out a sliding scale of statutory determination periods to reflect the likely complexity of some types of planning application.

Background

Planning costs and delays are one of the biggest potential barriers to delivering sustainable waste and resources management. The new PPS 10 is a positive document and will help in the process of delivering waste management facilities. Our main concern is the timescale involved in local authorities making the transition from their existing plans to the new PPS regime and actually delivering new infrastructure, with the gates open in time. The clock is ticking on the demanding 2013 Landfill Directive targets and the requirements of other legislation such as Hazardous Waste, WEEE and ELV as well as the pre-treatment requirements for all wastes set out in the Landfill Directive.

Given the lead in time for planning, permitting and development of these facilities they should be in the planning process now. The introduction of some agricultural wastes to Framework Directive-style controls in the UK will add a further 300,000 tonnes per year to the total waste that needs to be planned for, (with 600,000 tonnes of waste already stockpiled on farms). Planning strategies for waste management need to be for a period in the order of 20 years to provide for long-term waste management infrastructure, to assist in achieving challenging long term targets within European and UK legislation, and to provide certainty for developers. Regular strategy reviews should also be carried out to ensure they will still deliver national waste policy and strategy objectives in time.

Current waste legislation means there will need to be a step-change in collection and disposal infrastructure over the next 10-15 years. In order to meet the requirements of Article 5 of the Landfill Directive alone, government estimates suggest that over eight million tonnes of biodegradable municipal waste per annum need to be diverted from landfill by 2020[636]. This translates into investment of approximately £11bn[637], or over 200 new biological treatment facilities in excess of 40,000 tonnes per annum.[638] This equates to one facility a week.

[636] National Audit Office, 2006 estimates £10bn; elsewhere reference is made by Defra to £11bn
[637] Source: Defra.
[638] Source: Environment Agency.

Appendix 6.6. Waste Treatment

Moving to the "next cheapest" solution for managing waste is not acceptable. This merely puts off the important decisions and does little to reduce greenhouse gas emissions. It is imperative that material resources are recovered for use in other products where possible.

Where this is not possible for either technical or economic reasons, the energy should be recovered. Only smaller scale facilities for energy recovery should be supported. All facilities will be subjected to a carbon assessment that considers the inputs and outputs (i.e. collection logistics as well as process outputs).

This aspect has to be carefully planned for at the local level to ensure good use of energy and heat generated through recovery processes. This will help to maximise efficiency of energy recovery plant and ensure facilities treat local material.

Landfill is a scarce commodity and residual waste will still retain value as a source of resource, energy and/or heat generation. Landfill should only be used for material that is too difficult or too expensive to recycle, and for the small amount of remaining residues from other processes.

Several treatment technologies produce residues that still contain energy. For example, the residue from mechanical biological treatment (MBT) can retain a high calorific value.

Other technologies such as anaerobic digestion generate energy without burning the waste material being processed. These technologies should be supported ahead of incineration with energy recovery.

Heat generating incinerators, assuming they are feasible (meaning the heat can actually be used), could potentially be relatively environmentally responsible, generating slightly less CO2 emissions than gas-fired power stations[639].

The efficiency of incinerators is key, and only those operating to at least 50% efficiency should be supported. This will require the use of more efficient forms of technology or combined generation of power and use of heat.

It is clear that the best way for society to deal with the escalating challenge of achieving good resource management which eliminates harm to the environment is by reducing the amount of material which becomes waste. This can be achieved by better manufacture of consumer goods, by designing out obsolescence, and by minimising unnecessary packaging. Re-use of goods wherever possible is the next line of defence, and local authorities should be encouraged to help and support Charity Shops and Community Schemes for recycling and re-use of furniture and electrical goods.

For waste that is generated, recycling is the primary option, and earlier in this report we summarise the carbon emission savings which can be achieved through recycling of key materials. By introducing landfill bans on materials which achieve the maximum carbon saving, starting with aluminium and biodegradable waste, the process of recycling and composting valuable materials, with the commensurate carbon saving, will be accelerated. Extending and expanding the emissions trading scheme and reform of LATS will provide additional motivations.

[639] Friends of the Earth (2006) Dirty Truths: Incineration and Climate Change, p.3

But there will always be a residue of waste which must be treated and disposed of, and our concern for these wastes should be firstly that any energy embedded in them should be captured, and secondly that their ultimate disposal should cause no harm to the environment or human health.

Alongside established forms of residual waste processing such as mechanical biological treatment (MBT) and anaerobic digestion (AD), there are a number of new and emerging technologies that can be used. Some of these technologies are able to be operated on a small scale, although currently costs may prohibit their wide use. Research and development funding and support will be required to ensure these technologies are properly understood.

The Government has clearly established, through a number of studies and several public inquiries that properly run, modern incinerators should not pose a threat to human health. Whilst all waste management processes create environmental and health impacts, including some recycling processes, leaving waste out on the streets has the potential to do the most damage to human health. However, we must recognise and respond to these concerns and work to ensure a greater understanding of those effects.

Other studies have considered the impact of various options on climate change. The Friends of the Earth report "Dirty Truths"[640] actually ranks landfill above mass burn incineration in terms of the impacts on people and the environment. Whilst this is not disputed, there remain significant concerns in local "host" communities for both approaches to managing waste.

A response to FoE's report by Fichtner[641] notes that distribution losses should be considered when measuring the climate change benefits of the energy generated from incineration plant. This further reinforces the need for facilities that service local needs.

But the real issue is that landfill is a diminishing resource and becoming scarce in some parts of the country, notably the south east. This resource should be protected and used only for residues, meaning that incineration has to be considered in some circumstances.

Incineration is an essential way of disposing safely of certain wastes like clinical and some chemical and industrial wastes. For household waste, it should only be considered if systems like anaerobic digestion and mechanical and biological treatment are not possible, or to work in harmony with those systems as a method of final value extraction. Incineration is regarded by the EU as disposal and should only be considered as a last resort and on a small scale at the local level.

Incineration should always be subject to the following tests:

- it must not crowd out waste prevention or recycling, so capacity must be made available only for non-recyclable materials;
- there must be efficient energy recovery of at least 0.65% and preferably 0.70 using the EU's proposed efficiency threshold calculations*;
- facilities must meet tough emissions standards and monitoring of emissions must be transparent with results publicly available; and
- implementing these facilities must always be carried out in partnership with the local community, for example in ensuring district heating schemes and the benefits associated with this form of energy use.

[640] Friends of the Earth (2006) Dirty Truths: Incineration and Climate Change
[641] climate change and incineration - commentary on Eunomia report, Fichtner for the Environmental Services Association, 1 September 2006

*Definition of recovery in the latest Council text of the EU Waste Framework Directive:

> *'This includes incineration facilities dedicated to the processing of municipal solid waste only where their energy efficiency is equal to or above:*
>
> *0.60 for installations in operation and permitted in accordance with applicable Community legislation before 1 January 2009,*
>
> *0.65 for installations permitted after 31 December 2008,*
>
> *using the following formula:*
> *Energy efficiency = (Ep -(Ef + Ei)) / (0.97 x (Ew + Ef))*
> *In which:*
> *Ep means annual energy produced as heat or electricity. It is calculated with energy in the form of electricity being multiplied by 2.6 and heat produced for commercial use multiplied by 1.1 (GJ/year)*
> *Ef means annual energy input to the system from fuels contributing to the production of steam (GJ/year)*
> *Ew means annual energy contained in the treated waste calculated using the lower net calorific value of the waste (GJ/year)*
> *Ei means annual energy imported excluding Ew and Ef (GJ/year)*
> *0.97 is a factor accounting for energy losses due to bottom ash and radiation.*
>
> *This formula shall be applied in accordance with the reference document on the Best Available Techniques for waste incineration.'*

The requirement for achieving a 0.65 efficiency threshold will be applied to all plant – existing and proposed – otherwise either a disposal tax will be applied or plant will be exposed to an expanded emissions trading scheme.

Facilities achieving 0.65 to 0.69 will be exposed to a lower rate of tax. New plant reaching 0.70 will not be exposed to the disposal tax.

Appendix 9.1.1. Case Study – Schools

Information

1. **Set up through the One Planet Trust a single, reliable source of information and ideas for head teachers** on how to 'green the school', access grants and finance mechanisms, and link with partners.
2. **Encourage wider participation in the Eco-Schools scheme**
   We would recommend promotion of Eco-Schools through the One Planet Trust and DfES (through the Sustainable Schools programme).

Incentives

3. **Find and Reward Best Practice**
   We have been inspired by some of the examples of good practice among schools wanting to be good models for energy efficiency and deployment of renewable energy, which are rewarded in the Ashden Awards. We would like to see Government offer matched funding to a chosen partner like Ashden to expand the number of winners and encourage more schools to participate.
4. **Support new mechanisms for raising funds**
   For example, we like the idea of encouraging local businesses to offset their 'last resort' carbon emissions by funding the deployment of carbon reducing measures in the local school. This would reinforce the sense of community action which we see as fundamental.

Improved monitoring

5. **Compliance with BREEAM Schools; monitored more closely**
6. **External Inspections**
   Government should consider placing greater emphasis on ESD through external inspections by HMI/OFSTED to ensure satisfactory uptake of environmental education across all schools.

Support

7. **Utilise the opportunities available in Building Schools for the Future (BSF)**
   The aim of Building Schools for the Future is to rebuild or renew every secondary school in England over a 10-15 year period. We would like to see commitment to this timetable with stronger emphasis on the need to **move towards zero carbon/carbon neutral schools by 2020** in addition to the recently announced plans for new secondary schools.

8. **Increased funding of Sustainable Schools programme**

9. **Help Teachers**
   Develop (with partners in the voluntary sector) and deliver online educational packages for teachers who want to offer opportunities for 'learning by doing' and connecting children with the natural world across a broad range of activities whether it be collecting rainwater, growing vegetables to supply the school, or saving energy.

10. **Address the need for improved teacher training in and implementation of Education for Sustainable Development (ESD)**

Recommendations for: SMEs

Information

1. **The One Planet Trust to facilitate the creation of a web based service that gives SMEs access to:**
    - A simple mechanism to measure their carbon footprint
    - Information that allows users to benchmark against relevant comparisons
    - Advice on the hierarchy of effective actions they could contemplate
    - Case studies of best practice
    - A network of other SMEs to share information and ideas with
    - Information on grants and/or financial incentives available

Incentives

2. **Changes to Government procurement policy that will reward those making an effort to reduce carbon emissions**
3. **More effective incentives to invest in energy efficiency**

Support

4. **Requirement on landlords to fund improvements required to meet minimum energy efficiency standards**

Recommendations for: Local Government

Information

1. **Be more proactive in taking the message on risk and opportunity to Local Government. Tailor individual presentations on the local impact of climate change to be presented to each Cabinet and made public – to be prepared by the One Planet Trust in partnership with the Hadley Centre**
2. **Communicate best practice (international and domestic; mitigation and adaptation) more effectively through the new Research and Communications Agency working in partnership with the Local Government Association**
3. **Build a central database giving comprehensive information on local authority performance on climate change**

Incentives

4. **Avoid more centrally set targets but consider a statutory duty to protect the environment**
5. **Encourage local targets to be set within a frame of the Local Area Agreement and a publicly available Sustainable Community Strategy. That Strategy document should contain a statement on a) greenhouse gas emissions in the local authority area per capita and b) measures taken by the Council to help reduce that number**
6. **Structure powerful financial incentives to reward innovation and best practice**
    a) **Introduce 'Best Practice' Awards for local authorities across a range of environmental categories, including Environmental Innovation. The objective should be a total 'pot' of around £50 million per annum**
    b) **Enter into partnership with an objective party such as the Ashden Awards to make the judgements and run a high profile celebration event attended by our Climate Change Ambassadors**

c) **The minimum prize size should be around £100k and the annual 'Gold medal' should be worth around £1m, which in the Borough of Hillingdon for example is worth approximately 1% on Council Tax. The moment a Council announces a 1% reduction in the Council Tax because of the success of their Environment Programme will be a tipping point in terms of public engagement**

7. **Require Councils to explain to the Secretary of State why they are not implementing best practice**

Support

8. **The One Planet Trust should develop an online network for local authority officers to share information and ideas and access Information on grants / financial incentives available**
9. **Give local authorities freedom to impose higher energy efficiency standards on new developments than current building regulations require**
10. **Consider innovative new mechanisms for raising Capital Finance, including Local Bonds**
11. **Give local authorities real power to a) influence national policy and b) decide how taxpayers' money is spent in their area to promote sustainability. These are the objectives of the Sustainable Communities Bill which the Conservative Party supports**

Premise

Schools are often the hubs of community today. They represent a fundamental opportunity to shape awareness and future behaviour. We want to see our schools equipping children with an understanding of and connection to the natural world; whilst being examples of best energy practice and engaging the whole community in the need to place a greater value on natural resources and the environment.

By emphasising sustainable development and the environment as a major part of the whole-school ethos, we not only engage future generations in understanding the intrinsic value of the natural world and our dependence on it, but by doing so also reach the wider community – parents, governors, teachers and other staff – through their involvement in the life of the school.

This 'whole community approach' is of particular importance when key issues such as climate change and the overuse of finite resources require engagement across all sectors of society. Schools should be examples of best energy practice and engage the whole community in the need to place a greater value on natural resources and the environment.

We are very aware of the burdens placed on schools over the last twenty years and the risks attached to any more intervention and targets from the centre. The question that a Conservative Government should be asking is not 'how do we make schools do this?' but 'how do we help schools be good models and encourage learning by doing?'

We are also aware that the central challenge is attitudes at home and the kind of models that children encounter outside the school gates. Our schools policy in this context must engage the community.

Primary recommendations

Information

At present there is a wealth of information available on sustainability, climate change and energy efficiency. However, schools wanting to act on this information find that they lack the necessary resources and local support to make changes.

Both integrating the message of sustainability and the environment into the curriculum in an interesting and empowering way, and implementing sustainability and energy efficiency measures within the school require:

- access to trustworthy information and advice – the knowing; and
- local support in the form of skills, knowledge, and funding – the doing.

Communication between schools, their local energy network and local authority is paramount. Schools addressing their energy use need skilled people to work with them on both the problems and the most appropriate solutions, e.g. which renewable energy technology is most suitable for the school.

1. **Set up through the One Planet Trust a single, reliable source of information and ideas for head teachers** on how to 'green the school', access grants and finance mechanisms, and link with partners**.**

2. **Encourage wider participation in the Eco-Schools scheme**
   The Eco-Schools programme[642] concentrates every aspect of school life on environmental awareness[643]. Of 25,179 schools in England[644], approximately 27% are signed up to the Eco-Schools programme.

   Many schools sign up to Eco-Schools but few get beyond the first level. Reasons given are lack of time; lack of interest from sufficient numbers of staff to set up a committee; the need for funding and local support in implementing the necessary changes. There needs to be greater incentive for participation in the scheme, which focuses on the adoption of a whole-school ethos on environmental awareness involving pupils, teachers, parents and the local community.

   We would recommend promotion of Eco-Schools through the One Planet Trust and DfES (through the Sustainable Schools programme)
   Participation in the Eco-Schools programme (which provides good generic information) needs to be coordinated with local support for knowledge, appropriate skills, and funding for implementation of necessary changes – energy efficiency, recycling schemes, and renewable energy infrastructure. Members of the Eco Club could involve the local community by way of road shows, themed days, etc

[642] 'Eco-Schools is a programme for environmental management and certification, and sustainable development education, for schools' [http://www.eco-schools.org] By the end of the 2004/2005 academic year, there were approximately 14,000 schools across 37 countries participating in the Eco-Schools programme, of which more than 4,000 were awarded Green Flags [Foundation for Environmental Education (FEE): *Annual Report 2005*]

[643] Eco and Energy codes integrated into school improvement plans with targets for renewable energy, water saving, energy efficiency, and recycling. Teacher/parent engagement: Eco committee – teachers, classroom assistants, governors, the school gardener and other interested parties from the community. Pupil engagement: Eco club – a cross-section of year groups; school assemblies performed by the eco club on environmental awareness and the club's activities to their own and other schools. Parent/community engagement: School road shows – children engaging with the local community whilst promoting environmental awareness

[644] DfES/National Statistics: *School and Pupils in England, January 2006*, September 2006 [25,179 schools of which approximately 22,357 are LEA maintained schools]

We wish to avoid new targets on schools but we should note that the Scottish Executive's target[645] for 80% of Scottish local authority schools to participate in Eco-Schools was realised a year ahead of schedule, with 10% attaining the Green Flag award.

Incentives

There are financial implications for schools wishing to reduce their environmental impact and carbon emissions – especially renewable energy installations. Even with the Low Carbon Buildings Programme, schools cannot afford to install the renewable energy infrastructure.

Some of the implementation costs, such as energy efficiency measures, are relatively low and can be funded by the schools themselves (with most measures paying for themselves within a year through savings made). Other costs are considerably higher, such as installing renewable energy technology. Government Grants are available but limited, and involve bureaucracy and red tape in applying for them.

Find and Reward Best Practice

We have been inspired by some of the examples of good practice among schools wanting to be good models for energy efficiency and deployment of renewable energy, which are rewarded in the Ashden Awards[646]. We would like to see Government offer matched funding to a chosen partner like Ashden to expand the number of winners and encourage more schools to participate. We would particularly like to encourage an annual competition to discover and disseminate new ideas on how schools and the community can work together to reduce their carbon footprint.

Support new mechanisms for raising funds

For example, we like the idea of encouraging local businesses to offset their 'last resort' carbon emissions by funding the deployment of carbon reducing measures in the local school. This would reinforce the sense of community action which we see as fundamental. A similar scheme is being piloted at present by the Carbon Line (a social enterprise) in London and Yorkshire[647]. SUSchool has recently launched the SUSSED programme, a partnership scheme which links local schools with the private sector[648].

We are also aware that one major retailer is planning a campaign that will allow regular shoppers to accumulate vouchers for investment in measures to 'green' the local school.

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[645] Over 2,500 Scottish local authority schools registered on the Eco Schools programme in Scotland, with over 10% attaining the highest award level – the Green Flag; the target was reached over a year ahead of schedule. http://www.ecoschoolsscotland.org

[646] The Special Ashden Award for Sustainable Energy in Schools (first prize £15,000; second prize £5,000) is open to individual schools which have succeeded in making sustainable energy a key part of the practice and culture of the school as a whole. http://www.ashdenawards.org/school_award

[647] Carbon Line projects are being piloted in London and Yorkshire with plans to roll out nationwide, and involve only UK based projects which involve renewable energy and energy efficiency measures to cut CO2 emissions; reducing energy bills for schools; projects which act as 'public educators' to the value of energy efficiency and clean energy production – only projects which demonstrably cut carbon emissions and are verifiable, assessed by the respected independent experts, the Association for the Conservation of Energy. Project management, planning issues and installations are handled by partner organisation – Clarson Goff. Teachers are trained how to teach pupils to conserve energy and understand renewable energy production.

[648] The SUSSED programme is a partnership scheme between schools, SUSchool, the local energy network, local installers and the private sector. It empowers schools to go from green aspirations to full implementation of measures. With the support of energy support staff, the schools audit themselves and assess their own carbon emissions. Independent verification leads to achievement of SUSSED School status. This is followed by implementation of measures: with focus on reducing energy, water and waste costs and resource use and hence carbon emissions.

3. **Increased funding for more school buses; bus stops placed near schools**

Improved monitoring

4. **Compliance with BREEAM Schools[649]; monitored more closely**
   BREEAM Schools helps schools and LEAs to set environmental targets for new and refurbished school buildings. DfES acknowledged in January 2007 that the Department does not have 'a comprehensive record of [school buildings] which have on-site renewable energy systems.'[650]

   Improved monitoring of BREEAM Schools is required, with appropriate follow-up action to ensure that the 'Very Good' rating[651] is achieved, in line with the Sustainable Development Action Plan[652]. We would go further in calling for all new build and refurbishment projects to achieve an 'Excellent' rating.

5. **External Inspections**
   Despite the Government's pledge to embed sustainable development into all areas of school life, the present voluntary model is undermined by a lack of 'official recognition' through HMI/OFSTED and teacher training of the importance of environmental education.

   Government should consider placing greater emphasis on ESD through external inspections by HMI/OFSTED to ensure satisfactory uptake of environmental education across all schools.

Support

6. **Utilise the opportunities available in Building Schools for the Future (BSF)[653]**
   The aim of Building Schools for the Future is to rebuild or renew every secondary school in England over a 10-15 year period. We would like to see commitment to this timetable with stronger emphasis on the need to **move towards zero carbon/carbon neutral schools by 2020** in addition to the recently announced plans for new secondary schools[654].

7. **Increased funding made available to Partnerships for Schools (PfS)[655]**
   PfS is responsible for delivering the Building Schools for the Future programme. Funds need to be made available to schools to enable them to make the necessary changes in insulation, energy efficient equipment, and renewable energy, particularly in refurbishment projects not covered by BREEAM. Engagement of LEAs and local authorities is also required.

8. **Increased funding of Sustainable Schools programme**
   The DfES Strategy for Sustainable Schools[656] sets out a framework for schools to become models of sustainable best practice in terms of teaching and learning; the impact of the school,

[649] It is a condition of capital funding that new build and refurbishment projects achieve a 'Very Good' rating under BREEAM Schools. This covers all major new-build projects valued at over £500,000 (primary schools) and £2million (secondary schools), and all refurbishment projects affecting more than 10% of the floor area of the school.
[650] House of Commons Hansard Written Answers: 17.01.2007; 455 c1160W; 113859
[651] Equivalent to level 3 of the Code for Sustainable Buildings
[652] http://www.dfes.gov.uk/aboutus/sd/actionplan.shtml
[653] http://www.bsf.gov.uk
[654] Alan Johnston, Cabinet Minister for Education, in a speech to the NASUWT trade union conference, 10 April 2007, announced plans to make all new secondary schools carbon-neutral. The scheme will affect new secondary schools which are now starting their design phase. £110m has been allocated within the DfES budget to fund this scheme – funding 200 new schools over the next three years at £550,000 each, and saving nearly 5 million tonnes of CO2 over the lifetime of the schools.
[655] http://www.p4s.org.uk
[656] www.teachernet.gov.uk/sustainableschools

pupils and staff on the environment; and the links of the school with the local community and wider world.

A budget of £1million has been allocated for 2007-08 academic year which covers all the costs of the overarching Sustainable Schools programme including the Year of Action. £165,000 has been spent or committed in 2006-2007 to the production of resources for schools, within an overall spend of £700,000. We would like to see an increased financial commitment to the programme, as well as support for organisations providing the necessary local support for schools.

9. Help Teachers

Develop (with partners in the voluntary sector) and deliver online educational packages for teachers who want to offer opportunities for 'learning by doing' and connecting children with the natural world across a broad range of activities whether it be collecting rainwater, growing vegetables to supply the school, or saving energy.

Examples we liked were Nesta's 'Making a Mint' competition, for which Harefield Academy year 8 children have formed a business to grow mint on the school premises which will be sold to the village and via a website; and the RSA/Tesco Schools Carbon Calculator which links to the curriculum to empower Key Stage 2 pupils in reducing emissions in schools and communities, and culminates in a national competition.

Making a Mint – NESTA/Planet Science

Making a Mint is a competition open to teams of children aged 7-14. Entrants are given a pack of mint seeds to make as much money from them as possible by a specified date. With few guidelines, children are being encouraged to be as creative as possible. Ideas could range from making and selling mint tea to producing a booklet about 101 uses of mint.

At the end of the competition, NESTA will look at the top 50 entries, which have made the most money, and award a prize to the most creative money-making scheme. The winning team will receive £1,000 worth of garden vouchers for their school or group plot, with £250 of vouchers for the four runners-up.

We would like to see a coalition of organisations/award schemes working together to provide the necessary support and framework for students developing social enterprise projects around the theme of sustainability and the environment within the school and local community, along with increased funding through the Government's Sustainable Schools programme.

Example of coalition partnerships/award schemes: Eco-Schools; Young Enterprise[657]; The Prince's Trust[658] ; SUSchool[659]; the Big Boost[660]; Nesta[661]; UnLtd[662]; Changemakers[663];

[657] Young Enterprise offers a range of programmes, based on the principle of Learning by Doing, which brings volunteers from business into the classroom to work with teachers and students; more than 5,500 schools and colleges participate in the programmes (reaching more than 320,000 young people a year from primary school through to university); businesses and volunteers take an active role in building a better-motivated, educated and enterprising workforce, whilst making a difference to the existing lives and future potential of young people who live in their area; http://www.young-enterprise.org.uk

[658] The Princes Trust is a UK charity that helps young people overcome barriers and get their lives working through practical support including training, mentoring and financial assistance, helping 14-30 year olds realise their potential and transform their lives; partner in the Big Boost; http://www.princes-trust.org.uk

Wavemakers[664]; the Scarman Trust[665]; B&Q 'You Can Do It'[666]; Help Yourselves! Awards[667]; SCEMES National Poetry Competition[668]; and Make Your Mark with a Tenner[669]

10. The curriculum

At present, sustainable development and environmental change are only covered in Geography, Citizenship, and to a lesser degree Science. The aim of the DfES Sustainable Schools Action Plan[670] is for schools to embed sustainable development into whole-school management practices, including curriculum content, by the year 2020.

The recent secondary curriculum review[671] is moving towards this but very slowly; sustainable development and environmental change will only be a compulsory part of Geography, and even then not until 2008. There is a good website for Sustainable Schools with links to lesson

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[659] SUSchool is a project of the Alternative Technology Centre (ATC), a not-for-profit information and education centre on Sustainable Development; http://www.suschool.org.uk

[660] The Big Boost is led by UnLtd - The Foundation for Social Entrepreneur s on behalf of the Big Lottery Fund's Young People's Fund programme (Grants to Individuals); partners – Changemakers, The Scarman Trust and The Prince's Trust; The Young People's Fund in England, launched in September 2004 by the Big Lottery Fund, aims to put young people at the centre of creating, planning and delivering projects; the Big Boost gives awards to young people of between £250 and £1000 (11-16) and £500 and £5000 (16-25), to help them get their ideas off the ground; http://www.thebigboost.org.uk

[661] Nesta: the National Endowment for Science, Technology and the Arts; the largest single endowment devoted exclusively to supporting talent, innovation and creativity in the UK; mission: to transform the UK's capacity for innovation; invest in early stage companies, inform innovation policy and encourage a culture that helps innovation to flourish; Nesta Future Innovators: http://www.nesta.org.uk/programmes/future_innovators - developing the attitudes that underpin innovation, such as self-belief, a spirit of enquiry and resourcefulness; work in partnership with schools, educational bodies and those who work with young people to ensure the skills, personal attributes and behaviours of our future innovators are the best possible fit with the needs of the UK

[662] UnLtd awards provide both practical and financial support to social entrepreneurs in the UK – people who have the ideas and commitment to make a difference in their communities; combination of funding and practical help, enabling people to start and run projects that will help those around them; two levels of funding: awards between £500 and £5,000 to help make new ideas become real projects, and awards between £10,000 and £20,000 to support projects that are already developed; funding body – The Millennium Commission; leads the Big Boost; http://www.unltd.org.uk

[663] Changemakers was established in 1994; educational charity with a growing network of young people, schools, youth organisations and employers; aims to help young people play an active role in changing society for the better; partner in the Big Boost; http://www.changemakers.org.uk

[664] Wavemakers aims to encourage and empower children and young people to improve their lives, have their voices heard and make a positive difference to society; annual awards scheme which highlights and celebrates inspirational achievements and initiatives of children and young people who come from diverse, and often difficult backgrounds, around the UK; focus: areas of social care, education and health; http://www.wavemakers.org.uk

[665]The Scarman Trust is a national charity committed to helping people bring about change in their community; funding and giving practical assistance to hundreds of people whose community work strives to make fundamental life chances available to everyone; partner in the Big Boost; http://www.thescarmantrust.org

[666] B&Q You Can Do It award scheme helps local communities create inclusive and sustainable facilities; applications for projects looking to become more energy and water efficient are particularly welcome; schools, charitable organisations; award: £5,000; http://www.diy.com/awards

[667] The Here to HELP awards are part of the Help Yourselves project which aims to encourage young people to be more involved in their communities; created by Save the Children and British Gas, it is designed to support young people's ideas and initiatives, to help them develop local projects and speak out on issues that matter to them; aim: to support community-based projects initiated by young people; awards: up to £1,000 per project, with funding given to 50 projects; http://www.helpyourselves.org.uk/index.jsp

[668] Scemes poetry competition is annual and on the theme of the environment; one entry per school – pupils aged 7 to 11; winning schools are expected to spend their prize sum with suppliers of products and services listed in the SCEMES Educational Buyers Directory; 1st prize £10,000, 2nd Prize £2,500, 3rd Prize £1,000; http://scemes.net/poetry/competitionGuide.php

[669] Make your Mark with a Tenner is open to all schools & FE Colleges nationwide; rewarded both the best profit-making ventures and those that had the greatest social impact; each student was 'loaned' £10 and given 1 month to make an impact; the 50 teams who won the prize for the biggest social impact were also eligible for a further £1000 each, thanks to The Big Boost; http://www.starttalkingideas.org/mym_with_a_tenner

[670] DfES: *Sustainable Schools for pupils, communities and the environment: An Action Plan for the DfES*, April 2007

[671] The Qualifications and Curriculum Authority: *Secondary Curriculum Review*: http://www.qca.org.uk/secondarycurriculumreview

plans and information, but no specific funding or training for teachers, and no monitoring of uptake.

Recommendation

Address the need for improved teacher training in and implementation of Education for Sustainable Development (ESD). Sustainable development and environmental change may require a specific focus within teacher training, together with improved access to information and resources for teachers.

Support Outdoor Learning

Green spaces
Green spaces within the school ground and local community are the closest experience of nature many children will get apart from trips to wildlife sites

- Focus on green space provision in the local community and where new green spaces might be created; this can be done by using various green space standards
- Develop dedicated garden areas in the school grounds, both for play and for teaching curriculum subjects; supported by Groundwork
- 'Allotment' space for pupils to grow their own vegetables etc.
- Programmes such as the Woodland Trust's Nature Detectives engage children in practical environmental activities; Forest Schools
- Tree planting schemes (e.g. Woodland Trust); school grounds (e.g. Learning through Landscapes – an organisation which addresses issues in school grounds over and above the environmental ones)

Adopt a Farm
This is an opportunity to address the growing divide between town and country which exacerbates disconnection from the natural world; Adopt a Farm encourages hands-on activities which bring children closer to the natural world, and engages the community with local farmers – the very people who supply the schools with food for their catering, land for their wind turbines, wool for their insulation, and land for their growing schemes.

Build on the Outdoor Learning Manifesto
Greater injection of resources and funding is required in support of the Outdoor Learning Manifesto. There is also a 'climate of fear' regarding external trips and hands-on activities which needs to be addressed (risk management etc.)

Greater emphasis on existing Government initiatives
Growing Schools[672] encourages connection with the natural world through greater use of outdoor environments as learning resources for pupils, and Extended Schools[673] promotes the support of sustainable development in local communities by greater use of school buildings for community facilities used by pupils, parents and the wider community.

[672] Growing Schools is a Government led programme that encourages all schools (nursery, primary, secondary and special) to make greater use of outdoor environments as a cross curricular learning resource for all pupils. It focuses on ensuring pupils are given first hand experience of the natural world around them: http://www.teachernet.gov.uk/growingschools
[673] Extended Schools is a Government initiative which explores ways in which schools can actively support sustainable development in their local communities. Offering a range of community facilities from the school site makes best use of school buildings and less travelling between the school and other services used by parents and the wider community: http://www.teachernet.gov.uk/wholeschool/extendedschools/

Case Study: The Academy of St Francis of Assisi, Liverpool

St Francis is a joint Anglican/Roman Catholic school which has made the environment and sustainability its specialism.

With a solar atrium, solar panels on the roof, and sustainable-timber cladding, the school is at the forefront of environmentally sustainable schools in the UK. The south-facing atrium is angled at 70 degrees to reflect the rays of the sun in the summer and to collect their warmth in spring and autumn. The solar panels provide up to 10% of the school's electricity.

The environmental (science) lab houses desks made from recycled yoghurt pots, whilst in the cyber café a display panel shows students how much electricity is being generated, the running total, and how much carbon dioxide has been saved so far (approximately 11,000kg).

The environmental aspects of the building together with the school's focus on sustainability contribute to a whole-school ethos on environmental awareness, which appears to have led to an improvement in the students' performance. St Francis topped the Government's CVA (Contextual Value Added) league table earlier this year, and the GCSE A*-C pass rate has improved from 26 per cent to 40 per cent.

The school has had no comparison to draw on, and as such has been learning as it goes along. The curriculum is traditional, although 'gateway' subjects have been introduced to engage children with their effect on the world. Although the subject of environmental sustainability fits best within geography and science lessons, it is also incorporated into other lessons within the context of those subjects.

In terms of its carbon footprint, recent research by the Building Research Establishment found that St Francis produced almost five times more CO2 in its first six months than had originally been forecast, and the school estimates that it is 60 years away from carbon neutrality due to its decision to build the school almost entirely of concrete (a tonne of CO2 is emitted for every tonne of concrete produced), although this will mean there is less need for space heating in the long run as concrete is unparalleled in its ability to absorb and retain heat.

Building a school to sustainable requirements is not a cheap exercise, and at one stage St Francis was faced with the prospect of having to remove the 'environmental' aspects of the project to meet the budget. With Forest Stewardship Council certified timber cladding costing 20% more than non-certified timber, the school relied on extra funds from DfES to meet the cost.

Edited from source: The Independent, 'Education, Education, Conservation: Schools go carbon neutral', 19 April 2007

Appendix 9.1.2. Case Study – SMEs

Small businesses account for around half of UK employment and make up 99.3% of the 4.3 million business enterprises in the UK.[674] They should be the lifeblood of the economy, the drivers of new jobs and ways of doing things. With their short lines of decision making they are in a position to make change happen fast if it is in their interest. The climate change agenda carries significant risk and opportunity for this vital segment of society and yet they are barely engaged, and the Carbon Trust is widely recognised to be focused on 'big business.'

SMEs: Barriers to Energy Efficiency

The Carbon Trust estimates that for many businesses cutting energy costs by 20% can have the same bottom-line benefit as a 5% increase in sales. However, research by Enviros has shown that many SMEs are unaware about energy efficiency and the savings that can be achieved or are resistant to change because they are happier maintaining the status quo.

Barriers include:

1. **Incomplete access to information**
   Without access to complete and accurate information, businesses cannot take optimal decisions on the most cost-effective and reliable measures available to them. As a result, there is often a cost perception gap – with overestimation of the costs and underestimation of the savings to be made in implementing energy efficiency measures. Information gathering and analysis also take time and resources, which are often constrained in small and medium sized organisations.

2. **Financial implications**
   There may be limited access to capital to buy new energy-efficient equipment, or unrealistic demand for short payback periods on investment, in the form of lower energy bills. There are also often hidden costs involved which are hard to measure, including management time and staff training, investment appraisal, procurement, auditing, the transaction costs incurred in accessing information, and accelerated depreciation costs when capital equipment is replaced before the end of its life

3. **Split incentives**
   For example, landlords and tenants; with up to 90% of SMEs operating from rented offices[675]. Landlords are often reluctant to spend capital on energy efficiency measures as the savings accrue to the tenant in the form of lower energy bills, while tenants may be reluctant to spend capital if they are likely to move premises before they see a return on their investment. Moreover, tenants may have little influence on investment in and implementation of energy saving technologies for a building.

4. **Energy efficiency is not a top priority**

[674] National Audit Office: *DTI Statistical Analysis Press Release*, August 2006 [Almost all of these enterprises (99.3 per cent) were small (0 to 49 employees). Only 27,000 (0.6 per cent) were medium-sized (50 to 249 employees) and 6,000 (0.1 per cent) were large (250 or more employees); at the start of 2005, UK enterprises employed an estimated 22 million people, and had an estimated combined annual turnover of £2,400 billion; small and medium-sized enterprises (SMEs) together accounted for more than half of the employment (58.7 per cent) and turnover (51.1 per cent) in the UK; small enterprises alone (0 to 49 employees) accounted for 46.8 per cent of employment and 36.4 per cent of turnover]
[675] Scrase, I: *Research for the Association for the Conservation of Energy (ACE),* 2001

For resource constrained SMEs, energy efficiency may not be a priority for investment when capital expenditure is needed elsewhere. Furthermore, the department or person who pays the energy bill is often not the same as the one responsible for the selection and purchase of equipment. Anecdotal evidence also suggests that there are many behavioural factors involved in poor uptake of energy efficiency measures, for example inertia, lack of trust and loss-aversion.

Recommendations

A. Information

1. The One Planet Trust to facilitate the creation of a web based service that gives SMEs access to:

- A simple mechanism to measure their carbon footprint
- Information that allows users to benchmark against relevant comparisons
- Advice on the hierarchy of effective actions they could contemplate
- Case studies of best practice
- A network of other SMEs to share information and ideas with
- Information on grants and/or financial incentives available

B. Incentives

2. Changes to Government procurement policy that will reward those making an effort to reduce carbon emissions

3. More effective incentives to invest in energy efficiency

The body of evidence that has looked at barriers to pursuing greater efficiency suggests that one factor is access to capital and length of payback. This particularly affects small and medium sized businesses. One option is to look at enhanced capital allowances and various tax credits but these are relatively complicated and tend to only motivate the Finance Director. The Carbon Trust has developed an alternative being interest free loans which the agency effectively offers through the suppliers of products and which are paid back through cost savings over four years. These have proved increasingly popular and cost effective with low levels of default. The Government has around £18m of capital at risk under this scheme but could now leverage that base through the private sector and scale the opportunity up to around £200m. The Government should not have to contribute any more capital but would pay the foregone interest and underwrite the default risk at a total cost estimated at approximately 15% of the capital.

One option for funding these initiatives is an effective **net** increase in a reformed Climate Change Levy. Before the accusations fly of increasing tax on business, we would point out that the Climate Change Levy has indeed been a significant net tax cut for high energy users as the following table shows:

Climate change levy (CCL) revenue and value of 0.3 percentage point cut in employers' NICs	**CCL Revenue (£ million)**	**Approximate value of 0.3 percentage point cut in employers' NIC (£ million)**
2001-02	**771**	**1,035**
2002-03	**826**	**1,125**
2003-04	**816**	**1,185**
2004-05	**753**	**1,215**
2005-06	**738**	**1,275**
2006-07	**0.7 (£ billion)**	**1,350**

Source: Answer to Parliamentary Question 7 Feb 2007: Column 1051W

The net effect of the Climate Change Levy and the compensating cut in employers NIC has been a cumulative tax cut of approximately £3.3 billion since 2002. It is not clear how this is consistent with the philosophy of 'the polluter pays'.

There is certainly a case for reducing the net burden of tax on business but we are less clear that it should be delivered through the Climate Change Levy package as it undermines the incentive to improve energy efficiency.

The Conservatives have already committed to reforming the Climate Change Levy[676] in order to turn it into a genuine carbon tax. We believe that there is a case for extending that review to consider a narrowing of revenue and rebates in order to a) make the total package bite more on energy intensive companies and b) release funds for scaling up incentives to invest in energy and resource saving measures . We think this goes with the grain of Conservatives desire to support small businesses and redress the tax increases imposed on them by the Chancellor in his last budget.

C. Support

4. Requirement on landlords to fund improvements required to meet minimum energy efficiency standards

[676] Conservative Party: *An effective Carbon Levy for the UK: A Consultation,* November 2006

Appendix 9.1.3. Case Study – Local Government

Local Government are a major stakeholder in climate change and represent an underutilised asset. Research suggests that improvements to their performance framework could lead local authorities to reduce emissions by between 0.3 and 2 million tonnes of carbon beyond business as usual in 2010.[677]

Multidimensional Stakeholders

Estate Manager: Social housing represents 25% of housing stock in the country and local authority emissions from their own estates is estimated at 1% of UK emissions
Service Provider: Waste management and enforcement of building regulations
Enabler: Warm Front scheme and Energy Efficiency Commitment
Connectors: closer to the community; accountable to community

Current Situation

- Local authorities have no outcome based targets specific to climate change and no requirement in relation to adaptation. However they can set their own targets and are encouraged to report against the Audit Commission's Quality of Life Indicators, which include carbon dioxide emissions per capita
- They do have discretionary powers in relation to promoting the 'environmental, economic, and social well being' of their communities and are required to produce 'Community Strategies' but on the whole these do not engage the public
- Some Councils have taken a lead on climate change, not least through the Nottingham Declaration[678], but performance is very inconsistent. An NAO report[679] says that 'Although over 200 local authorities have made high level commitments to climate change ... analysis suggests a mixed picture of performance with few replicating the achievements of the best.'
- Few local authorities are using their 'well being' powers to support sustainable energy initiatives[680]
- Revolving Loan fund of £10m provides interest free loans for energy efficiency projects, repaid from savings
- Small scale and fragmented financial incentives such as a £4m Best Practice Programme
- The UK Climate Change Impacts Programme[681] helps local authorities assess their vulnerability to climate change

Direction of travel under this Government

- Climate change is likely to be included in the new Performance Framework of Local Government in 2009
- Development of Super Local Area Agreements whereby local agencies would set local targets and have more discretion over pooled monies
- Local authorities to be included in emissions trading scheme under proposals for an Energy Performance Commitment
- Changes to Planning Guidelines including proposals for planning authorities to factor climate change into planning decisions

[677] Centre for Sustainable Energy: *Local and Regional Action to Cut Carbon*, 2005
[678] The Nottingham Declaration on climate change, 2000: www.nottinghamdeclaration.org.uk
[679] National Audit Office: *Central Government Support for Local Authorities on Climate Change,* April 2007
[680] Impetus consulting: *Local Authority Legal Powers to Promote Sustainable Energy*, May 2006
[681] www.ukcip.org.uk

- The Climate Change and Sustainable Energy Act 2006 requires local authorities to 'have regard' to a new Central Government report on ways to reduce emissions
- The Carbon Trust are developing 'Partnership for Renewables' – to help public sector bodies develop and manage onsite renewable energy projects on their land. The Government is providing development capital of £10m up to 2009

Where would we like to go?

A. Information

- Be more proactive in taking the message on risk and opportunity to Local Government. Tailor individual presentations on the local impact of climate change to be presented to each Cabinet and made public – to be prepared by the One Planet Trust in partnership with the Hadley Centre
- Communicate best practice (international and domestic; mitigation and adaptation) more effectively through the new Research and Communications Agency working in partnership with the Local Government Association
- Build a central database giving comprehensive information on local authority performance on climate change

Best Practice in Local Government

Following consultation with the Energy Saving Trust, the Carbon Trust, the Local Government Association, and the Improvement and Development Agency (IDeA), the Guardian[682] singled out the Greater London Authority and Kirklees as the top two best performing councils on green issues.

Greater London authority

- London was the first city in Britain to set statutory CO2 emission reduction targets of 20% by 2015, and 60% by 2050
- The city has set challenging targets for the use of renewable energy, with statutory planning guidance calling for 10% of renewables in all new major developments
- The UK's first congestion charge has halved the number of people using their cars daily, and increased cycling by 72%
- The new Climate Change Agency is working in partnership with EDF Energy to build highly efficient combined heat and power (CHP) projects across the city, and is working with Greenpeace to build the first zero-carbon eco-suburb

Kirklees

- In 2005, Kirklees won an Ashden Award for sustainable energy for its domestic solar project, which has put solar electric and thermal panels on 500 homes
- It cut emissions on its own estate by more than its target of a 30% reduction from 1990 levels by 2005; the new target is to cut emissions by a further 30% by 2020
- Kirklees' environment unit coordinates and manages £6m worth of projects and has a full-time staff of 195. It is one of IDeA's "beacon" councils on sustainable energy
- Kirklees local authority has established a national network of regional Environment Management System (EMS) groups which aim to share good practice, knowledge, skills and tools

Other councils in the 'top ten' were: Shropshire county council; Aberdeen city council; Southampton city council; Nottingham city council; Woking borough council; Leicester city council; Cornwall county council; and Merton.[683]

[682] The Guardian: *Leading by example*, 3 January 2007

B. Incentives

- Avoid more centrally set targets but consider a statutory duty to protect the environment
- Encourage local targets to be set within a frame of the Local Area Agreement and a publicly available Sustainable Community Strategy. That Strategy document should contain a statement on a) greenhouse gas emissions in the local authority area per capita and b) measures taken by the Council to help reduce that number
- Structure powerful financial incentives to reward innovation and best practice
- Require Councils to explain to the Secretary of State why they are not implementing best practice

Recommendation

- Introduce 'Best Practice' Awards for local authorities across a range of environmental categories, including Environmental Innovation. The objective should be a total 'pot' of around £50 million per annum
- Enter into partnership with an objective party such as the Ashden Awards to make the judgements and run a high profile celebration event attended by our Climate Change Ambassadors
- The minimum prize size should be around £100k and the annual 'Gold medal' should be worth around £1m, which in the Borough of Hillingdon for example is worth approximately 1% on Council Tax. The moment a Council announces a 1% reduction in the Council Tax because of the success of their Environment Programme will be a tipping point in terms of public engagement

C. Support

- The One Planet Trust should develop an online network for local authority officers to share information and ideas and access Information on grants / financial incentives available
- Give local authorities freedom to impose higher energy efficiency standards on new developments than current building regulations require
- Consider innovative new mechanisms for raising Capital Finance, including Local Bonds
- Give local authorities real power to a) influence national policy and b) decide how taxpayers' money is spent in their area to promote sustainability. These are the objectives of the Sustainable Communities Bill which the Conservative Party supports

[683] The Guardian identified other 'bright sparks as: High Peak (Derbyshire), Lewisham, Devon county, Bristol city. Hampshire county, Enfield, Oxford, Sutton, Wellingborough, Kent county, West Sussex, Derby city, Middlesbrough, Nottinghamshire, Sheffield, Birmingham, Bournemouth, Croydon and Barnsley

Appendix 9.2. International Emissions Trading

A. Background

Request from Peter Ainsworth to Quality of Life Policy Group: September 2006

"I would therefore be grateful if, in considering the international dimensions of climate change, the Quality of Life Group might examine specifically a proposal for a global emissions trading scheme, based on the principles underlying the EU scheme but learning from its weaknesses, and extending its coverage to all sectors of the economy.

To be successful, the initiation and oversight of a global scheme will require a new, impartial and authoritative international body to be established. Such a body will need to command the trust of developing, rapidly developing, and developed countries in equal measure. It should operate in a way analogous to and parallel with the World Trade Organisation, and terms of reference will need to be set to ensure maximum co-operation between the two bodies.

Accordingly, I would like to invite the Quality of Life Policy Group to carry out an initial feasibility and scoping study into the establishment of such a body. In particular, it would be helpful if the Group could make recommendations on the remit, structure and governance of such a body as well as a development plan for establishing it. Of crucial importance will be the standing of such a body in relation to other international organisations and agreements, I would be grateful if you would make recommendations on how these relationships might function most effectively. With this in mind, it would also be useful if you would include in your recommendations the most appropriate means of funding such a body."

Stern Report[684]

"Trading schemes can be an effective way to equalise carbon prices across countries and sectors … Broadening the scope of trading schemes will tend to lower costs and reduce volatility. Clarity and predictability about the future rules and shape of schemes will help to build confidence in a future carbon price."

"Enabling the EU ETS to link with other emerging trading schemes … and maintaining and developing mechanisms to allow the use of carbon reductions made in developing countries, could improve liquidity while also establishing the nucleus of a global carbon market."

"In future, a transformation in the scale of, and institutions for, international carbon finance flows will be required to support cost-effective emissions reductions. The incremental costs of low-carbon investments in developing countries are likely to be at least $20-30 billion per year. Providing assistance with these costs will require a major increase in the level of ambition of trading schemes such as the EU ETS."

Gordon Brown speech to Green Alliance: 12 March 2007

"My ambition is to build a global carbon market, founded on the EU Emissions Trading Scheme and centred in London

[684] H.M. Treasury: *Stern Review: Executive Summary*, October 2006

B. Our Response

We support the concept of emissions trading as the cornerstone of EU and UK climate change policy and believe that it will emerge as an important tool in the global response. In this context the fundamental role of Government is to set the limits and create the scarcity that will deliver a significant and sustainable price for carbon. We recognise that a mosaic of cap and trade schemes are being set up around the world at national and sub national level. Therefore Government should also facilitate effective links between these platforms because markets that are deeper and more liquid tend to be less volatile. On the basis that a tonne of carbon in Nairobi is making the same contribution to global warming as a tonne in Nottingham we should be aiming to attach the same value to them. A global carbon market and a global carbon price is certainly an attractive vision, particularly with the opportunity for the City of London to establish itself as the epicentre.

However…

We believe that it is time for a new pragmatism in the global response to climate change. We have arguably wasted fifteen years since the world agreed in Rio that "Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."'[685] The next ten to fifteen years are critical and we are cautious about spending finite political capital on pursuing visionary long term goals when there is still some work to be done to prove the concept of emissions trading. For the British Government the priority must be fixing the EU scheme which is the cornerstone of UK and EU climate change policy.

In relation to the development of a global carbon market there are in fact two distinct issues that need to be addressed now:

1. The linkage of trading systems
2. The regulation of the CDM mechanism as it scales up

In relation to 1) linkage, the work around encouraging a common set of design standards and agreeing a common approach to regulating the integrity of markets is already happening at a technical level. We see a no case for a new institution.
Just as we leave it to the financial markets to integrate the different oil markets, so can it be with carbon. The role of Government is to create the scarcity that delivers a proper price and then regulate the integrity of the markets that arise. In many cases no new institutions will be required as, for example, the London based carbon exchanges are regulated by the FSA.

In relation to 2) the regulation of the important CDM market, there is no doubt that existing institutions will need strengthening as that mechanism scales up. In this context, national regulation is probably insufficient and there is a case for considering whether a new international body is required to sort out the legitimacy of carbon abatements delivered through offset mechanisms. However our instinct is to stick with but strengthen the UNFCCC which has considerable expertise in the form of the CDM Executive Board. Our priority should be to ensure that an institution governing the international flow of billions of dollars should be adequately resourced.

Our politicians should be fixing the foundations before talking seriously about the grand designs we want to build on them. History has taught us that the 'Ideal can be the enemy of the possible." Visions should not be an excuse for procrastination.

[685] Report of the United Nations Conference on Environment and Development: Principle 15, *Rio Declaration on Environment and Development*, Rio de Janeiro, 3-14 June 1992

C. The argument

1. Give priority to fixing the EU ETS

Key background

In the face of the "greatest long term challenge facing the human race"[686] (Tony Blair), we have a great deal staked on the success of an instrument that is invisible to the public - emissions trading. This occurs between a pool of parties who agree a cap on their emissions, negotiate their individual allowances, and establish mechanics that allow trading of allowances between parties. The theory is that this market mechanism delivers a) certainty via an agreed cap, and b) economic incentives to create surpluses that can be traded at a profit. It also creates an explicit price for carbon which is driven by the scarcity of allowances, almost all of which are allocated for free at the moment.

The Government describes it as "the cornerstone of the Government's policy framework to tackle climate change" and it is by far the single largest carbon saving measure in the entire UK Climate change programme (more than double the contribution of the Climate Change Levy by 2010). The EU Commissioner for the Environment describes the EU ETS as 'the EU's single most important measure for reducing greenhouse gas emissions.' Its importance goes beyond its contribution to our national or regional commitments. It is emerging as the policy tool of choice for correcting what Stern described as 'the greatest market failure"- the lack of an effective price on greenhouse gas emissions. As a market mechanism structured to maximise the cost effectiveness of emission reductions, it may hold the key to engaging the USA at a federal level with a credible international settlement. It is also a key mechanism for transferring capital from the developed to the developing world through the Clean Development Mechanism.

The UK has been at the forefront of emissions trading and is one of the most robust supporters of the EU Emissions trading scheme which covers 46% of emissions across the EU, with a heavy weighting towards the power sector and energy intensive industries.

As the politics of climate change evolve, a mosaic of different schemes is emerging around the world, not least in the US at a sub-national level[687]. The momentum is such that it is logical and tempting for politicians to jump ahead and talk of how we stitch these platforms together to 'build a global carbon market".

That is an attractive long term aim but we are in danger of running ahead of ourselves. Emissions Trading has proved itself as a mechanism to curb sulphur dioxide emissions in the USA but has yet to establish the same success in carbon. Nor is it clear that there is international consensus that the EU ETS is the model on which a global market should be built.[688] That is not surprising given some of the flaws that have been exposed.

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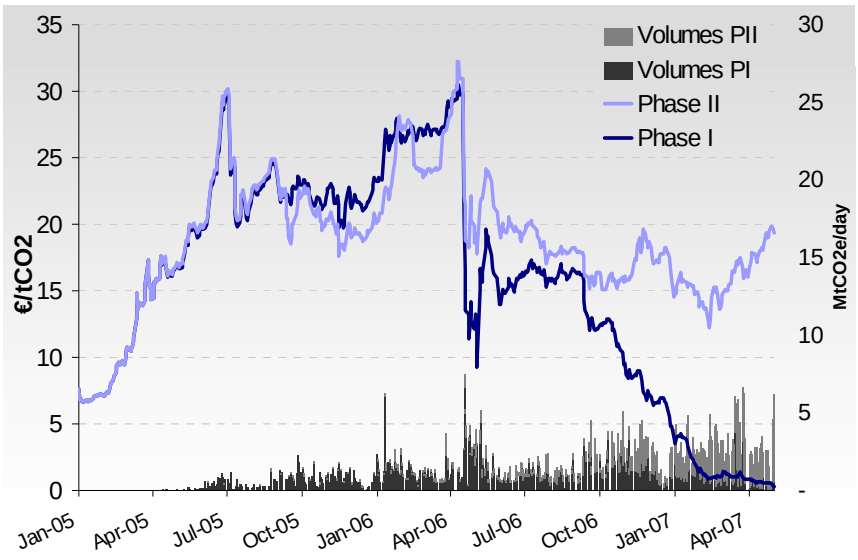
[686] Rt Hon Tony Blair MP, Prime Minister's Foreword: Department for the Environment, Food and Rural Affairs (Defra), Climate Change: The UK Programme 2006, Cm 6764, March 2006, p iii

[687] Regional Greenhouse Gas Initiative, signed by seven states: Connecticut, Delaware, Maine, New Hampshire, New Jersey, New York, and Vermont in December 2005. They have since been joined by Maryland, Massachusetts, and Rhode Island. The Western Regional Climate Action Initiative, signed by five states: Washington, Oregon, Arizona, New Mexico, and California in February 2007 - plans to develop a market-based system, such as cap and trade, by August 2008

[688] New York Times: *When Carbon is Currency*: 'Officials have closely watched the European Union, which started its carbon trading market in 2005; analysts say the Europeans have stumbled on some fronts. "We've learned a lot from the Europeans," said Judith Enck, adviser on environment issues to Gov. Eliot Spitzer of New York. "The way we distribute the allowances will be vastly different than the European experience."', 6 May 2007

The story so far

EU ETS Price Trading History



Source: ICE, New Cabon Finance

There is a growing consensus about the successes and failures of the EU ETS to date[689]. Key conclusions:

1. It has been successful in proving the mechanics of emissions trading
2. It has failed to significantly reduce emissions
3. While it is clearly a factor in business decision making it is not been a major driver of innovation.
4. There has been little evidence of companies 'outperforming' in pursuit of the opportunity to trade surpluses.
5. The politicians have failed in their core function - creating sufficient scarcity of carbon. A cap and trade scheme is only as good as the cap and national allocations in Phase I were too generous [Ellerman and Buchner 2006]. Instead of creating scarcity the process generated surpluses, and a carbon price that did not bite on decision makers.
6. The decision to give away permits to pollute looks increasingly questionable in the light of evidence that UK companies have passed on 'costs' to consumers (UBS calculate that the first phase of the ETS added 1p to each kilowatt hour of electricity) and generated windfall profits of £800m in 2005 (DTI estimate)
7. The European Commission, supported by the UK, has shown welcome leadership in firming up allocations in Phase II[690], and this is reflected in forward prices of around €20.

[689] House of Commons Environmental Audit Committee: Second Report of 2006-07, *The EU Emissions Trading Scheme: Lessons for the future*, March 2007; IPPR: *Trading Up: Reforming the European Union's Emissions Trading Scheme*, December 2006

[690] http://ec.europa.eu/environment/climat/2nd_phase_ep.htm

Reported volumes and value 2005, 2006, forecast 2007

	2005		2006		2007	
	Final figures		Final figures		Forecast	
	[Mt]	[€ million]	[Mt]	[€ million]	[Mt]	[€ million]
EU ETS total	362	7,218	1,017	18,143	1,750	18,503
- OTC + exch.	*262*	*5,400*	*817*	*14,575*	*1,550*	*15,903*
- Bilateral	*100*	*1,818*	*200*	*3,568*	*200*	*2600*

Reported and estimated volumes 2005 and 2006, together with forecasted volumes for 2007, in Mt CO2e and million €; prevailing carbon prices at time of writing for 2007 forecast.
Source: Point Carbon, 2007

8. On the basis that a tonne of CO2 in Nairobi is the same as tonne of CO2 in Nottingham, the CDM mechanism has great potential to facilitate a) low cost emission reductions and b) transfers of capital to developing world. However there are legitimate concerns about the balance between the need to deliver absolute domestic emissions and the opportunity to buy emission reductions that are relative to judgments of 'business as usual'. As the Environment Audit Committee points out "the Government is allowing for two thirds of the headline carbon savings it has announced as resulting from Phase II to take place not just outside the UK but outside the EU, and probably not in the form of carbon dioxide, but of carbon equivalent greenhouse gases" Furthermore the EAC report points to evidence that " much CDM investment is currently going into projects of dubious merit"[691]
9. The key phase of the EU ETS is Phase III, which will be the focus of negotiation in 2007/8.
10. The welcome move by the EU to agree a unilateral 20% target for 2020 is important in setting a framework for the market post 2012.
11. Attitudes to the ETS do vary considerably across the EU (The UK is robust but there a distinct lack of interest in Continental Europe; the Germans were the most guilty of over-allocation in Phase I and have tested the patience of the Commission again in Phase II; the old French government was supportive but their industry is clearly anti; the new government in Italy is supportive).

We consider that substantial reform of the ETS is required for it have credibility as the 'gold standard' or nucleus of a global emissions trading market. We do not underestimate the difficulties of getting political support within the EU for a more rigorous third phase, and that is where we should focus our political capital.

Key reforms required

Overview

Our instinct is to try and keep the ETS simple and avoid incremental bureaucracy. We support the view that the core concept should remain that of a platform to facilitate efficient trading for industrial installations that emit large amounts of greenhouse gas. The inclusion of Aviation would therefore be a shift from the core concept. More important however is the need to:

[691] House of Commons Environmental Audit Committee: Second Report of 2006-07, *The EU Emissions Trading Scheme: Lessons for the future*, March 2007

A. Remove Political Risk

The system has been undermined by politics**.** Our priority should be to reduce political risk by:

i) Increasing the level of auctions

- Free permits to pollute are inconsistent with the principle of "the polluter pays"
- Economists tell us that auctions are the most effective mechanism for identifying the real cost of mitigating greenhouse gas emissions[692]
- Free allocations can distort incentives. If the baseline is going to be shifted up then the incentive is to emit more and get more free allowances
- The two main arguments against auctions are:
    1. the impact on competitiveness of EU companies (corporate lobby)
    2. the impact on the liquidity and efficiency of the carbon market (carbon trading lobby)
- In Phase I, only 0.2% of the EU budget was auctioned, Phase II allows a maximum of 10% auctions; a very modest step that reflects the success of the corporate lobby against auctions. The UK Government has set a limit at 7%.
- We should press the Government to be bolder in Phase III
- There is very little argument against **100% auctions for the utility sector,** which does not compete outside the EU and which has benefited from windfall profits in the first phases[693].
- We would also like to see a **harmonised ratcheting down across other sectors of free allowances to pollute in favour of agreed minimum levels of auctions**.

Estimates for the potential revenue from auctions vary from $3 billion for a policy of 'Utilities only' to $37 billion which is the current value of all the permits in the system. The inclusion of aviation in the ETS is a significant variable in terms of potential revenue, with estimates ranging from €1.3 to €3 billion[694].

We would like to see a Conservative Administration take a robust approach to the predictable outcries against auctions:

Will it harm competitiveness?

- The impact on competitiveness will depend on a number of factors such as the energy intensity of the industry; the ability to pass through costs and the situation of competitors**.**
- We are arguing that every country should take the same approach
- It is in our economic interest to be at the forefront of the Low Carbon Revolution. In the future, competitiveness will depend increasingly on the power to innovate and maximise efficiency. Increased levels of auctions will be a catalyst for greater efficiency.
- We cannot disguise the fact that Auctions will represent an additional tax on business. They should therefore be seen as part of the evolving 'Green Tax' strategy that the Conservatives are developing to reinforce the principle of 'the polluter pays'. We understand that a fundamental tenet of the strategy is increased green taxes should be revenue neutral and we fully support that principle. We would go further and say that auctions will be more acceptable and sustainable

[692] Tim Harford: A new strategy for climate change, May 2005 http://www.opendemocracy.net/globalization-climate_change_debate/pollutionpermit_2536.jsp; Peter Cramton and Suzi Kerr: Tradeable Carbon Permit Auctions: How and why to auction not grandfather, 2002 http://www.cramton.umd.edu/papers2000-2004/02ep-tradeable-carbon-permit-auctions.pdf

[693] Ilex Energy Consulting: *Implications of the EU-ETS for the Power Sector and Electricity Prices*, 2005; IPA Energy Consulting: *Implications of the EU Emissions Trading Scheme for the UK Power Generation Sector*, November 2005; http://www.dti.gov.uk/energy/environment/euets/phase1/page26230.html

[694] IPPR: *Trading Up: Reforming the European Union's Emissions Trading Scheme*, December 2006

across Europe if proceeds (or a proportion of) were seen to be recycled as 'green' investment to manage climate risk, with our favoured UK options being:

- The eventual replacement of the structurally flawed Renewables Obligation with a mechanism whereby Energy suppliers would bid for financial support for projects based on their cost of reducing carbon.
- Increased R&D for innovation

However we should expect that the policy on auctions will be developed at a European level, and that this will include debate on a common approach to the proceeds of auctions. Good arguments will be made for using some of the proceeds for a common good such as:

- The creation of a global technology fund to help developing countries 'leapfrog' dirty technology and develop on the back of clean technology. The institutional framework for that fund would need to be thought through carefully
- The funding of a more substantial investment in adaptation
- Support for European companies in sectors (such as Steel and Aluminium) that have legitimate concerns about competition but which are demonstrating commitment to reduce emissions. This seems a more palatable option than opening the can of worms that is border taxes.

The Stern Report was clear about the need for significant transfers of capital to the developing world in order to reduce the carbon intensity of development and improve their resilience to climate change. We see Emissions Trading as the logical source of that capital redistribution through a combination of a) trading flows through the CDM mechanism, and b) the recycling of a growing 'pot' of auction proceeds raised from polluters in the developing world.

We want to see Britain making or at least supporting this case for the modern equivalent of a Marshall plan.

ii) Common methodology for agreeing any allowances

We have argued for increasing levels of auctions. In the transition phase we accept that there will continue to be a process of free allocations. The key development for the third phase is that a) allocations are made on a comparable basis and b) implementation is identical. The latter is critical to development of a competitive European energy market. There is an argument that this level of harmonisation can only be achieved by conceding responsibility to an independent body such as the European Commission. Our view is that if the methodology can be agreed, it does not matter so much who runs the scheme.

We see the key ingredients being:

The development of a consistent and transparent methodology for determining

a) National Allocations

This is a minimum requirement if we are to avoid the political poker game that did so much to undermine the credibility of Phases I and II.

b) Sector Allocations

Again, the credibility of the system would be greatly enhanced if the scope for political interference in the allocation of permits to sectors was reduced. We would argue for:

- The standardisation of sector allowances based ideally on the development of sector benchmarks for carbon efficiency (although we recognise the complexities of benchmarking)
- Transparent assumptions underpinning any Business As Usual. A study by five Environment Agencies suggested that BAU projections should contain specified information to allow accurate assessment of growth rates[695]
- A common approach to the rules surrounding new entrants to the market. The current position of national discretion to set the rules does not create a level playing field and runs against the grain of the Single Market. Either rules should be harmonised; or there should be no special provision for new entrants. We prefer the latter as it is the wrong signal to say that the right to pollute is free, with new entrants growing their market share for free whilst others growing by the same amount (but not from zero baseline) have to pay.
- Harmonisation of min/max levels of auctions in order to ensure a level playing field.

iii) Extending timeframes

Five year phases are not ideal for businesses with long term investment horizons, and carry significant political risk. Any decision on extending timeframes may have to wait for greater clarity on the post Kyoto framework and carries the risk of locking in carbon prices at an inappropriate level. However we believe that there is merit in looking at a process of forward looking, rolling allocations that give some visibility beyond the formal end of the phase. For example Phase III should be giving visibility out to at least 2020 which coincides with the EU targets.

In the short term, urgent consideration needs to be given to the structuring of an underwriting facility that gives comfort to those structuring potential carbon credits that they will have a value after 2012.

B. Extend and rationalise the scheme

The ETS covers approximately 50% of EU CO2 emissions

The opportunity to extend

i) Aviation

The key expansion issue is the effective inclusion of aviation from a target date of 2011/12.

Aviation has become a totemic issue in the climate change debate, rationalised by the fast rate of growth in emissions from the sector. Given the political sensitivities, it has been easy for politicians and the Industry to point to the ETS as the solution. However we need to learn the lessons from Phase I and avoid a situation in which the aviation sector is allowed to pass compliance costs on to the consumer in pursuit of a goal that is not much more demanding than Business As Usual. There is also a very real concern that the buying power of the aviation sector in the market will push carbon prices up to the point that it causes problems for other sectors and destabilises political support for the

[695] Environment Agency (2006a): *LETS Update: Working groups A and B,* April 2006 [Referenced in IPPR: *Trading Up: Reforming the European Union's Emissions Trading Scheme*, December 2006]

system. This has led some people to argue that aviation should be contained in a separate or semi open system (position of EU Parliament).

As we enter the critical phase of negotiations, we believe that the important issues are:

Allowances v Auctions

Following the logic set out earlier, we would like to see the process evolve towards full auctioning of permits to the aviation sector. If we are to accept allowances in a phase of transition, then we must be robust on the cap. We note that the current EU proposal is for allowances to be based on average emissions between 2004 and 2006, meaning that on current growth rates the cap in 2011 is likely be some 25-40% below actual emissions. This will be a real challenge for a sector achieving around 2% efficiency gains a year, and we can anticipate fierce lobbying to adjust the cap. This should be resisted if the ETS is to be the catalyst for this industry to accelerate the technology development required to put its ecological footprint on a sustainable path. The short term consequence will be a higher carbon price which may have implications for the agreed limit on the proportion of emissions that can be 'bought' through the CDM mechanism. It will also lead to an increased cost of flying which will have implications for the amount of revenue that Government can expect to raise from the Industry within a Green Tax strategy

Scope

The current EU proposals are for a) CO2 only and b) a two stage process with intra-EU flights only in first phase, being extended to all flights in and out of EU in a second phase. We accept this as a practical starting point but believe that the long term goal must be a global cap and trade scheme for the aviation sector that captures the full environmental impact, including any radiative forcing effects that are proven. In the event that the ETS remains a CO2 only cap and trade scheme, there is scope for Governments to take parallel measures to control other emissions (through airport charges for example).

ii) Road Transport

The UK Government has committed to giving serious consideration to the inclusion of emissions from surface transport in the ETS, and intends to publish a formal consultation later this year. We recognise the very big challenge of curbing emissions from transport against a background of high taxes on European road transport and relatively inelastic demand. Emissions trading could offer the surface transport sector a cost effective route to reducing emissions without incurring the political fallout associated with higher taxes. As IPPR point out, the most practical option would be an upstream scheme for fuel suppliers, given how concentrated the Industry is. In the UK just 20 companies pay more than 99% of all road fuel duty and across Europe just 31 companies own the 102 oil refineries in the 25 EU countries.

Our Transport Policy Group has opted for a simpler policy model around fuel taxes, regulation of fuel efficiency, and incentives to encourage people to buy the cleanest car in the class that is appropriate for them. These have the merit of being transparent and relatively simple. Certainly we would not want to see a discussion around emission trading distract Government from effective implementation of other important policy mechanisms such as regulating fuel efficiency.

iii) Other

Expand

We note the Environment Agency 2006b report[696] which recommended the following new sectors for inclusion in the EU ETS – aluminium / chemicals / coalmine methane; refrigeration and air conditioning / oil and gas flaring. They estimate that the inclusion would add the equivalent of 205 million tonnes in 2003 or expand the scheme + 9%.

Rationalise

In the face of evidence that 50% of the installations included in the ETS account for only 0.8% of emissions[697], we believe that there is a strong case for rationalising the scheme and excluding small emitters. This is consistent with our desire to keep the scheme simple and reduce the bureaucratic burden.

Energy Performance Commitment

This logic leads us to question the value of spending political capital in the UK on the construction of a complementary scheme to the EU ETS aimed at organisations whose energy use accounts for 1-3% of total operating costs. The potential carbon benefits (1.2MtC by 2020) look relatively small against the downsides of adding to the clutter of the policy landscape and expending political energy which could be better directed.

C. Greater public scrutiny

It is striking how little public scrutiny there is of such an important policy instrument outside the Select Committees in the House of Commons. We would like a Conservative Administration to encourage greater transparency in its reporting of policy effectiveness. In addition to the freedom of the Climate Change Committee to report on the policy; we are recommending that:

- The Chancellor of the Exchequer be required to deliver to Parliament:

  i. a biannual review of the cost effectiveness of current climate change policies
  ii. a biannual review summarising the impacts of climate change policy on national competitiveness and wellbeing

- The EU publish an annual report on the scheme, setting out the allocations and actual verified emissions in that year broken down by Member States and by individual installations. This information is available today but not in a very accessible form

- That Britain should take a lead in making a clearer distinction between emission reductions achieved in the UK vs. those sourced overseas. Many people will be surprised that the Government expects that 2/3 of the UK obligations under Phase 11 of the EU ETS will be met by the purchase of credits in overseas markets. Leaving aside for the moment concerns about the integrity of these overseas credits, this issue is fundamental. What is the right balance to be struck between a developed nation like the UK getting our own house in order and preserving our freedom to pursue lower cost emissions around the world? Arguments based on equity are also finely balanced between the need to channel capital towards the developing world and the unfairness of us picking

[696] Environment Agency (2006b) LETS Update: Decision makers summary [Referenced in IPPR: *Trading Up: Reforming the European Union's Emissions Trading Scheme*, December 2006]
[697] IPPR: *Trading Up: Reforming the European Union's Emissions Trading Scheme*, December 2006

all the low hanging fruit in terms of low cost emission reductions. Within the EU there appears to be a convention that no more than 50% of emission reductions should come from the purchase of overseas credits. We support the idea of a cap but believe that it should be made much more transparent.

2. Linking Markets

A mosaic of emissions trading schemes are being created around the world.[698] Trading schemes are being linked together where designs are similar. Within Europe, the Norwegian and the Swiss trading schemes are designed to be compatible with the EU ETS. In evidence to the Climate Bill Committee, Mr Dan Skoper, Under-Secretary, California Environmental Protection Agency, made it clear that the intention of California was to link up their cap and trade scheme with other systems citing "Arizona, New Mexico, Washington, Oregon, Utah and the Province of British Columbia and soon the Province of Manitoba all committed and working together to design a cap-and-trade system". In parallel with this government driven process, the private sector is active with entrepreneurial companies such as the London based European Carbon Exchange setting up offices in South America, Australia, India, China and the USA , now trading a baseline of over 350m tons.

Within the EU we need to be aware that the move to integrate carries the risk of undermining the carbon price within the EU ETS and therefore its effectiveness as a driver of innovation and investment. Management of that risk would be aided by a better understanding of the range of prices that would be needed to stimulate investment in abatement technologies, work currently being undertaken by the European Commission (sectoral emission reduction potentials and economic costs for climate change [699]). From that point of understanding, we need to establish the principles that should underpin our approach to linking arrangements. The key areas of difficulty appear to be:

- The level of future caps on use of CDM/JI project credits and the right balance between the need to drive domestic action and the opportunity to scale up the CDM mechanism as a key linkage between schemes
- Consistency of eligibility for trading credits – for example at the moment the EU scheme does not allow credits for nuclear or land use projects
- The validity of links between systems based on absolute emission reduction targets (EU) and those based on relative targets (Canada)
- Linkage with schemes that have price caps

Faced with this rapid market movement, governments should beware of building too much complexity into the system. Rather than looking to impose solutions on others we should be facilitating the linkage of carbon markets by encouraging a common set of design standards and agreeing a common

[698] The Norwegian and Swiss national emissions trading schemes (both designed very similarly to the EU ETS); the Canadian emissions trading scheme; the Japanese Emissions Trading System (JETS); the Regional Greenhouse Gas Initiative (RGGI), involving North East and Mid-Atlantic States of the US [Regional Greenhouse Gas Initiative, signed by seven states: Connecticut, Delaware, Maine, New Hampshire, New Jersey, New York, and Vermont in December 2005. They have since been joined by Maryland, Massachusetts, and Rhode Island. The Western Regional Climate Action Initiative, signed by five states: Washington, Oregon, Arizona, New Mexico, and California in February 2007 - plans to develop a market-based system, such as cap and trade, by August 2008]; the Greenhouse Gas Abatement Scheme (GGAS) of New South Wales, Australia; and the California Climate Action Registry.

[699] EU Commission: 'In order to further explore [this] future emission reduction potential, the Commission has launched in June 2006 a study which focuses on the sectoral emission reduction potentials and economic costs for climate change. This study is expected to deliver its final results in June 2008. The main objective is to identify the least-cost contribution of different sectors and gases for meeting post-2012 EU 25+ (EU 25, Romania, Bulgaria and if possible Croatia and Turkey) quantitative reduction objectives for all greenhouse gases, and to determine a package of cost-effective policies and measures for all sectors and gases towards meeting these objectives.'
http://ec.europa.eu/environment/climat/eccp_review.htm

approach to regulating the integrity of markets. The key elements appear to be the Monitoring, Reporting and Verification standards required to underpin confidence in the value of traded units, and the structuring of an effective compliance framework. It is not clear to us that a new institutional framework is required for this purpose.

3. More effective regulation of the CDM Mechanism

There is no doubt though that existing institutions may need strengthening, not least in the regulation of the CDM market. Emissions trading is set to play a key role in engaging key countries that may not be intending to set up domestic cap and trade schemes. We have already identified the new 'China syndrome', which is basically the question of how we incentivise that country to expand their electricity base in a low carbon way. As it scales up, the Clean Development Mechanism is likely to be an important instrument in transferring significant amounts of capital. Countries like China, India and Brazil are already alive to the financial opportunity tied up in structuring specific emission reduction projects for investors in the developed world. This will only grow as those countries become increasingly bound into a collective international effort.

However, we need to be sure that the money is well spent on genuine carbon reductions that have 'additionality', i.e. they would not have happened otherwise. This will require provisions in relation to transparency; methodology of base lines; and compliance mechanisms. Recent media disclosure[700] has thrown a harsh spotlight on the existence of bad projects and the scope for abuse. In this context, national regulation is probably insufficient and there is a case for considering whether a new international body is required to sort out the legitimacy of carbon abatements delivered through offset mechanisms. However our instinct is to stick with but strengthen the UNFCCC which has considerable expertise in the form of the CDM Executive Board. Our priority should be to ensure that an institution governing the international flow of billions of dollars should be adequately resourced.

[700] Guardian: *Abuse and incompetence in fight against global warming*, 2 June 2007 http://business.guardian.co.uk/story/0,,2093836,00.html; Guardian: *Truth about Kyoto: huge profits, little carbon saved*, 2 June 2007 http://business.guardian.co.uk/story/0,,2093816,00.html; FT: *Carbon projects can prove a risky business*, 27 April 2007

Special Issue – Treatment of Forests

While we remain sceptical about the value of expending political capital on trying to design a global carbon market from the top down, we believe that there is one market integration issue which does need to be given priority.

We wholly support the Stern Report in the emphasis that it placed on the need to curb deforestation, which currently accounts for at least 18% of global emissions. It must be easier to persuade people to stop cutting down trees than to redesign our entire energy and transport infrastructure. We will have to do the latter but success in the former will at least buy us some much needed time.

In this context, the global community has to cross the bridge of accepting the concept of paying communities for the responsible stewardship of an asset that is a global public good. Until we put up a hard $ for conservation to be compared with the hard $ for soya, beef, or palm oil, then we will not change behaviour. Once we cross that bridge, the question then is how do we do it in way that satisfies our responsibility to domestic taxpayers? In this context, the choice appears to be between:

1. Direct payment
2. Creation of conservation carbon credits that can be traded in the carbon market

Or a combination of the two. The former may be difficult to sustain politically. The latter throws open the question of whether the carbon markets are deep enough to absorb this source of new credits. Both options present major challenges in terms of verification; monitoring and enforcement. We should not underestimate the importance of securing an international agreement on this issue or the difficulty in doing so. It should be noted that success will enhance our chances of securing the 'opt in' of three key players from the international negotiations – the US, China and Brazil – all of them major 'owners of forestry assets.

Conclusion

We are clear that political leaders across the world now have to turn rhetoric on climate change into effective action. In the context of the key policy tool of emission trading, we would be concerned if the Conservative Party was to fall into the trap of postponing the possible and the necessary in pursuit of an ideal but distant future. In the context of emissions trading the priorities are:

1. Proof of concept in the EU ETS
2. Minimise Design differences across various platforms
3. Strengthen the regulation of the CDM mechanism
4. Reach agreement on the acceptance of credits from key strategic sectors such as forestry

In relation to 2), we see no need for a new institution. In relation to 3), our instinct is to strengthen existing institutions rather than expend political capital on negotiating the remit of a new one.

Sources

Key documents: EAC EU Emissions Trading Scheme: Lessons for the Future – Second report of session 2006/7)and IPPR Trading Up

Appendix 9.3. Scale of the Carbon Challenge

Where we are now and where we need to be

- Where are we now in terms of carbon footprint?
- Where do we need to get to?
- How many tonnes of carbon will we have to take out of the global/UK economy by 2020 and 2050?

Where we are now

The 2005 concentration of 379ppm is approximately 2960 billion tonnes of CO2[701] (807 billion tonnes of carbon) in the global atmosphere. In comparison, the pre-industrial concentration 280ppm is approximately 2187 billion tonnes of CO2 (596 billion tonnes of carbon).

	CO2 Concentration	**Carbon (billion tonnes)**	**CO2 (billion tonnes)**
Pre-industrial	280ppm	596.4 GtCO2	2187.0 GtCO2
2005	379ppm	807.3 GtCO2	2960.3 GtCO2

With an average increase of 1.9ppm in concentrations of CO2 per year, this figure is increasing by about 14.8 billion tonnes of CO2 (4.1 billion tonnes of carbon) each year[702]. At this rate we will reach 450ppm CO2 (500 CO2-eq) by 2044.

This does not take into account the ability of the world's carbon sinks to absorb half (as they do at present) of the carbon dioxide we emit. As the global average temperature rises, positive feedback mechanisms may cause the sinks to reach saturation point, eventually releasing stored carbon dioxide back into the atmosphere.

[701] Using 5.137 x 1018 kg as the mass of the atmosphere (Trenberth, 1981 JGR 86:5238-46), 1 ppmv of CO2= 2.13 Gt of carbon (http://cdiac.ornl.gov/pns/faq.html)
[702] Average 1.9ppm increase in carbon dioxide per year: 1995-2005 (IPCC AR4 SPM1)

Where we need to be

Global fossil fuel CO2 emissions in 2004: estimated at 29 billion tonnes[703]

Annual fossil fuel carbon dioxide emissions increased from an average of 23.5 billion tonnes of CO2 per year in the 1990s to 26.4 billion tonnes per year in 2000–2005[704]. The 2004 global fossil fuel CO2 emission estimate, 29 billion tonnes of CO2, represents an all-time high and a 5.4% increase from 2003.[705]

Carbon dioxide emissions associated with land-use change are estimated to be 5.9 billion tonnes of CO2 per year over the 1990s, although these estimates have a large uncertainty.

Global CO2 emissions in 1990: 22.72 billion tonnes (6196 million tonnes of carbon)[706]

1 GtCO2 = 1 billion tonnes CO2	**Reduction**	**Total CO2 emissions**
20% by 2020	4.54 GtCO2	18.18 GtCO2
30% by 2050	6.82 GtCO2	15.90 GtCO2
50% by 2050	11.36 GtCO2	11.36 GtCO2

UK CO2 emissions in 1990: 589.3[707] million tonnes[708]

The Government has set targets of a reduction in CO2 emissions of 26-32% by 2020 and 60% by 2050

(Figures in MtCO2)	**Reduction**	**Total CO2 emissions**
26% by 2020	153.22	436.08
32% by 2020	188.58	400.72
60% by 2050	353.58	235.72
80% by 2050	471.44	117.86

We go further in advocating a cut of at least 80% by 2050

[703] http://cdiac.ornl.gov/trends/emis/tre_glob.htm
[704] IPCC Fourth Assessment Report: *The Physical Science Basis, Summary for Policy Makers*, February 2007
[705] Carbon Dioxide Information Analysis Center (CDIAC): 'The 2004 global fossil-fuel CO2 emission estimate, 7910 million metric tons of carbon [29,005,970,000 tonnes of CO2], represents an all-time high and a 5.4% increase from 2003' http://cdiac.ornl.gov/trends/emis/tre_glob.htm
[706] Carbon Dioxide Information Analysis Center (CDIAC): Gregg Marland, Bob Andres, Tom Boden: Global CO2 Emissions from Fossil-Fuel Burning, Cement Manufacture, and Gas Flaring: 1751-2004, 29 May 2007; http://cdiac.ornl.gov/ftp/ndp030/global.1751_2004.ems
[707] Please note, this figure is the one used by Defra. To compare to the global emissions data, CDIAC reports UK CO2 emissions in 1990 as 569.76 million tonnes
[708] AEA Energy & Environment: *Carbon dioxide emissions by source 1990-2005* www.defra.gov.uk/environment/statistics/globatmos/download/xls/gafg06.xls

UK Carbon dioxide emissions by source (Million tonnes of CO2)

Excluding land use change and forestry

	1990	1995	1997	2001	2003	2004	2005
Road Transport	109.4	110.9	116.6	116.0	118.2	119.4	119.9
Energy industries	235.8	198.8	187.4	201.0	207.5	206.5	208.4
Other industries	114.5	107.0	109.7	107.2	100.3	97.9	98.5
Residential	78.5	79.8	83.8	88	85.7	87.4	83.3
Other	51.0	52.2	50.4	47.9	44.6	45.3	46.1
Total	**589.3**	**548.6**	**547.9**	**560.2**	**556.3**	**556.5**	**556.2**

Source: AEA Energy and Environment

2005: 37% energy industries, 22% road transport, 18% other industries, 15% residential

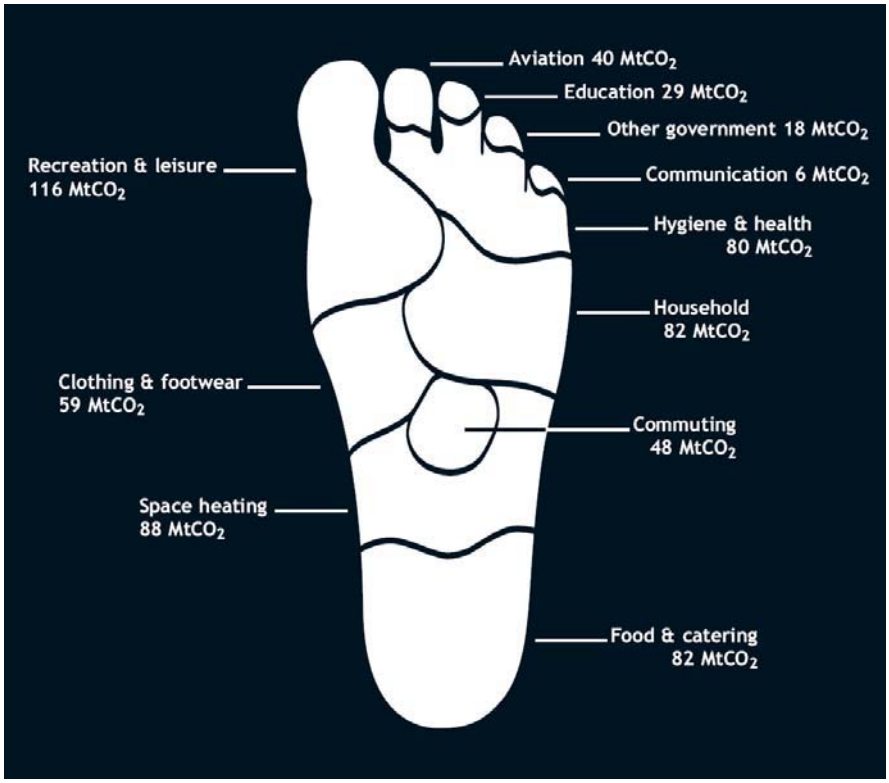
In the UK, CO2 emissions have been higher in six out of the eight years between 1997 (547.9 million tonnes of CO2) and 2005 (556.2 million tonnes of CO2).

CO2 statistics by English region, Scotland, Wales and Northern Ireland

Region	CO_2 per person (Tonnes)	Population (million)	Total CO_2 (Million tonnes)
North East	13.6	2.5	34
North West	9.5	6.7	64
Yorkshire	11.3	5.0	57
East Midlands	10.7	4.2	45
West Midlands	9.5	5.3	50
East England	9.2	5.3	49
Greater London	7.4	7.2	53
South East	9.0	7.9	71
South West	9.3	4.9	46
Scotland	9.3	5.1	47
Wales	11.2	2.9	32
Northern Ireland	9.3	1.7	16
UK	9.6	58.7	564

Source: World Development Movement

The Carbon Trust estimates the UK's footprint to be 648 million tonnes of CO2 per year, which breaks down into the following:



Using the Carbon Trust footprint average of 10.62 tonnes of CO2 per person in the UK, this works out at approximately the following CO2 per person:

Recreation & leisure	1.95 tonnes	18%
Space heating	1.49 tonnes	14%
Food & catering	1.39 tonnes	13%
Household	1.37 tonnes	13%
Hygiene & health	1.34 tonnes	13%
Clothing & footwear	1 tonne	9%
Commuting	0.81 tonnes	8%
Aviation	0.68 tonnes	6%
Education	0.49 tonnes	5%
Communication	0.1 tonnes	1%

We are all in this together

The evidence shows that it will be hard for people to sustain change if others are not seen to be pulling their weight. A communications strategy needs to identify an opportunity for Government, business and the public to pull together behind one common action and demonstrate collective responsibility.

Our research indicates that the most promising opportunity is a national campaign to encourage people to turn off unnecessary lighting. It involves no sacrifice. It saves people money. It is

hard to argue against and everyone can do it – including young children. It also has the benefit of being highly visible which helps in terms of developing a sense of accountability. The potential for energy saving is considerable when you consider that 13% of electricity is consumed between the hours of 1am and 5am, and that each household could save '370kg of CO2 over the course of a year' by switching off unnecessary lighting.

Recommendation

Government to launch and sustain a national campaign aimed at encouraging people to turn off unnecessary lighting

We would have to set a conspicuous lead in terms of the Government Estate and enlist the support of high profile business users, not least the City of London. It will be important to give credible feedback on the impact of the campaign in terms of reduced electricity consumption and carbon emissions. There have been a series of one off events designed to send a signal. What we are proposing is a sustained campaign to change behaviour.

Switch off campaigns

There are precedents to this, although these have been short lived (often one hour) campaigns aimed at engaging the public and businesses with the idea of switching the lights off to save energy and reduce CO2 emissions rather than any sustained campaign aimed at changing behaviour long-term.

UK: Lights Out London

Londoners were urged to turn off non-essential lights for one hour between 9pm and 10pm on 21 June 2007. 'Lights Out London' was backed by Environment Minister Ben Bradshaw and London Mayor Ken Livingstone. London landmarks such as Buckingham Palace, Canary Wharf, Harrods and the Gherkin all took part in the initiative.

Organisers said that if all 3 million households in London switched off unnecessary lights for an hour it would save 380 tonnes of carbon dioxide, enough to fill the Albert Hall. However, the Energy Saving Trust pointed out that if every household in Britain swapped one normal light bulb for an energy-saving one, it would save enough carbon dioxide to fill 2,000 Albert Halls, and that a more sustained campaign is needed to 'encourage consumers to think about saving energy in the longer term.'

FRANCE: Switch off

On 1 February 2007, the lights of the Eiffel Tower were switched off as part of a nationwide campaign to raise awareness of climate change; with a five minute 'switch off'. During this time, electricity usage fell by 1% of the country's total consumption – equivalent to the amount used by Marseilles. The initiative was timed to coincide with the release of the IPCC Working Group I report 'The Scientific Basis' in Paris the following day.

AUSTRALIA: Earth Hour

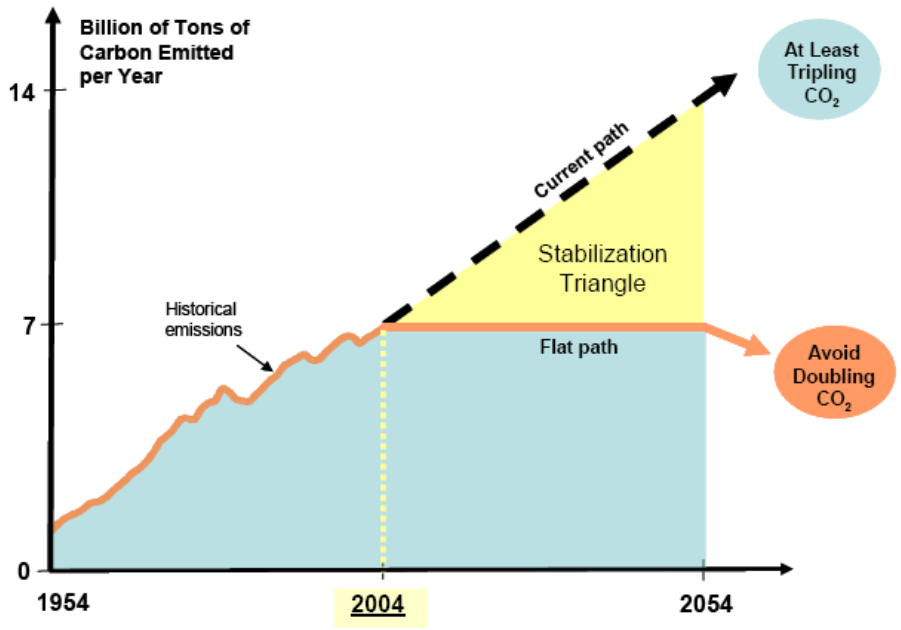
On 31 March 2007 residents and businesses in Sydney turned off their lights for one hour. The initiative resulted in a 10.2% reduction in energy usage across the central business district[709] and increased public awareness about the impact of electricity use on climate change, with 65,000 individuals and over 2,000 businesses registering their support.

[709] Source: Energy Australia

Earth Hour was organised by WWF Australia, in partnership with the City of Sydney and Price Waterhouse Coopers, amongst others, who distributed information about climate change and energy issues and offered guidance and education for companies on the benefits of reducing energy use.

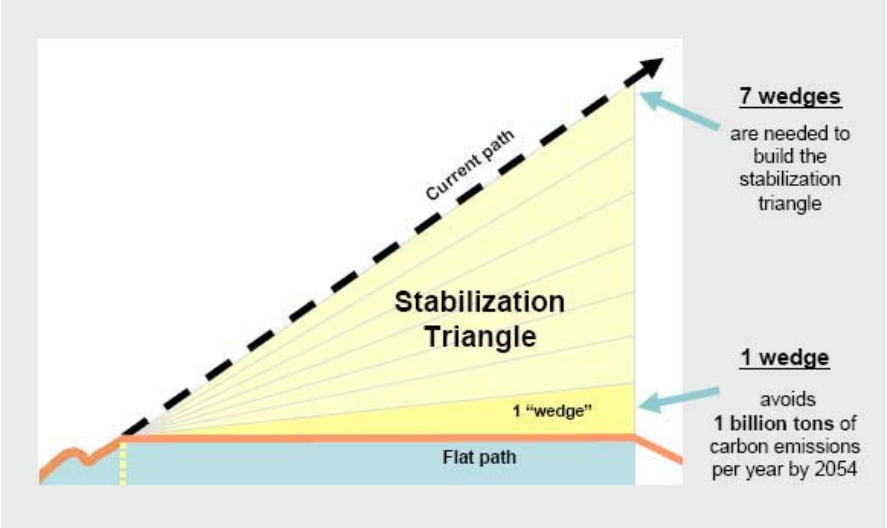
Stabilisation wedges – showing how it could be done

One promising answer to address the carbon challenge is Stabilisation Wedges, proposed by Robert Socolow and Steve Pacala in 2004.



Carbon emissions from fossil fuel burning are projected to double in the next 50 years, keeping the world on course to more than triple the atmosphere's carbon dioxide (CO2) concentration from its pre-industrial level. This path (black line) is predicted to lead to significant global warming by the end of this century, along with decreased crop yields, increased threats to human health, and more frequent extreme weather events.

In contrast, if emissions can be kept flat over the next 50 years (the orange line), we can steer a safer course. The flat path, followed by emissions reductions later in the century, is predicted to limit CO2 rise to less than a doubling and skirt the worst predicted consequences of climate change.



Keeping emissions flat for 50 years will require trimming projected carbon output by roughly 7 billion tons per year by 2054, keeping a total of ~175 billion tons of carbon from entering the atmosphere (yellow triangle). We refer to this carbon savings as the "stabilization triangle."

To keep pace with global energy needs at the same time, the world must find energy technologies that emit little to no carbon, plus develop the capacity for carbon storage. Many strategies available today can be scaled up to reduce emissions by at least 1 billion tons of carbon per year by 2054. We call this reduction a "wedge" of the triangle.

Source: http://www.princeton.edu/pr/news/04/q3/0812-carbon/backgrounder.pdf

The table below show the fifteen different fronts recommended by Robert Socolow and Steve Pacala, thereby addressing the challenge of CO2 emissions by dividing the emissions triangle into 'wedges'.

Category	Technology	Target
Efficiency	Efficient vehicles	60 miles per gallon compared to 30 miles per gallon, which leads to an emission factor of 0.5t-C/vehicle/year and total emissions of 1Gt-C/year. Thus, we derive a wedge.
	Reduced use of vehicles	5,000 vehicle miles travelled (VMT) compared to 10,000 VMT, which leads to an emission factor of 0.5t-C/vehicle/year and total emissions of 1Gt-C/year. Thus, we derive a wedge.
	Efficient buildings	One wedge from residential sector; the other wedge from commercial sector. The largest carbon savings are in space heating and cooling, water heating, lighting, and electric appliances
	Efficient baseload coal plants	60% lower-heating value efficiency compared to 40%, which leads to an emission factor of 155 gC/kWh and total emissions of 2.0 Gt-C/year. Thus, we derive a wedge.
Decarbonisation of power	Gas baseload power for coal baseload power	Activity level: 1.3 Gt Natural Gas (69,350 Billions of standard cubic feet) squared; 1400 GW installed capacity and 10,800 TWh output. Assumptions: Carbon content: 75%. Total emissions =1.3*75%=0.98 Gt-C/year. Thus, we derive a wedge.

	Capture CO2 at baseload power plant	A wedge can be achieved by carbon sequestration through: 800 GW of baseload coal; or 1600 GW of baseload natural gas; or Equivalent biomass; Less than perfect capture and storage ((both CO2 not captured and extra energy to power the capture and storage) are considered
	Nuclear power for coal power	A wedge can be achieved through substituting Nuclear power for coal: 700 GW that produces 5400 TWh; or for gas: 1400 GW that produces 10,800 TWh. All of them have same capacity factor: 90%
	Wind power for coal power	A wedge can be achieved through substituting wind power for coal: 700 GW that produces 5400 TWh; or for gas: 1400 GW that produces 10,800 TWh
	PV power for coal power	A wedge can be achieved through substituting PV power for coal: 700 GW that produces 5400 TWh; or for gas: 1400 GW that produces 10,800 TWh
Decarbonization of fuel	Capture CO2 at H2 plant	A wedge can be achieved through Capturing CO2 at H2 Plants: H2 output from fossil fuels: 400 Mt; Current global H2 output is 40 Mt, which emits at least 100 MtC
	Capture CO2 at coal-to-synfuels plant	A wedge can be achieved through Capturing CO2 at coal-to-synfuels Plants. Coal-to-synfuels production: 30 million barrels per day. Sasol's production is 0.165 mbd that emits 7 MtC per year
	Wind H2 in fuel-cell car for gasoline in hybrid car	A wedge can be achieved through eliminating tailpipe carbon emissions. H2 is produced by wind power instead of fossil fuel power. Wind power output is 10,000 TWh/y that needs 4000 GW capacity, which can be achieved by 4 million 1 MWp windmills
	Biomass fuel for fossil fuel	A wedge can be achieved through substituting biomass fuel for fossil fuel
Forests and agricultural soils	Reduced deforestation, plus reforestation, afforestation, and new plantations	The 1.5 billion hectares of tropical forests contain 7-10 wedges worth of carbon in living trees and another 5-9 wedges in soils. On the assumption that deforestation emissions are ~1GtC/y, half a wedge could be achieved by cutting deforestation to zero in fifty years.
	Conservation tillage	Soil carbon loss can be reversed by techniques that increase the rate of carbon input into agricultural soils or decrease the rate of carbon loss. The lower storage rate, if it could be continued for 50 years, would store the 25 GtC required to contribute a wedge if it were applied to all cropland.

Source: http://www.princeton.edu/~cmi/resources/wedgesumtb.htm

WWF: Climate Solutions – a Vision for 2050

A recent report by WWF concluded that with a high degree of probability (*i.e.* greater than 90%), known sustainable energy sources and proven technologies could be harnessed between now and 2050 to meet a projected doubling of global demand for energy services while achieving the significant (in the order of 60%-80%) reductions in climate-threatening emissions, enabling a long term stabilization of concentrations at 400ppm (though concentrations in the short term will peak at a higher level before being absorbed by oceans and the biosphere). A solution, in other words, is at least possible.

The WWF report identifies the following six solutions and three imperatives as key to achieving the goal of meeting global energy demand without damaging the global climate:

1. **Breaking the Link between Energy Services and Primary Energy Production**
   Energy efficiency (getting more energy services per unit of energy used) is a priority, especially in developed countries which have a very inefficient capital stock. The model shows that by 2020-2025, energy efficiencies will make it possible to meet increasing demand for energy services within a stable net demand for primary energy production, reducing projected demand by 39% annually, and avoiding emissions of 9.4Gt carbon per year, by 2050.

2. **Stopping Forest Loss**
   Stopping and reversing loss and degradation of forests, particularly in the tropics, is a crucial element of any positive climate-energy scenario. The probability of success of the climate solutions proposed here drops progressively from greater than 90% down to 35% in the absence of effective action to curb land-use emissions.

3. **Concurrent growth of Low-Emissions Technologies**
   The rapid and parallel pursuit of the full range of technologies, such as wind, hydro, solar PV & thermal, and bio-energy is crucial, but within a set of environmental and social constraints to ensure their sustainability. By 2050, these technologies could meet 70% of the remaining demand after efficiencies have been applied, avoiding a further 10.2Gt carbon emissions annually.

4. **Developing Flexible Fuels, Energy Storage and New Infrastructure**
   Deep cuts in fossil-fuel use cannot be achieved without large volumes of energy from intermittent sources, like wind and solar, being stored and transformed into transportable fuels and into fuels to meet the thermal needs of industry. New fuels, such as hydrogen, that meet these requirements will require major new infrastructure for their production and distribution.

5. **Displacing High-Carbon Coal with Low-Carbon Gas**
   Natural gas as a “bridging fuel” offers an important opportunity to avoid the long-term lock-in of new coal power stations, providing significant carbon savings in the near term, while other energy sources and technologies are grown from a smaller industrial base.

6. **Carbon Capture and Storage (CCS)**
   The model shows that, in order to stay within the carbon emissions budget, it is essential that fossil-fuel plants are equipped with carbon capture and storage technology as soon as possible – all by 2050. This has major and immediate implications for the planning and location of new plants, since transport of carbon dioxide to distant storage sites would be very costly. Overall, fossil fuels with CCS could account for 26% of supply in 2050, avoiding emissions of 3.8GtC/yr.

Additional Imperatives

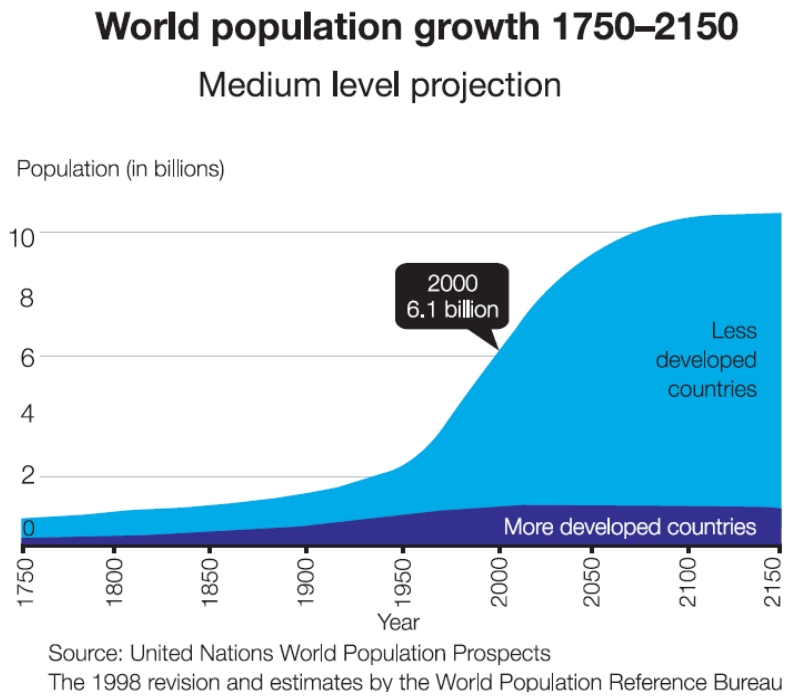
1. **Urgency**
   Delays will make the transition to a low-carbon economy increasingly expensive and difficult, with much greater risks of failure. The case for early, decisive action is overwhelming.

2. **A global effort**
   Every country has a role to play in response to the scale and the type of challenges arising in its territory.

3. **Leadership**
   Action is needed by governments of the world to agree targets, to collaborate on effective strategies, and to influence and coordinate the investment of the many trillions of dollars which, in any event, will be spent on energy developments in the coming decades, so that future needs are met safely and sustainably.

Source: WWF: *Climate Solutions – WWF's Vision for 2050*, June 2007

Appendix 9.4. Population



'Our planet is unprecedentedly crowded; I've called it bursting at the seams'
Jeffrey Sachs (Reith Lectures 2007)

The world's population has grown from approximately 3.9 billion[710] at the time of the UN Conference on the Human Environment in 1972 to 6.7 billion in 2007, and is projected to increase by a further 2.5 billion to 9.2 billion by 2050.[711] This increase is equivalent to the total size of the world population in 1950, and will take place mostly in the less developed regions, whose population is projected to increase from 5.4 billion to 7.9 billion in 2050.

The UN Conference on Environment and Development in 1992 looked for the first time at the complex relationships between population, environment and development. The resulting Rio Declaration stated that 'the growth of world population and production combined with unsustainable consumption patterns places increasingly severe stress on the life-supporting capacities of our planet', advocating that 'human dimensions should be adequately taken into consideration in comprehensive policies for sustainable development.'[712]

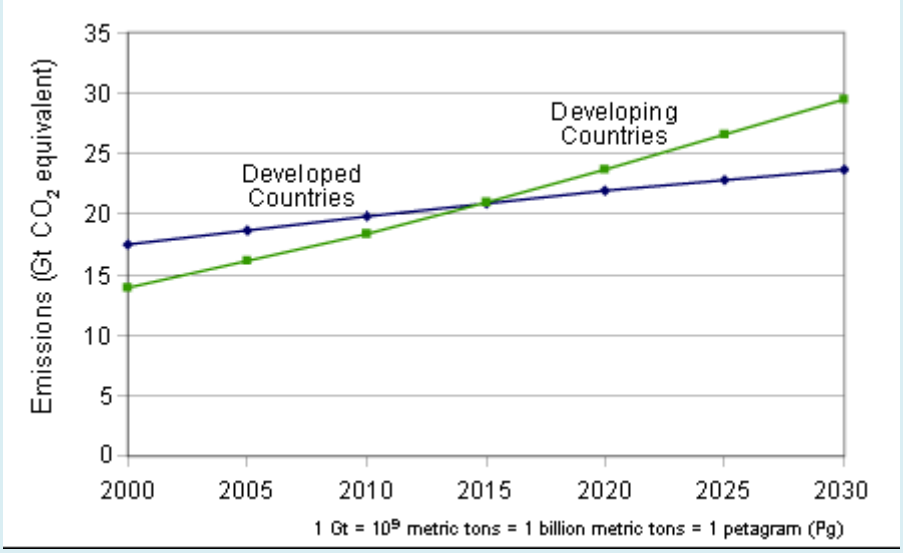
An increase of 50% in the global population by 2050 poses serious threats to human health, development and the environment.

It has recently been acknowledged that the Millennium Development Goals are 'difficult or impossible to achieve with the current levels of population growth in the least developed countries and regions'[713], whilst the World Resources Institute reports that 'the majority of the countries with the highest amount of greenhouse gas emissions have large economies, large populations, or both.'[714]

[710] US Census Bureau: *Total Midyear Population for the World: 1950-2050*; http://www.census.gov/ipc/www/worldpop.html
[711] United Nations Population Division: *World Population Prospects: The 2006 Revision*, March 2007
[712] Report of the United Nations Conference on Environment and Development: *The Rio Declaration*, 2002
[713] All Party Parliamentary Group on Population, Development and Reproductive Health: *Return of the Population Growth factor: its impact on the Millennium Development Goals*, January 2007
[714] World Resources Institute: *Navigating the Numbers*, 2005

By 2020, emissions from developing countries are projected to surpass those of developed countries.[715] Together with growth in prosperity and consumption, population growth in developing countries will negate any emissions reductions possible by developed countries beyond that date. As the EU Commission makes clear in a recent communication, 'effective action on climate change therefore requires reduced growth in the greenhouse gas emissions of developing countries [and reversing emissions from deforestation].'[716]

Total Greenhouse Gas Emissions by Region



Source: (1) SGM Energy Modeling Forum EMF-21 Projections, Energy Journal Special Issue, in press, reference case CO2 projections. (2) Non-CO2 emissions are from EPA'sGlobal Anthropogenic Emissions of Non-CO2 Greenhouse Gases 1990-2020

Although per capita emissions are considerably higher in developed countries, the sheer numbers of people in the developing regions of the world make the issue of population growth of great importance when considering comprehensive policies on climate change.

The International Conference on Population and Development (ICPD) in 1994 estimated the cost of family planning, safe childbirth, and STI/HIV prevention programs at $18.5 billion by 2005 ($25 billion when adjusted for inflation), of which one-third would come from donor countries two-thirds was to come from developing countries and one-third from donor countries.[717] Revised cost estimates UNAIDS and Professor Joseph Speidel, call for annual spending of $14 billion for family planning, $15 billion for reproductive health, and $14.9 billion for HIV/AIDS prevention, treatment, care, and support.[718] These adjustments bring the annual funding target for 2005 to $45.8 billion.

[715] EU Commission Communication: *Limiting global climate change to 2 degrees Celsius - The way ahead for 2020 and beyond*, 10 January 2007
[716] EU Commission Communication: *Limiting global climate change to 2 degrees Celsius - The way ahead for 2020 and beyond*, 10 January 2007
[717] UNFPA: *Summary of the ICPD Programme of Action* http://www.unfpa.org/icpd/summary.htm
[718] Speidel, J: *Population Donor Landscape Analysis* for Review of Packard Foundation International Grantmaking in Population, Sexual and Reproductive Health and Rights. The David and Lucile Packard Foundation. 6 September 2005; http://www.packard.org/assets/files/population/program%20review/pop_rev_speidel_030606.pdf; UNAIDS. Questions & Answers: International Programmes, Initiatives and Funding Issues, June 2005; http://www.unaids.org/html/pub/una-docs/q-a_i_en_pdf.

Of this revised target of $45.8 billion, donors would need to provide about $20 billion and developing countries about $25 billion.

2005 ICPD Funding Targets Adjusted for Inflation, Broadened HIV/AIDS and Reproductive Health Services Compared to Projected 2005 Population Assistance and Domestic Expenditures
(In $ Billions and Percents)

	2005 Original ICPD Target (1993 $)	Revised 2005 Target Adjusted for Inflation, HIV/AIDS and Reproductive Health (2005 $)	2005 Estimated Expenditures	% of Revised Target
Donor Share (one-third)	$6.1	$20.2	$6.9	34%
Developing Country Share	$12.4	$25.6	$17.3	68%
Total	$18.5	$45.8	$24.2	53%

Source: Speidel J.J., et al: *Family Planning and Reproductive Health: The Link to Environmental Preservation,* 2007[719]

The International Conference on Population and Development: 'The international community is urged to move, on an immediate basis, to establish an efficient coordination system and global, regional and sub-regional facilities for the procurement of contraceptives and other commodities essential to reproductive health programmes of developing countries and countries with economies in transition.'[720]

Consistent with Agenda 21, the objectives are:[721]

a) To ensure that population, environmental and poverty eradication factors are integrated in sustainable development policies, plans and programmes;
b) To reduce both unsustainable consumption and production patterns as well as negative impacts of demographic factors on the environment in order to meet the needs of current generations without compromising the ability of future generations to meet their own needs.

[719] Bixby Center for Reproductive Health Research & Policy, San Francisco, CA: University of California, San Francisco: An abridged version of this paper is forthcoming in *Population and Environment*. The table is adapted from: Speidel, J: *Population Donor Landscape Analysis* for Review of Packard Foundation International Grantmaking in Population, Sexual and Reproductive Health and Rights. The David and Lucile Packard Foundation. September 6, 2005. Available at: http://www.packard.org/assets/files/population/program%20review/pop_rev_speidel_030606.pdf Notes: Donor targets were assumed to be one-third of totals needed except for adjusted STI/ HIV/AIDS targets, where donor share is assumed to be two-thirds. 2005 estimated expenditures from: United Nations. Flow of Financial Resources for Assisting in the Implementation of the Programme of Action of the International Conference on Population and Development, Report of the Secretary-General to the 40th Session of the Commission on Population and Development. New York: United Nations; 2007.
[720] UNFPA: Summary of the ICPD Programme of Action; http://www.unfpa.org/icpd/summary.htm
[721] UNFPA: Programme of Action of the International Conference on Population and Development, Chapter 3: Interrelationships between population, sustained economic growth and sustainable development: c) Population and Environment, 1994

Policies on population growth are about freedom of choice, equal opportunity and the empowerment of women. There is a high correlation between literacy and lower fertility rates; the more educated a woman is, the fewer children she has. Equally, access to reproductive healthcare gives women freedom of choice in the number of children they have. Evidence shows that when women learn that there is a safe way to control how many children they have, they often express a desire for a smaller family[722]. Good basic healthcare also correlates with a drop in the fertility rate.

[722] James F. Phillips, R. Simmons, M.A. Koenig and J. Chakraborty: *Studies in Family Planning*, 1988; M. Campbell: *Consumer Behaviour and Contraceptive Decisions*, Journal of Family Planning and Reproductive Health Care, 2006

Glossary of Terms and Abbreviations

ABI	Association of British Insurers
AOSIS	Alliance of Small Island States
APD	Air Passenger Duty
BAU	Business as Usual
BREEAM	Building Research Establishment Environmental Assessment Method
BREW	Business Resource Efficiency and Waste programme
BSF	Building Schools for the Future
C&C	Contraction and Convergence
CAP	Common Agricultural Policy
CCGT	Combined Cycle Gas Turbine (power plants)
CCL	Climate Change Levy
CCS	Carbon Capture and Storage
CDM	Clean Development Mechanism (Kyoto Protocol)
CDU	Christian Democratic Union (Germany)
CEO	Chief Executive Officer
CER	Certified Emission Reduction (CDM)
CFCs	Chlorofluorocarbons
CH4	Methane
CIBSE	Chartered Institution of Building Services Engineers
CO2	Carbon Dioxide
CO2-eq	Carbon Dioxide Equivalent
COP	Conference of Parties (UNFCCC)
CPET	Central Point of Expertise on Timber
CRC	Carbon Reduction Commitment
CSP	Concentrating Solar Power
CSR	Corporate Social Responsibility
DBERR (DTI)	Department for Business, Enterprise and Regulatory Reform (formerly Department of Trade and Industry)
Defra	Department for Environment, Food and Rural Affairs
DfES	Department for Education and Skills (up to June 2007)
DFID	Department for International Development
EAC	Environmental Audit Committee
EC	European Commission
ECGD	Export Credits Guarantee Department
EEC	Energy Efficiency Commitment
EPBD	Energy Performance of Buildings Directive
EPC	Energy Performance Commitment
ESD	Education for Sustainable Development
ETS	Emissions Trading Scheme
EU	European Union
EUA	European Union Allowance
FCO	Foreign and Commonwealth Office
FSA	Financial Services Authority
FSC	Forest Stewardship Council
GDP	Gross Domestic Product
GDR	Greenhouse Development Rights
GEF	Global Environment Facility
GHG	Greenhouse Gas
GNI	Gross National Income
GNP	Gross National Product

Gt	Gigatonne = one billion tonnes
GW	Gigawatts
GWP	Global Warming Potential
HCFCs	Hydrochlorofluorocarbons
HFC	Halofluorcarbon
HFCs	Hydrofluorocarbons
HMI	Her Majesty's Inspectors of Schools
ICF	Investment Climate Facility
ICPD	International Conference on Population and Development
IEA	International Energy Agency
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
JI	Joint Implementation (Kyoto Protocol Mechanism)
KWh	Kilowatt hour
LDCs	Least Developed Countries
LEA	Local Education Authority
LUCF	Land Use and Land Use Change Related
LULUCF	Land Use, Land Use Change and Forestry
MDG	Millennium Development Goal
MOP	Meeting of Parties (UNFCCC)
Mt	Million tonnes
MWh	Megawatt hour
N2O	Nitrous oxide
NAO	National Audit Office
NGO	Non Governmental Organisation
NHS	National Health Service
NICs	National Insurance Contributions
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation and Development
OSCE	Organization for Security and Co-operation in Europe
PCT	Primary Care Trust
PFCs	Perfluorocarbons
PFI	Private Finance Initiative
PfS	Partnerships for Schools
ppb	parts per billion
ppm	parts per million
PRAG	Pensions Research Accountants Group
PSA	Public Service Agreement
PWLB	Public Works Loan Board
QUEST	Quantifying and Understanding the Earth System
R&D	Research and Development
RIA	Regulatory Impact Assessment
RO	Renewables Obligation
RSA	Royal Society for the Encouragement of Arts, Manufactures and Commerce
SCC	Social Cost of Carbon
SEAM	Schools Environmental Assessment Method
SEE	Social, Environmental and Ethical
SF6	sulphur Hexafluoride
SIP	Statement of Investment Priniciples
SMEs	Small and Medium Enterprises
SORP	Statement of Recommended Practice
UN	United Nations
UNDP	United Nations Development Programme

UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNFPA	United Nations Population Fund
US	United States of America
VAT	Value Added Tax
VED	Vehicle Excise Duty
VPA	Voluntary Partnership Agreements
WHO	World Health Organisation
WTO	World Trade Organisation

'Environmental degradation has the potential to destabilize already conflict-prone regions, especially when compounded by inequitable access or politicization of access to scarce resources. I urge Member States to renew their efforts to agree on ways that allow all of us to live sustainably within the planet's means.'

Ban Ki-moon

'What will we do when people start fighting, not over ideas or national identities, but over water? What will we do when people start fleeing their countries, not because of political persecution, but because of environmental catastrophe?'

Hilary Benn[723]

[723] Speech by Hilary Benn, Secretary of State for International Development, Brussels: *Climate Change and Poverty: Challenges for the next 50 years*, 17 April 2007

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