Scientists at the Met Office Hadley Centre have suggested that in the next few years, natural climatic variability may partially offset man-made global warming. However, temperatures are expected to continue rising.

The potential consequences of these temperature increases across the globe will be significant.

Scenarios produced by the Met Office Hadley Centre, Tyndall Centre and UK Climate Impacts Programme in 2002 (UKCIP02)[8] suggest that for the UK climate change means, on average, hotter, drier summers and milder, wetter winters combined with more extreme weather events such as heatwaves and periods of heavy rainfall. These changing climatic conditions mean that we can expect to experience the following more often in future years:

- periods of continuously higher temperatures than we are used to – the summer heatwave experienced in 2003 is likely to become a normal event by the 2040s and considered cool by the 2060s;
- decreased rainfall in summer leading to drought, lower river flow and increased water stress;
- more frequent periods of heavy rainfall, especially in winter, leading to increased flooding;
- faster rates of coastal erosion and increased frequency of coastal flooding. Storm surges are expected to be experienced more frequently – by 2100 they could occur up to 20 times more frequently for some coastal locations; and
- continuing global sea level rise – by 2100 it could have risen by as much as 80cm around some parts of the UK coast.

The impacts of these changes will vary from place to place, just as weather and the effect it has on society varies across the country. For example, the UKCIP02 scenarios suggest that under a high emissions scenario, average summer temperatures in southern England will increase by over 4.5°C by the 2080s, whereas for northern Scotland and Northern Ireland the increase may be less than 3°C. Certain features in England are likely to represent particular 'hotspots', where a number of climate impacts will be felt in one location, for example, floodplains, coast, estuaries and large urban areas.

The impacts experienced will also change over time. The IPCC has suggested that in Northern Europe generally, climate change is initially projected to bring mixed effects, including some benefits such as

8 http://www.ukcip.org.uk

reduced demand for heating, increased crop yields and forest growth. Raised temperatures could provide increased tourism opportunities for many parts of Northern Europe. However, as climate change continues, the negative impacts (including more frequent winter floods, endangered ecosystems and increasing ground instability) are likely to outweigh its benefits[9].

Overall, there will be both positive and negative impacts on every aspect of our economy, society and environment. A series of regional scoping studies for the UK has been undertaken, supported by the UKCIP. These identified a range of impacts[10], including:

Critical national infrastructure

- water and sewerage infrastructure; increased risk of summer water shortages; increase in water quality problems.
- solid waste management – increased rate of degradation and leaching at landfill sites.
- transport – less risk of disruption from cold weather and fog, increased pressure on infrastructure due to heat, changing rainfall patterns and extreme weather events.
- energy infrastructure and networks vulnerable to flooding, storms and extreme heat.

Public services

- emergency planning and security – increased risk of extreme weather events and more pressure on emergency services.

Healthcare

- health and healthcare – reduced winter mortality; more heat-related health problems.

Households

- homes – increased risk of subsidence; discomfort in buildings in summer
- increased flooding risk in some areas.

Natural environment

- terrestrial biodiversity – some species and habitats may be gained and others lost.
- marine environment – some species and habitats may be gained and others lost.
- damage to ecosystem services[11], loss of carbon storage in peat soils, reduction in soil quality, increased risk of invasive species taking hold.

9 http://www.ipcc.ch

10 *Measuring Progress: Preparing for climate change through the UK Climate Impacts Programme,* UKCIP Technical Report, June 2005

11 The term "ecosystem services" refers to the wide range goods and services provided by the natural environment that underpin human health, wellbeing and prosperity. For further information please see the Defra website: www.defra.gov.uk

Land based economy

- agriculture and horticulture – potential to grow new crops, reduced yields for others, more/different pests and diseases.
- forestry – increased growth and productivity; increased drought risk.

Wider economy

- heritage – increased risk of extreme weather damage to historic buildings and ancient monuments.
- business – disruption to supply chains, new markets and opportunities; changing consumer demand.
- financial/insurance services – new financial products required to manage risks; increase in insurance claims and premiums as a result of extreme weather.
- tourism and leisure – positive and negative changes in tourism; increased opportunities for outdoor sports; increased pressure on green space for leisure.

Case Study – Jeskyns

Situated between Gravesend and Cobham, North Kent, Jeskyns is 360 acres (147 hectares) of greenspace that has been created by the Forestry Commision.

Within Jeskyns is a project that demonstrates one approach to ensuring that new woodlands are resilient to climate change.

They have set up a new woodland and planted trees in two areas: one area made up of native species and the other containing a different mix of native species that are likely to be more resilient to hotter and drier climates, augmented by a small proportion of non native species.

The aim is to create a diverse woodland, which is resilient and able to adapt to predicted climate change, but one which does not change the nature of a native woodland landscape and will continue to provide habitats for the familiar British species of butterflies, birds and insects.

For more information see website **www.forestry.gov.uk/forestry/INFD78QJ58**

The need for action

What is “adapting to climate change”?

We will need to adapt the way we do things in order to respond to the changing circumstances presented by climate change. This is not just about protecting against threats, but should also enhance our ability to optimise any benefits. Adaptation is distinct from mitigation, yet both are needed to meet the long-term challenge of climate change. Without strong and early mitigation, the physical limits to, and costs of adaptation will grow rapidly. In addition, the way we adapt to climate change can have impacts on the success of our mitigation. For example, it is counter-productive to respond to rising temperatures through greater use of mechanical air conditioning powered by electricity from a source with a high carbon footprint. Equally, mitigation efforts such as developing renewable energy sources should be built with the future climate in mind.

It is, therefore, essential that we do more to build adaptation into our decision-making now. Government, business, the third sector and individuals are already starting to do so, and the Government wants to ensure that everyone is considering the cost and benefits of adaptation in economic, social and environmental terms.

There will be costs associated with both the impacts themselves and adaptation. Different issues will require responses on different timescales, with a view to identifying the most cost-effective way forward. The response we make will depend both on when the impact hits, but also on the appropriate planning horizon. Large investment projects in assets that will last for 100 years will need a different approach to the decision on which crop to grow next year. However, we won't always be able to remove all the risks completely by adapting.

Redhill School

The redevelopment of Redhill School, Worcestershire is one of the first in England to have a climate change impact assessment carried out from the start of the design process. The £2.7 million project involves a replacement primary school on the site of the former 1960s building. The school aims to have a low carbon building that is able to cope with climate change to maintain a comfortable and robust teaching environment over its lifetime.

Some of the adaptation features of the school to help it to withstand climate change impacts include:

- A sustainable urban drainage scheme using swales, ponds and underground box storage.
- A rainwater harvesting scheme, used for flushing toilets, takes rain from approximately half the roof area. Other roof areas have a planted roof finish (sedum) to reduce run-off.
- Shade is provided by overhanging eaves and external canopies to the classrooms. Roof coverings are zinc sheet with standing seams which may be less vulnerable to high winds than roofing tiles.

The challenge is made more difficult by an inevitable level of uncertainty. Any scenarios for potential future changes cannot be certain: they show a range of plausible futures but cannot predict exactly what will happen. Our understanding of what is happening in relation to climate change and other important areas that impact on our lives (population growth, economy, technology) will develop over time. As with any other decision, to be sustainable we will need to continually revisit our approach to adaptation and review the decisions that have been made.

Vulnerability and Resilience

Vulnerability can be defined as being open to or at risk of damage. It relates to the characteristics of the object on the receiving end of the impact – the "receptor" – which make it more or less likely to be adversely affected by a particular impact of climate change. A particular change can have a very different effect on different receptors – leading to different risk levels.

For example, high temperatures could cause damage to particular road surfaces but not to others because of the different melting point of the material used, and whether the road is exposed or mostly in shade due to roadside trees. The significance of the impact will depend on whether it is a country road without much traffic, or a major urban trunk road.

It is important to emphasise the complex and interconnected nature of systems within our society, the economy and the environment. An impact can lead to a chain of other impacts affecting several different aspects of our lives. We therefore need to look holistically at the systems (ecological and human) affected by climate change. For example, the immediate chain of impacts from flooding might be disrupted supply chains, water-borne diseases increasing, damage to important natural habitats and staff not able to get to work. The knock on consequences of these impacts could be schools closing, children having to be looked after at home, parents (who could be bus drivers, teachers at other schools or production engineers) missing work and therefore disruption to a wider sector of society and the economy. Ensuring we have the capacity to reduce disruption and deal with the remaining consequences can be desribed as building resilience.

Adaptation responses

We will all make certain adjustments to adapt to the changing climate without Government intervention, as is the case with any other kind of change. The rationale for the Government to intervene in this activity is to enable the country at large to maximise the benefits and minimise the costs of adaptation – particularly by addressing barriers to adaptation.

Climate change is a risk amongst many to our collective well-being and prosperity. We want to ensure that we adapt in the most sustainable manner, basing decisions on sound science, risk analysis, understanding of vulnerabilities, and an examination of the knock-on effects (including costs and benefits) on other parts of the system – i.e. on other organisations and the natural environment. In building resilience we need to avoid becoming too locked to particular approaches, so we can be flexible enough to deal with changing challenges from the climate or other factors.

Adapting to climate change needs to be part of every organisational risk assessment and business planning process. Different adaptation options might be appropriate to a particular organisation at a particular time. The choice will be dependent on the costs and benefits of different options, the attitude to risk of the organisation and the information that is available to it. The outcome of the adaptation decision is likely to have impacts beyond the organisation that makes it.

For example, for a school facing high summer temperatures, options might include living with the heat (but providing easier access to tap water), fitting appropriate shading and ventilation, or even changing the timetable in terms of midday hours to avoid the highest temperatures. In many cases the knock-on effects of different adaptation responses on other parts of our society, economy or enviroment could be very varied.

Case Study: Tourism in the South West

In the South West, temperature change may lead to a longer, warmer summer season which could be beneficial for tourism. Kitley House Hotel in Devon has undertaken a number of adaptation actions to ensure they are able to withstand the effects of climate change and maximise the opportunities. These include:

- investing time in the management of the estate – e.g. the company has raised access pathways beside water;
- changed landscaping to create habitats to attract wildlife; and
- integrated water efficiency and improved drainage measures.

As well as saving £13,000 a year through these new environmental management actions, the hotel has attracted more customers due to the wildlife and 'green' credentials and has been given a Silver award by South Hams Green Business Tourism Scheme.

For more information see **www.kitleyhouse hotel.com/green tourism.html**

The role of Government

Raising awareness of the changing climate will encourage people to adapt their behaviour to reduce the potential costs as well as to take advantage of any opportunities. The Government's Adapting to Climate Change (ACC) Programme has been set up to ensure that organisations and individuals are as well equipped as possible to navigate through these complexities and make the most effective and sustainable adaptation decisions.

The Stern Review looked at some of the possible barriers to adaptation. It highlighted uncertainty and lack of information, missing and misaligned markets (such as public goods) and financial constraints as three broad barriers to adaptation. (See text box on page 11.) The Government has a role in tackling these issues through providing the right institutional environment

to help enable organisations and individuals make effective and efficient adaptation decisions. The Programme is providing information on climate change risks and impacts, tools and methodologies, through this document, through the Adapting to Climate Change website, and particularly through the work of UKCIP. These resources are all available free of charge to the user in order to encourage take up of information and assistance.

Some barriers to effective and efficient adaptation will be more challenging and complex, and will need to be addressed within relevant policy areas. For example, Defra's flood and coastal erosion risk management programme helps provides protection for properties where, because some flood defences have public good characteristics, the market might not be expected to provide sufficient defence. Government also has a role in supporting some important public goods, such as the natural environment, and so Defra, through the Environment Agency and Natural England funds work to increase the resilience of our natural and built environment.

The need for equity and social justice, in light of the financial constraints identified by Stern, in adapting to climate change is also acknowledged and will be considered further. For example, climate change could push new groups of people into social exclusion as well as putting pressure on poorer individuals and communities.

As Sir Michael Pitt recently set out, Government leadership on adapting to the impacts of climate change is imperative.

Individuals, businesses, public and third sector organisations all need to take responsibility for how climate change will affect them. Government cannot do this on their behalf but it can help set the right framework to allow them to make the appropriate decisions to adapt in an efficent and cost-effective way. This collective effort will benefit us all, but the most significant benefits will be to those who plan early to adapt to the changes.

Government will take clear and firm action to ensure that its processes and organisations are adapting and that its policies, programmes and investment decisions are made in the context of climate change. The Government will ensure that key public sector organisations, responsible for national infrastructure, public services and wellbeing, or which are believed to be particularly vulnerable, are making adequate progress in that task. It will do this through a variety of reporting and enforcement mechanisms – local authority indicators, other regulatory regimes, and the new reporting power in

The Climate Change Bill

The Climate Change Bill will make the UK the first country in the world to have a legally binding long term framework to cut CO_2 emissions and adapt to climate change. The Bill is currently making its way through Parliament, and is expected to become an Act by the end of 2008.

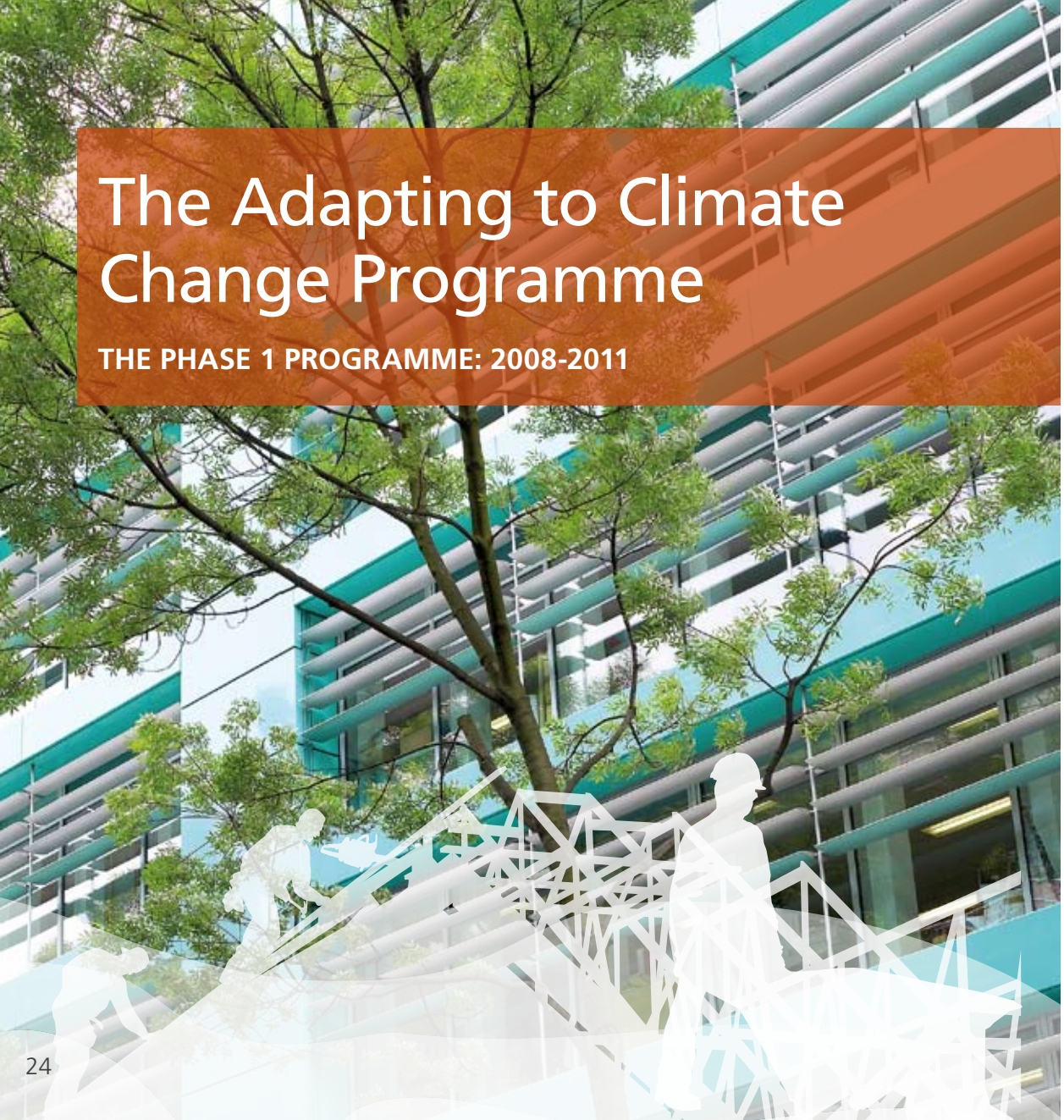
The Bill will create a new approach to managing and responding to climate change in the UK through: setting ambitious targets for reducing emissions, taking powers to help achieve them, and strengthening the institutional framework.

It will also enhance the UK's ability to adapt to the impact of climate change by:

- requiring Government to assess the risks climate change poses to the UK at least every five years, with the first Climate Change Risk Assessment due in 2011 (see page 30);
- requiring Government to publish and regularly update a national adaptation programme to address those risks, covering England and reserved matters. The first statutory Programme is expected in 2012 (see page 25);
- allowing the Government to require public authorities and statutory undertakers to assess, where necessary, the risks of climate change to their work and set out what action they need to take in response (see page 41);
- requiring the Government to produce guidance on how to undertake a climate risk assessment and draw up an adaptation action plan (see page 34); and
- establishing an Adaptation Sub-Committee of the independent Committee on Climate Change in order to oversee progress on the Programme and advise on the Climate Change Risk Assessment (see page 42)

the Climate Change Bill. By these routes, and through reporting on its Programme to Parliament, the Government will ensure that adaptation becomes embedded across the public sector.

Government will also work with third sector organisations who undertake a range of important roles including raising awareness, campaigning, providing services to vulnerable people and helping individuals change their behaviour. We will ensure the sector receives the information and tools they need to adapt their work and assets to a changing climate.



The Adapting to Climate Change Programme

THE PHASE 1 PROGRAMME: 2008-2011

The Government's Adapting to Climate Change (ACC) Programme brings together the work already being led by Government and the wider public sector on adapting to climate change, and will co-ordinate and drive forward the development of the Government's work on this in the future. The Programme is led by the Department for the Environment, Food and Rural Affairs (Defra), which acts as central co-ordinator for the Programme.

The objectives of Phase 1 of the Programme are to:

- develop a more robust and comprehensive evidence base about the impacts and consequences of climate change on the UK;
- raise awareness of the need to take action now and help others to take action;
- measure success and take steps to ensure effective delivery; and
- work across Government at the national, regional and local level to embed adaptation into Government policies, programme and systems.

The Programme is in two phases. Phase 1, from 2008-2011 will lay the groundwork necessary to implement Phase 2 – a statutory National Adaptation Programme, as required by the Climate Change Bill. Phase 2 will be developed during Phase 1, but will be finalised once the Climate Change Risk Assessment provides us with fuller evidence of the key risks to the UK. The Government's intention is to have the Phase 2 statutory Programme in place by 2012 at the latest, to fulfil the requirements of the Climate Change Bill. The Programme will then report progress to Parliament on a regular basis.

The Programme is focused on England, though some elements will be UK-wide, and will therefore be developed in partnership with the other UK Administrations. The Programme is essentially domestic in scope. However, the consequences of climate change in other countries, and their ability to adapt, will have an impact on the UK, because of the interconnected nature of our globalised world (for example in relation to trade, regional security, food production and migration issues). The Programme will therefore address those effects where there is potentially a significant domestic impact from international developments.

We need a better understanding of the implications for the UK of climate change impacts across the world. The forthcoming Climate Change Risk Assessment will make use of the best current evidence of these impacts on the UK.

Defra is working closely with DfID and the FCO on understanding the impacts and helping less developed countries adapt. Other areas of Government will also undertake further research on the effect of global impacts on the UK and its policies. In particular the Ministry of Defence will factor climate change effects into long-term planning, as well as working with the FCO to take

The UK and International Adaptation

Through the United Nations Framework Convention on Climate Change the UK is working to develop a coherent international response for adaptation. The current round of negotiations is expected to last until December 2009, when we hope to agree a long-term international framework to tackle climate change. Further information about the UK Government's action on international adaptation can be found on Defra's website: **http://www.defra.gov.uk/environment/climatechange/index.htm** and on the website of the Department for International Development: **http://www.dfid.gov.uk/news/files/climate-bali.asp**

forward a programme of research into the security implications of climate change.

European Union work on adaptation

The European Commission has an important leadership role to play to ensure that all EU programmes take full account of the changing climate. A Green Paper, "Adapting to climate change in Europe – options for EU action", was published in June 2007. The Green Paper set out four lines of priority actions (or pillars) to be considered:

- early action to develop adaptation strategies in areas where current knowledge is sufficient;
- integrating global adaptation needs into the EU's external relations and building a new alliance with partners around the world;
- filling knowledge gaps on adaptation through EU-level research and exchange of information; and
- setting up a European advisory group on adaptation to climate change to analyse co-ordinated strategies and actions.

This consultation ran until December 2007 and EU officials are now working on a White Paper.

The Adapting to Climate Change (ACC) Programme will take the lead, in co-ordination with the other UK Administrations, in providing input to the EU White Paper, in order to ensure that any EU action on adaptation is in line with and supports the principles and objectives of the Programme. We will also work in tandem with other UK policy officials to try and help the EU embed adaptation in its wider policy areas – for example in the critical areas of Common Agricultural Policy reform, in the design of the next EU budget, as well as in environmental, health and other policies.

The Programme's principles

The Programme will be guided by a set of core principles. It will be:

Sustainable

- Adaptive action should follow the principles of sustainable development, in particular ensuring that the needs of the natural environment, society and the economy are all acknowledged and protected (see page 32).

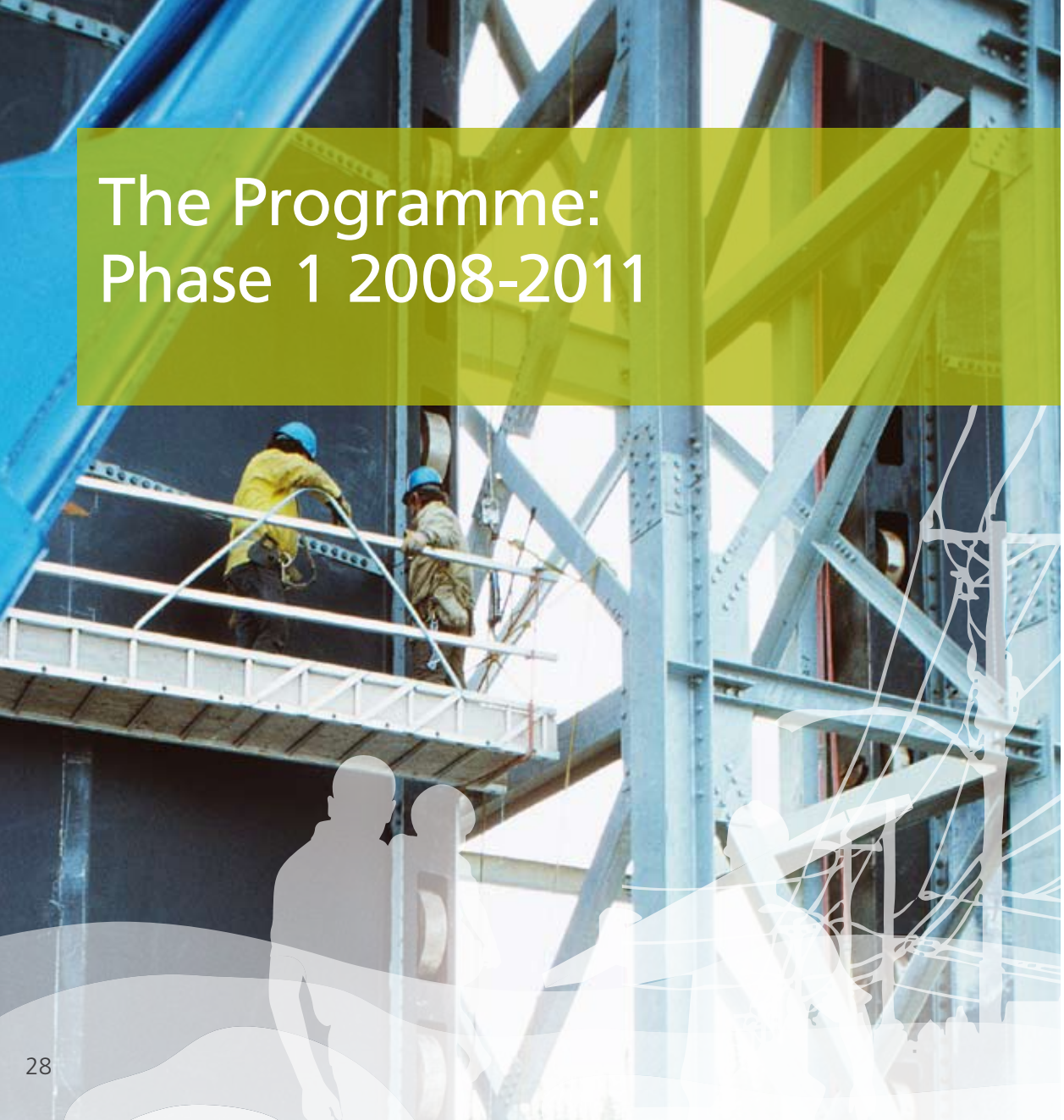
Proportionate and integrated

- Action must relate to the level of risk and be proportionate, and must be taken on the appropriate timescale and when the benefits are greater than the costs.
- The impacts will vary across the country, and action will need to be taken at the most appropriate level – this will often be regionally and locally rather than nationally.
- Assessing climate change risks and opportunities should become 'business as usual'– part of normal risk management, and business planning.

Collaborative and open

Adapting to climate change is a challenge for the whole of our economy and society, and will require action from a range of individuals and organisations across sectors – and not Government alone. The Programme will:

- provide leadership by making evidence and information available, and addressing other significant barriers to adaptation
- contribute to and encourage partnerships and stakeholder led action at national, regional and local levels
- provide clarity on what the Government is doing, why and when.



The Programme: Phase 1 2008-2011

Phase 1 of the Adapting to Climate Change Programme is divided into four workstreams, reflecting the objectives described on page 25.

The workstreams are:

- **A: Providing the evidence**
- **B: Raising awareness, and helping others take action**
- **C: Ensuring and measuring progress**
- **D: Government policy and process: embedding adaptation**

The following paragraphs explain what is currently being planned under each workstream.

A: Providing the evidence

A great deal of work has already been done to provide the evidence base on which adaptation decisions can be taken. To be able to take effective decisions on how to adapt, individuals and organisations need a reliable understanding about the likely consequences of climate change. The Programme will therefore work to continue the provision of a robust, accessible evidence base, building on work undertaken by the Met Office Hadley Centre, the UK Climate Impacts Programme and other work funded by Defra, the Research Councils and other bodies. This could include, for example, projects under Living with Enviromental Change (LWEC), a new partnership of 17 research and policy making organisations.

a) UKCIP08

As already set out, we cannot predict exactly how the climate in the UK will change in detail, partly due to uncertainties about future greenhouse gas emissions and partly due to the intrinsic uncertainties about modelling atmospheric processes, as well as natural variability. However, we will be better placed to understand the likelihood and magnitude of different changes, with the publication of the UK 21st Century Climate Change Scenarios (UKCIP08) in November 2008. The scenarios, which are at the cutting edge of climate science worldwide, are funded by Defra on behalf of the UK Government and Devolved Administrations, and are developed with input from over 30 other organisations[14].

The 2008 scenarios will give information at a more local level than the previous 2002 scenarios, using a resolution of 25 km. They will tell us more about how the climate might change over time. The scenarios cover the period from 2010 to 2099 in overlapping 30 year time slices to the end of the century.

Since we can only model climate related to different future emission scenarios, and not predict future climate change, the information will be presented as projections with a range of likelihoods which relate to the Met Office Hadley Centre's chosen methodology. For example, the projections will identify a change in rainfall which we think has a 50% chance of coming to pass, and a change which might be more extreme but which only has a 10% chance of actually happening. A farmer might like

14 UKCIP08 is delivered by UKCIP, the Met Office Hadley Centre, British Atmospheric Data Centre and Newcastle University.

to know about the most likely outcome for summer temperatures to plan which crops to grow, whilst the health service might need to plan for a less likely but more extreme heat wave. These more sophisticated projections will bring home the underlying fact that there is no "one size fits all" answer to what the UK climate will be like, and that taking into account uncertainty is an important part of analysing future risk to climate change.

Further information is available on the UKCIP08 website: **www.ukcip08.net**.

b) Assessing the risk of climate change for the UK

There is a growing body of research about the likely impact of climate change on different regions and sectors of the UK, such as flood risk, effects on biodiversity, transport, and critical infrastructure. However, to date there is no one source examining the risks of climate change to different regions and sectors to give a comprehensive national overview.

To address this gap the Climate Change Bill commits the UK Government to carrying out an assessment of the risks of climate change. It will build on the existing body of evidence, identify gaps in our knowledge, and help prioritise our strategic objectives. It will look at current vulnerabilities, future impacts and adaptive capacity. The first UK Climate Change Risk Assessment will make use of the most recent and robust evidence and is due within three years of the Climate Change Bill gaining Royal Assent. After this, a further Climate Change Risk Assessment will be carried out every five years, in order to inform the statutory National Adaptation Programme on an ongoing basis.

The primary aim of the Climate Change Risk Assessment is to inform all UK Administrations, and their delivery partners, about the risks of climate change. It will also look at a high level at the costs that might be associated with those risks. This will help set priorities for adaptation programmes, and make sure that other policies reflect the potential risks and opportunities presented by climate change. It will also help others to hold Government to account in addressing these risks and provide valuable information for the wider public, private and third sector about risks and opportunities. There will be public consultation on the Risk Assessment before it is presented to Parliament.

This is one of the most ambitious assessments undertaken worldwide, and will need to make some important steps forward in developing the methodology for such national studies. It is certain to identify many areas for further research. More details on this and other adaptation research are available on Defra's website.

c) Costing the risks and opportunities from climate change

The Stern Review highlighted that "more quantitative information on the costs and benefits of economy-wide adaptation is required".

Therefore, the Government is planning to undertake a national Cost-Benefit Analysis of adaptation, to complement the Climate Change Risk Assessment. Developing the evidence base on the costs and benefits of adaptation is an important step towards gaining a better understanding of how best to approach adaptation to the impacts of climate change, examining objectively the risks and opportunities of climate change and how they compare to other challenges.

Environment Agency's Climate Change Adaptation Strategy.

The Environment Agency has had a Climate Change Adaptation Strategy since 2005, which sets out a systematic approach for embedding climate change adaptation into their core business planning, providing a strategic framework for assessing climate risk, building adaptive capacity, identifying adaptation options and ensuring co-ordinated delivery. Work to date has focused on priority business areas, such as Flood Risk Management, Water Resources, Freshwater Ecology, Water Framework Directive, Waste, Land Quality and Monitoring. Examples of activity underway include –

- The next revision of National Flood Risk Assessment (NAFRA) will include new climate change science and forthcoming scenarios from the UK Climate Impacts Programme (UKCIP08)
- Revised climate change allowances in Flood Risk Appraisal guidance, incorporating regional variations
- A map of river flows up to 2050
- An assessment of the climate vulnerability of all Biodiversity Action Plan species
- Project to examine how waste management sites will be affected by future climate change and how better management practices may alleviate the increased risks this poses for the environment and human health
- Influencing the development of agri-environment schemes to include options for water efficiency, rural Sustainable Urban Drainage Systems and better soil management.

Further information can be found at: **www.environment-agency.gov.uk**

The ACC Programme and Sustainable Development

The 2005 UK sustainable development strategy, *Securing the Future* sets out the shared principles of sustainable development in the UK, and the work of the Government's ACC Programme will be underpinned by these principles:

Living within environmental limits

- Ensuring that any actions take into account the possible impacts on natural resources, biodiversity and whole ecosystems, do not reduce the adaptive capacity of the natural environment and wherever possible improve or enhance their resilience; and ensuring adaptation measures are not carbon or energy intensive, but wherever possible rely on and further more low-carbon, energy efficient and resource efficient technologies;

Ensuring a strong, healthy and just society

- Ensuring that adaptation measures do not disproportionately affect any particular group, and that the wellbeing and health of people is at the centre of adapting to climate change;

Achieving a sustainable economy

- Helping set a framework that allows the economy to adjust to changes in climate effectively, maximising opportunities and minimising threats;

Promoting good governance

- Where appropriate, communities should be empowered to influence adaptation and take appropriate action for themselves;

Using sound science responsibly

- Allowing for flexibility to reflect the inherent uncertainty: climate scenarios show a range of plausible futures and are not predictions, and they interact and will be affected by other uncertain events. However, the precautionary principle needs to be applied so that uncertainty does not delay necessary action.

Whilst the Cost-Benefit Analysis is not part of the statutory programme, it will be closely linked to the Climate Change Risk Assessment. The Risk Assessment will provide inputs into the Cost-Benefit Analysis of the costs of the projected impacts of climate change; the Cost-Benefit Analysis will then look at the costs of taking adaptive action, and the benefits that could be expected from these actions.

B: Raising awareness of the need to take action now, and helping others to take action

A comprehensive evidence base is essential, but it is only effective if it is well-used. Individuals and organisations need to know that there is an issue that needs to be addressed, how to find the information that they need, and how to use it.

The Programme will therefore work with a range of organisations from the public, private and third sectors to:

- raise awareness of the need for action;
- provide and promote the information and tools needed to take action; and
- build capacity and capability within organisations to understand the impacts of climate change and take action.

The Adapting to Climate Change website will help people to find the information, advice and tools they need.

a) The UK Climate Impacts Programme (UKCIP)

A major aim of UKCIP is to increase the uptake and understanding of research related to climate change impacts and adaptation for the UK. UKCIP has developed a range of tools – available free of charge – to help organisations, including the:

- **Adaptation Wizard:** this helps organisations to determine vulnerability to climate change, identify key climate risks, and develop a climate change adaptation strategy;
- **Business assessment tool:** this helps explore the implications of climate change for a particular business or sector; and
- **Local Climate Impacts Profile:** this is a resource that Local Authorities can use to understand better their exposure to weather and climate.

The ACC Programme will work with UKCIP to help make sure that these tools (which also include the UKCIP02 and UKCIP08 scenarios) reach as wide an audience as possible, including all Government Departments and their agencies.

b) Guidance on assessing the risks of climate change and taking action

The Climate Change Bill will allow the Government to require public authorities and statutory undertakers to undertake an assessment of the risks that climate change poses to their organisations, and develop an action plan. Whilst there is a wide range of advice already available, such as that provided by UKCIP, there are currently no standard reporting approaches to follow.

The Climate Change Bill therefore requires the Government to produce guidance for such authorities to use.

This guidance will ensure that any adaptation reports requested under the power in the Bill are of a consistent quality, and will give information on the different types of approach that might be applicable to different organisations. It will be publicly available, and so could be used as a reference by any organisation to help them in their process of considering the risks to their operations posed by climate change. The ACC Programme will produce this guidance, working closely with organisations already developing adaptation approaches, including the local authorities that are working on the Climate Change Indicator. There will be a full public consultation on the draft guidance in the summer of 2009 in order to publish a final version by the end of that year.

c) Action at the regional and local level

The impacts of climate change will vary, even within a relatively local area, and action will need to taken at the most appropriate level. This will often be regional and local, rather than national. In addition many of the actions that need to be taken early but have a long-term impact are delivered at local and regional level. These include spatial planning and investments in schools, houses, hospitals and roads, and the provision of a wide range of essential public services.

Government Offices in the Regions

Government Offices (GOs) are vital to ensuring Government objectives are delivered at the regional and local level.

GOs have built up a network of adaptation leads in each region, whose aim is to build adaptation knowledge and capacity within their organisation, and also to co-ordinate and join up work at the regional level. The GOs have led the negotiation on the new local government performance indicators including the new indicator on adaptation (further information about the indicator is provided on page 40). GOs will continue to work with other partners at the regional level to improve adaptive capacity, in particular UKCIP and Nottingham Declaration Partners.

The Regional Development Agencies (RDAs)

The RDAs have committed teams in place which have been working for some time, with partners within the English Regions, to address the issues surrounding climate change including adaptation. The RDAs are likely to become even more important in the drive to adapt effectively and efficiently subject to the results of recent consultation on the review of sub-regional economic development and regeneration, which proposed changes to the organisation and responsibilities of regional bodies so that they are better positioned to support growth in regional economic performance. The review recommended the creation of a new regional strategy to build on and replace the existing regional economic and spatial strategies, which could potentially also integrate regional sustainable development frameworks and better support adaptation planning.

The RDAs will be responsible for producing the strategy on behalf of the region and we will work with them to ensure they have the skills and the evidence they need to build resilience and flexibility into the plans, and to grasp the economic opportunities of adaptation in each region.

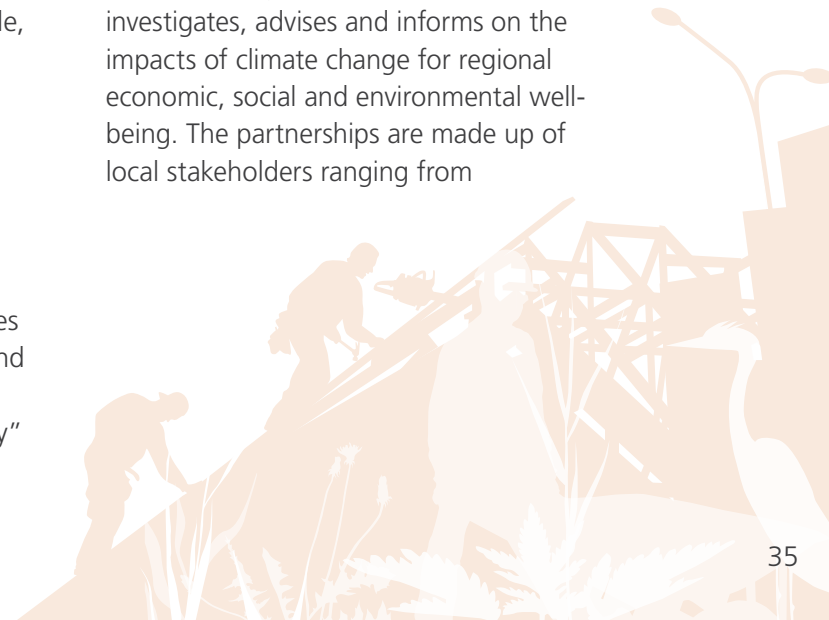
The Programme will also work with the RDAs and other partners to ensure information about climate change impacts is readily accessible to business advisory bodies through, for example, Business Link, and to build business capacity to take action.

London

In the Greater London Authority Act 2007, Government has given the Mayor of London a new duty in tackling climate change. This includes committing the Mayor to prepare and publish a statutory "Adaptation to Climate Change for London Strategy" (covering the Mayor's assessment of the consequences of climate change for Greater London and his proposals and policies for adaptation) as well as placing a duty on the Mayor and London Assembly to have regard to climate change in preparing other statutory Mayoral strategies.

Regional Climate Change Partnerships (RCCPs)

Each UK Region has an independent Climate Change Partnership, which investigates, advises and informs on the impacts of climate change for regional economic, social and environmental well-being. The partnerships are made up of local stakeholders ranging from



"Climate change must be the most important long term challenge for councils… Inaction is not an option. The public expects leadership"

Local Government Association
'Small Change, Big Difference' Campaign

"Local government is uniquely placed to tackle climate change with a democratic mandate for action, close proximity to citizens, and a strategic role leading other public, private and voluntary sector partners"

A Climate of Change: Final Report of the LGA Climate Change Commission

the regional agencies through to small local charities. They work very closely with UKCIP and are supported by Defra. They investigate the local effects of the changes that climate change will bring and advise on the types of responses that are needed. As the partnerships reflect their local circumstances they work on both aspects of climate change – adaptation and mitigation.

The partnerships share experiences across the regions and with the partnerships in Scotland, Wales and Northern Ireland, and work together to develop joint projects, like the "Checklist for Development" produced by the East of England, London and the South East. Links to their regions can be found on the Adapting to Climate Change website and the UKCIP website.

The ACC Programme will work with the RCCPs, to help them build on their success. The Programme has already provided a cash boost of £450,000 in 2008-09, and a further two year funding commitment covering 2009-2011.

Local Government

Local authorities are at the front line in planning for the impacts of climate change and picking up the pieces when the weather creates problems for local communities. There are some great examples of local authorities leading best practice in adapting to climate change, but it is an emerging issue for many others.

The introduction of a new performance indicator on adaptation in the core Local Government Performance Framework (more details on page 40) is helping to raise the profile of adaptation. The ACC Programme, in partnership with Government Offices, the Nottingham Declaration partnership, the Environment Agency, UKCIP and others, is putting in place a programme of support for local authorities and their partners in Local Strategic Partnerships to help

The Nottingham Declaration

The Nottingham Declaration is a voluntary pledge made by local authorities to address the issues of climate change. It represents a high-level, broad statement of commitment that any council can make to its own community. The declaration was originally launched in October 2000 at a conference in Nottingham with 200 leaders, chief executives and senior managers of UK local government. The Nottingham Declaration Partnership have recently re-launched the Nottingham Declaration website:

www.nottinghamdeclaration.org.uk

Case Study: Project Vale Street

The effects of climate change mean that there is a growing demand for sustainable housing. London & Quadrant Housing Trust (L&Q) has announced that its Vale Street development will be built to Level 4 of the Code for Sustainable Homes.

Vale Street is an urban residential scheme that:

- has selected building materials and used construction methods that mean that the homes will retain warmth in the winter yet remain cool in the summer months;
- aims to reduce the energy demand of homes through mechanical heat recovery and super insulating the building fabric;
- used green roofs, which benefit biodiversity and keep buildings cooler;
- orientated the houses and apartments towards the open aspects of the site, reflecting the need to maintain some solar shading, whilst making use of passive solar heating.

More information about the project can be found at **www.lqgroup.org.uk**

Your Home in a Changing Climate

In February 2008, the Three Regions Climate Change Group, comprising the partnerships of the East, South East and London published a jointly commissioned report: *Your Home in a Changing Climate.* The report outlines that by adapting our existing homes now, we can help address the impacts of present and future flooding, water shortages and overheating. It concludes that it is possible and cost effective to increase the resilience of the existing housing stock and that small changes can have a big impact on both adapting and reducing carbon emissions, particularly when it comes to saving water and tackling overheating. The Group is currently working on the next phase of this work which will include the possibility of incentivisation for retrofitting in London, working with local authorities to pilot retrofitting in social housing, and influencing national housing policy.

Your Home in a Changing Climate, Retrofitting Existing Homes for Climate Change Impacts Three Regions Climate Change Group (GLA) February 2008.
www.london.gov.uk/trccg/docs/pub1.pdf

embed adaptation in their day to day businesses. This will include adaptation training workshops. In the run up to the statutory National Adaptation Programme, the Programme will work with other Government Departments, including Communities and Local Government (CLG) to embed adaptation into key areas of work such as investment in public infrastructure and buildings planning and housing delivery, procurement of goods and services, and to raise skill levels and work with members on local leadership issues.

d) Further research work

The Programme will be considering the need for further research on adaptation policy in a number of areas, in order to provide tools for organisations in the process of adapting to climate change. Possible areas for future investigation are the criteria for sustainable adaptation decisions, ensuring social justice in adaptation actions and skills for adaptation. It is expected that work on other areas will reveal the need for further research.

C: Ensuring and measuring progress

In order to see real results on the ground we need to have ways of knowing if the ACC Programme is successful and how widely its influence is being felt. It will also be important to have strong external challenge to help keep up momentum. We will need to measure real world outcomes, but because we know that some of the most important outcomes (e.g. reducing deaths in heatwaves and floods in 2040s as extreme weather events become more severe) won't be measurable for decades to come, we will need some intermediate measures too. In addition, success measures may be very local, depending on the geographic, social and economic character of an area. The Adaptation website will be regularly updated as work progresses, and in a year's time we will publish a progress report on the website on action taken across Government.

a) Measuring successful adaptation – indicators of success

Leading the global effort to avoid dangerous climate change is one of thirty cross-Government priorities[15]. The Government's Delivery Agreement for this priority states that: "As a complement to our mitigation efforts, the UK will develop a robust approach to domestic adaptation to climate change, shared across government". The work of the cross-Government Programme, as described in this document, fulfils this commitment. Its delivery is overseen by a board of senior officials from across key departments. The cross-Government Board will be supported by a Partnership Board of stakeholders.

One of the six indicators for the overall climate change priority is directed towards adaptation, and measures the increase in the proportion of areas which have sustainable abstraction of water. This measure captures efforts to reduce demand/use water efficiently, and long-term planning to ensure resilience of water supply.

15 Further details can be found in the 2006 UK Climate Change Programme at http://www.defra.gov.uk and in the Climate Change Delivery Agreement at http://www.hm-treasury.gov.uk

This existing indicator is a useful benchmark of success. However, there are clearly many other areas of life where we need to adapt, and the ACC Programme will look to develop a suite of national indicators to help measure progress.

We will need indicators of both process (for example on raising awareness and embedding adaptation into planning processes) and outcome-focused measurements. In many cases, it may be possible to use existing measurements. This is a new area of work and one where further research and thinking is needed. The Programme will therefore come forward by Spring 2009 with proposals for a new basket of performance measures for adapting to climate change. These will cover the need to raise awareness, to build capacity in the public, private and third sectors, and changes in policy and practice to deliver real world outcomes. The Programme will engage stakeholders in their development, including through the Adapting to Climate Change website.

b) Ensuring delivery across the public sector and utilities

The Local Government Performance Framework
For the first time this year Government has set out an indicator for all English local authorities on embedding adaptation in the full range of their work. This is one of the National Indicators for local authorities and Local Strategic Partnerships, which is the single route through which central government sets priorities for local government.

The indicator (NI 188) is based on the process for embedding adaptation into work on the authorities' existing key objectives, ensuring they are not put off course by climate change, and ensuring the planning processes and evidence are based on an understanding of a changing climate. The specific actions needed will depend on the priorities and characteristics of a particular local authority. All local authorities will need to report on their progression through different levels of the indicator and will be assessed on this by the Audit Commission, the auditor for local government.

In addition, Local Strategic Partnerships, which bring together local authorities with other local public, private and third sector partners, agree Local Area Agreements (LAAs) with central government on around 35 targets based on the national indicators which if they are achieved open up extra central government funding for them. Around one third of the 150 LAAs in England have included the new adaptation indicator, or have this as a local target.

The Government's new Reporting Power

There are a number of legal or management levers already in place across the public sector and for the privatised utilities, such as water and energy suppliers, which are already, or could be, used to ensure that these organisations are addressing the risks of climate change. However, most of them were put in place without reference to evidence on how a changing climate would affect these organisations. Yet the capacity of these organisations to adapt to a new environment is vital in minimising the potential negative impacts of climate change in England. So the Climate Change Bill introduces a power for the Secretary of State to ask any of these bodies to produce a report on how they have assessed and are addressing the risks from climate change to the delivery of their objectives. These reports will be published and will shine a spotlight on poor performance and

Case Study – The Thames Estuary 2100 Project

Thames Estuary 2100 (TE2100) is an Environment Agency project to develop a tidal flood risk management plan for the Thames estuary through to the end of the century. Using the latest climate change scenarios and models, and taking account of future sea level rise, the final plan will recommend what flood risk management measures will be required in the estuary, where they will be needed, and when over the coming century. The final plan will also be flexible to ensure that it can be adaptable to sea levels rising faster, or storm surges becoming more intense, than anticipated.

Preliminary findings show that the Thames Barrier, with some adaptation, will continue to provide protection through to the end of the century. However, by 2050 we may need to improve many of the flood defence walls and embankments, and create new inter tidal habitats to offset the impact of rising sea levels before 2030.

Further information can be found at: **www.environment agency.gov.uk/te2100/**

areas of greatest risk. The Government will set out its strategy on how to use this power, and consult on statutory guidance to set out the quality standards in conducting risk assessment and implementing adaptation measures.

In developing the strategy for the use of this new adaptation power the Government will consider the areas for priority action (e.g. long-term investment) and the presence of existing mechanisms or good practice (eg delivery against Local Government Performance Indicator) to deliver results without further intervention. In general, where there is good delivery against well developed performance frameworks, such as for local government, we would only expect to use this power in exceptional circumstances. We expect to consult on this in the summer of 2009 and publish the final strategy by the end of 2009. Any reports under the power will be made public and Government will be able to follow up and ask for further updates and information where there are gaps.

c) External scrutiny

Expertise on adaptation, whether inside Government, business or universities, must be put to good use in this Programme. We want to have open and robust debate about the challenges that face us as a society in adapting effectively, in line with the principles of sustainable development. We are establishing a Partnership Board to involve a wide range of external stakeholders in developing the Programme and challenge Government to make progress on implementation. And that is why we have committed – through the Climate Change Bill – to report progress regularly to Parliament to ensure transparency and enable the Government to be held to account. The Government is also setting up a sub-committee of the new Committee on Climate Change to look specifically at adaptation in the UK. This new expert statutory body – to be set up by mid 2009 subject to the passage of the Climate Change Bill – will advise on getting the evidence right and also tell us where we are doing well and where we might fall short on delivering changes.

D. Government policy and process: embedding adaptation

This workstream will ensure that as policies and investment decisions are planned, the risks from climate change to public policy objectives and to the efficient use of public resources are taken into account.

a) Embedding adaptation into Government processes and systems.

The Green Book

The Treasury Green Book is the central point across Government for guidance on the economic assessment of spending and investment. Under the auspices of HM Treasury, sponsored jointly with the ACC Programme, a cross-Government working group is examining whether additional Green Book guidance is required to enable climate change adaptation to be built properly into the decision making process for future spending and investment proposals.

Procurement

The Programme will work with the Office of Government Commerce to ensure that public sector procurement guidance helps organisations to understand how climate change may affect them and what actions they can take to reduce risks and maximise value for money.

Policy assessment

Impact Assessments are used across Government as part of the policy-making process. They help policy-makers think through the consequences of Government interventions, considering the positive and negative effects. The ACC Programme will work with the Better Regulation Executive to see how Impact Assessment Toolkits need to be amended to ensure that the effects of climate change are considered among the impacts that are being assessed.

Sustainable Development Action Planning

All central Government Departments and their Executive Agencies produce Sustainable Development Action Plans (SDAPs) and update them regularly. The plans are scrutinised by the Sustainable Development Commission (SDC). Departments are required to report on progress made in their SDAPs through, for example, their Departmental Annual Reports. The ACC Programme will work with the SDC to embed adapting to climate change in this process.

Making the Government estate resilient

As with all organisations, the Government needs to ensure that its built assets are resilient to climate change. The Government owns and occupies thousands of buildings, and the ACC Programme will be investigating the work that will need to be done to consider how resilient the Government estate is, and what might be done to increase that resilience.

b) Embedding adaptation into key Government Programmes

A major challenge for all Government Departments and Agencies, as with any other organisation in the public and private sector, is to review their policies and operations in the light of the risks of climate change, and consider the options for adaptive action. This process will be helped by the publication of the

UKCIP08 scenarios at the end of this year, and the statutory guidance to be provided under the Climate Change Bill. The Climate Change Risk Assessment and Cost Benefit Analysis will also help Government, as well as the rest of society, target where to focus action given the key risks and vulnerabilities. However, action must start to be taken now and cannot be delayed until those projects are finalised. In many areas of Government's work it is clear where the priorities for adaptation planning lie.

All Government Departments are looking at the need to adapt their policies in the light of climate change – some are well down the path already. It is important that in particular, early action is taken where:

- we are not already resilient to current climate variability;
- there are long term investments and strategies where we need to avoid costly retrofitting in the future;
- policies are currently being developed/revised but will not be revisited again in the short term;
- existing Government guidance or regulations could affect adaptation actions; and
- particularly vulnerable elements of our society and/or natural environment are being considered.

The following provides a few examples of the actions that different Government Departments are already taking to ensure that policies and programmes take account of the impacts of climate change. The Adapting to Climate Change website provides more detailed information about work across every relevant Government Department:

- promoting the use of adaptation toolkits in the Building Schools for the Future Programme, the biggest ever school buildings investment programme;
- establishing a cross-rail industry forum to identify the challenges climate change presents, and producing 'hazard maps' highlighting vulnerable areas in the rail network, to be used as basis for targeting adaptation action;
- setting out a cross-Government programme to take forward the developing strategy for flood and coastal erosion risk management in England – 'Making Space for Water';
- putting in place a heatwave plan, setting out what health and social care services and other bodies need to do to raise awareness of the risks relating to severe hot weather, and what preparations individuals and organisations should make to reduce those risks;
- publishing a supplement to Planning Policy Statement 1 on Planning and Climate Change, outlining how planning should contribute to reducing carbon emissions and take

into account the unavoidable impacts from climate change; and
- publishing guiding principles for conservation managers, with actions, designed to help biodiversity plans and projects take into account more explicitly the impacts of climate change.

The activity described here and on the website is only a sample of the range of work involved in adapting to climate change and reflects the start of a long-term process. We recognise we have a long way to go until all Government Programmes routinely consider climate change risks at policy and delivery stages and are planned accordingly. That is why we have established a cross-Government Programme approach to ensure this happens on a systematic and consistent basis. We will publish a report on the website in a year's time on progress on the work of the Programme.

Case Study: The Highways Agency

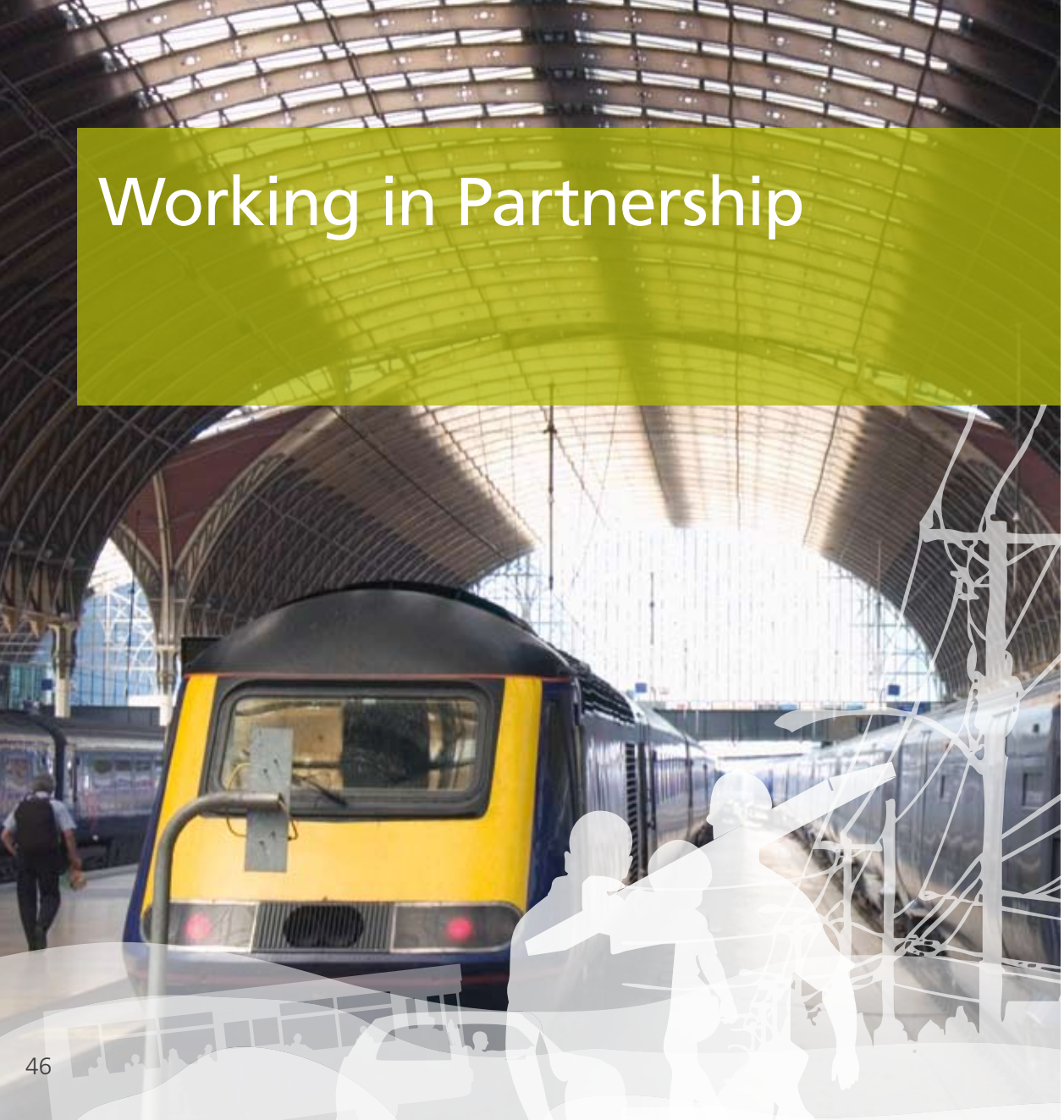
The Highways Agency has developed a climate change adaptation strategy to equip its staff with the knowledge and tools to assess risks to the delivery of their business and develop appropriate management actions.

It has also introduced new proprietary road surface course materials based primarily on materials introduced from France (asphaltic concrete type mixtures generally with polymer modified binder) and Germany (stone mastic asphalt type mixtures generally with cellulose fibres) in the early 1990s. These materials are much more resistant to permanent deformation in hot weather conditions than previously used hot rolled asphalt materials. They are also cheaper and quicker to lay and have a negative textured surface which has the additional benefit of reduced noise and surface water spray. Developments in high modulus binder course and base materials in France are now included in the Highways Agency pavement designs. These materials utilise very stiff, high binder content, deformation resistant mixtures and can allow thinner construction layers compared with conventional mixtures.

The Agency has also introduced improved drainage standards for new works and renewals to allow for increases in rainfall intensity of 20%.

More information about the project can be found at www.highways.gov.uk

Working in Partnership



The Programme will work to engage stakeholders and the general public in taking decisions and taking action on adaptation.

Our starting point for this process will be a new Partnership Board. This Board will bring together key stakeholders from the public, private and third sectors, representing national, regional and local delivery partners, to both advise Government on the development of the Programme and be active participants in it. The Board will also lead on developing approaches to wider stakeholder engagement in adaptation.

We are committed to working collaboratively and transparently with stakeholders, since this will produce better policy outcomes and delivery of actions. The Partnership Board

will be an important element of this approach. We will also use other networks to engage different sectors, for example by helping local bodies engage the public in decisions which affect their communities, and by working with business on how to bring about necessary changes in the least burdensome way. We will also explore how the Adapting to Climate Change website can be used to engage people in debate and to share best practice. Adaptation is inevitably a process of learning by experience, and we want to share the lessons from each other's mistakes and successes.

A number of projects undertaken as part of the Programme will be delivered with the involvement of stakeholders, including the third sector and businesses.

The third sector

Third sector organisations are already providing valuable public services such as advice and support to victims of flooding, care for the elderly and infirm who often struggle to cope with extreme weather, and helping to protect our natural environment. The Government will work with the wide range of third sector organisations on climate change adaptation.

Business

Climatic change will present both opportunities and risks for businesses in different sectors, not just the obvious ones such as agriculture, the built environment and tourism. Exposure to impacts will vary by sector and the location in which the business operates. Businesses and sectors may be particularly vulnerable if they are currently affected by the weather, make long term investment decisions, have global markets and suppliers, or lack the resources and skills to develop

A Study on the impacts on the workforce

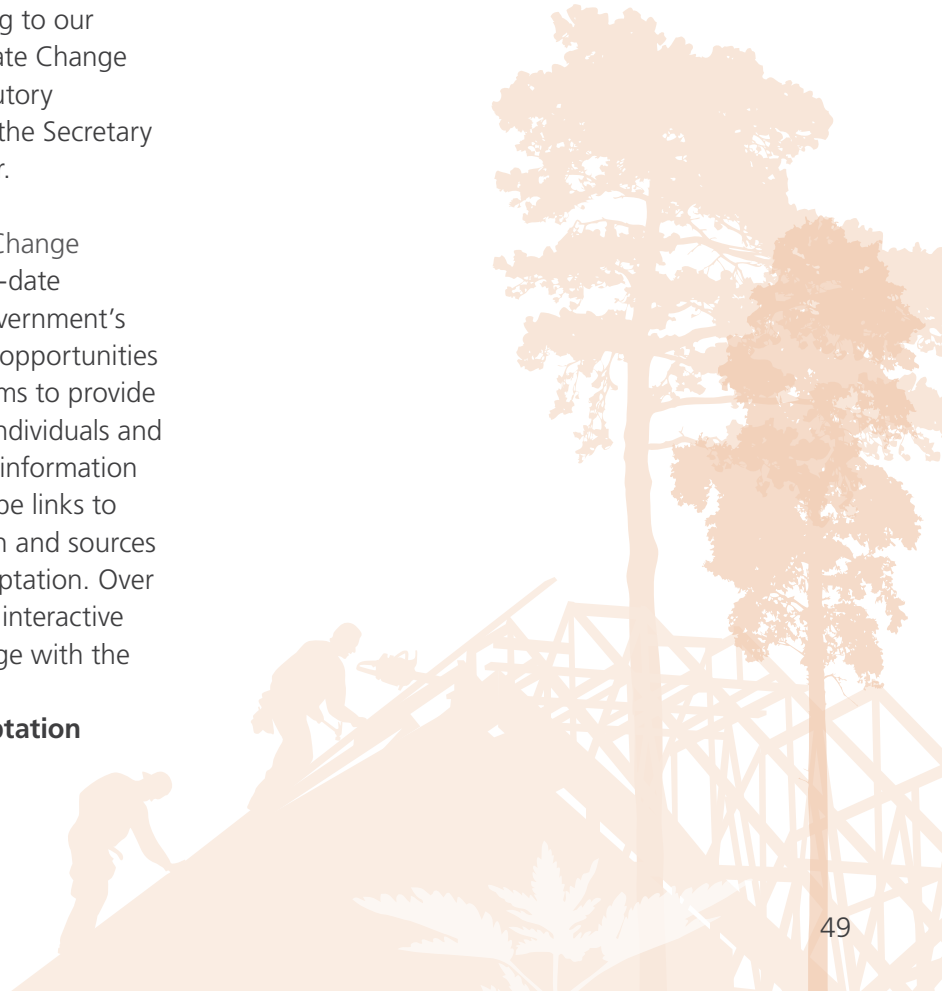
The Trade Union Congress (TUC) has recently commissioned AEA, an environmental consultancy, to conduct a study into the employment implications of adaptation in the UK. So far the research suggests that there will be a number of issues for workers and employers, including the skills needed for adaptation, health and safety in the workplace, and the potentially inequitable impacts of some adaptation measures. Initial findings suggest that a number of sectors are likely to be particularly affected, including energy, utilities, agriculture, tourism, health, construction, fire and emergency services, government (local and national), transport, finance and insurance. The study has involved an online survey of public sector organisations, telephone interviews with a number of FTSE 100 companies, and a workshop with Trade Union representatives. Results and policy recommendations from the project will be published in the form of a new TUC Touchstone pamphlet towards the end of the year, accessible through **www.tuc.org.uk**.

adaptive capacity and capability. While the direct impacts of climate change may be obvious (for example, floods, droughts, higher temperatures), the indirect impacts may not be. Impacts are likely to be felt in all areas of a business but in particular in logistics, finance, premises, people, markets, processes and management. The impacts of climate change can also be significant in terms of new opportunities emerging for businesses if they are quick to respond, particularly in comparison to their national and international competitors. Examples of opportunities include specialist roles such as water management, retrofitting homes to resist hotter and wetter weather or expanding markets in financial products such as weather derivatives. The Government will work with businesses to help them manage risks and maximise opportunities, in particular by providing information, supporting innovation and ensuring that the workforce is appropriately skilled.

Getting involved

There will be opportunities to be involved in the work of the Programme, for example, by responding to our consultations on the Climate Change Risk Assessment, the Statutory Guidance, and the use of the Secretary of State's Reporting Power.

The Adapting to Climate Change website will provide up-to-date information about the Government's Programme and highlight opportunities for engagement. It also aims to provide an adaptation "hub" for individuals and organisations to go to for information on adaptation. There will be links to other available information and sources of help and advice on adaptation. Over time, we hope to develop interactive tools to help people engage with the work of the Programme.
www.defra.gov.uk/adaptation



Conclusion: looking to the future

The Climate Change Bill, currently passing through Parliament, commits the Government to preparing a statutory National Adaptation Programme. This statutory Programme, likely to be in place in 2012, will build on and incorporate the work of the cross-Government Adapting to Climate Change Programme 2008–2011, as summarised in this document.

The statutory Programme will be reviewed and updated on a five year rolling basis in response to updated risk assessments and in the light of progress. Each update will cover progress in implementing the Programme, and interim reports will be presented to Parliament.

The decision to give the Programme a formal, legal basis demonstrates the Government's commitment to ensuring that the UK is prepared to adapt to the impacts of climate change. The arrangements for continuous review and updating show that the Government recognises that there is not a single point at which we will be able to say "we have adapted". Our understanding of how the climate is changing, and how it will impact upon us will develop. Our response to the changing climate will be affected by a range of other developments, such as population growth, the economy and the development of new technology.

This document sets out the start of a journey in understanding the challenge that lies ahead. It has outlined the framework for action, which will be built on over time. The Adapting to Climate Change website will be an evolving source of information for all.

The Government will work with stakeholders across society in addressing what is one of the most significant and potentially far-reaching challenges that our country faces.

Department for Business, Enterprise & Regulatory Reform
Cabinet Office
Communities and Local Government
Department for culture, media and sport
Department for Children, Schools and Families
Department for Environment, Food and Rural Affairs
Department of Health
Department for Innovation, Universities & Skills
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