



be aware, be prepared, take action II

**what do the latest climate
projections mean for you ?**

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There are clearly many reasons to plan for changing weather and climate. The effects of climate change already impact on your council's budget, your constituents and local businesses.

The UK Climate Projections 09 are a powerful tool which can show how the climate in the UK could change, and really usefully, they provide information at a local level which can help your council:

- I. assess the possible change in climate in your area;
- II. make efficient, proportionate and timely decisions – which can save you money in the long-term.

This publication, produced in conjunction with Defra and UKCIP, offers key decision makers in local authorities a short introduction into the projections: what they are, what they aren't, and how they can help you make key decisions. We have included some important questions that you as an elected representative should be asking your authority, to ensure that it is aware of the threats and opportunities a changing climate might bring.

Adaptation to climate change is of equal importance to mitigation and with the cost of current weather impacts already so high, it should be a key consideration in your decision making process, not an optional afterthought.

The availability of the new climate projections makes this an opportune moment to focus on how climate and weather will impact your council both as an organisation and as custodians of community wellbeing.



Councillor Gary Porter
Chairman, LGA Environment Board

acknowledgements

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climate change: two challenges

Avoiding dangerous climate change is likely to require a 60-80 per cent cut in greenhouse gas emissions by 2050. The urgency and scale of this task rightly dominates much of the climate change debate. However, even if we drastically cut emissions today, we would still witness a changing climate due to our historical emissions. Whatever we do to reduce emissions, we are committed to **at least** 30-40 years of temperature rises.

We therefore need to ensure that people, communities, infrastructure, and wildlife can adapt to the impacts of these changes.

Mitigation means taking action to tackle the causes of climate change, that is reducing concentrations of greenhouse gases in the atmosphere.

Adaptation means taking action to deal with the consequences of a changing climate, resulting from increased levels of greenhouse gases.

the case for adaptation

Councils are increasingly active on energy saving and cutting carbon emissions. But climate change presents this sector with an equally important challenge – making sure places and services continue to function in the face of a climate which is changing and set to change further even if global emissions start to fall.

Climate change will have a wide range of impacts, such as water shortages and flooding; heat waves affecting human health and disease patterns; changes in biodiversity, crop and animal disease risks; and more natural disasters and emergencies worldwide, with impacts on the UK insurance industry. The UK could also experience knock-on effects from the impacts from climate changes in other parts of the world, such as changes in food supply and security; political stability; and migration patterns.

Alongside these negative impacts, warmer summers and winters would reduce heating costs, reduce cold-related deaths and lead to a more outdoor lifestyle. A changing climate could also increase domestic tourism if traditional overseas destinations become too hot for comfort. Farmers may be able to grow new crops and explore new markets.

However, the significance and severity of the potential impacts will depend on your awareness of the likely impacts in your area and whether or not you have planned for them. There are a number of questions you should be asking yourselves right now:



how will climate change affect your council?

Questions to ask yourself

- Do you expect your buildings and infrastructure still to be in place in 50 years' time?
- Are you planning new buildings and infrastructure that will still be in place in 50 years' time?
- Do any of your streets and buildings get uncomfortably hot during summer weather now?
- Do you have problems with river flooding or drainage overflows?
- Do you have natural ecosystems, parks and gardens to look after?
- Do you manage emergency services?
- Are your roads at risk from flooding, landslips, snowfall, or wind debris?
- Does your community face competition for water supply or water quality problems?
- Do you need to plan to manage water more effectively?
- Can you exploit opportunities presented by a changing climate?

introducing the UK Climate Projections 09

The projections, (known as UKCP09) are a comprehensive package of climate information, providing everyone with:

- projections of climate to the end of the century;
- marine projections;
- information on observed climate;
- more spatial detail than before about local areas.

The projections are based on the latest climate science and provide a more robust indication of the uncertainties associated with future climate change, based on our current levels of understanding and the techniques designed mainly by the Met Office.

what don't they do?

The projections give an idea of how the average climate may change but do not directly outline the impacts of climate change (such as flooding and droughts) as these will vary according to local conditions and vulnerability.

The projections cannot exactly predict the future climate of the UK - partly because we can't be certain how emission levels will change, and also because no climate model can give a perfect representation of the climate.

What the projections do provide however is the evidence for organisations to explore and plan for likely changes in climate.

where do I find UKCP09?

In order to make it as widely accessible as possible, UKCP09 is available online, through a dedicated website. Users select information that is most appropriate for their needs.

<http://ukclimateprojections.defra.gov.uk/>



small changes equal big impacts

Adapting doesn't necessarily mean spending large sums now; it's planning for what changes need to be made and when, based on the risk of impacts. It may be about capital spend, but it is just as likely to be about changing systems, behaviours and the way you operate.

key findings

The projections suggest that, under a medium emissions scenario and using central estimates of the projected changes, our climate might change as follows:



The temperature in central England has already risen by about 1°C since the 1970s, with 2006 being the warmest year in the 348 years since records began. In the South West of England summer temperatures may increase in the region of 3.9°C by 2080. To put this in context, the summer of 2003 was equivalent to about 2°C above the summer mean temperature for the UK. This heatwave event caused over 2,000 additional deaths in the UK and an estimated 35,000 excess deaths across Europe as a whole. So there are significant impacts for a relatively small temperature increase.



It is very unlikely that precipitation (rain, hail, snow etc) will change greatly on an annual basis, but more of it is likely to fall in the winter but with drier summers for much of the UK. For example, the South East of England could experience a 23 per cent decrease in summer rainfall while the North West could see winter rainfall increase by 16 per cent by 2080. During the UK floods of summer 2007, 13 people lost their lives and about 48,000 homes and 7,000 businesses were flooded.¹



Sea level across the UK is projected to rise between 11cm and 76cm by the end of the century², but will be greater in the south than in the north. For example, by 2080 London is likely to experience sea-level rise in the region of 36 centimetres compared to average 1980-1999 levels. (Met Office, 2009)

- 1 Source: *The Pitt Review: Learning lessons from the 2007 floods*, Sir Michael Pit, 2008
- 2 Source: *Warming - Climate change the facts* (Met Office, 2009)

Government estimates suggest that the value of land and property within the area protected by the Thames barrier and other upstream flood defences is £80 billion. (Defra, 2001)

what does this mean for your council?

Work needs to start now - before councils are forced to act by a sudden event or mounting maintenance costs. Some of the most immediate adaptation priorities fall on those areas responsible for planning and developing major infrastructure, such as new buildings or roads. The costs of adapting to climate change can be minimised if adaptation is built in when:

- planning new developments or investments;
- assessments are undertaken as part of a wider sustainability review;
- premises or infrastructure are due to be upgraded and refurbished anyway;
- plans come up naturally for review.



Adaptation is already reducing impacts

On 20 July 2007, Gloucestershire received one and a half times the average monthly rainfall for the whole of July in one day. As a result, Gloucestershire County Council suffered £50 million worth of damage which included a £25 million repair bill for highways, £2.4 million for 20 schools, £2 million for community buildings, and £206,000 to dispose of extra waste generated by the floods.

This prompted a programme to improve the resilience of the council and the wider area. In 2007 the council adopted a Climate Change Action Plan which includes actions to reduce the impacts of flooding and heatwaves as well as building an assessment of future risks into its planning processes. Gloucestershire County Council will have invested £9 million in flood resilience by the end of 2009.

The council has contributed £0.8 million to district council land drainage projects on ordinary watercourses and £0.6 million to Environment Agency flood alleviation projects. Flood resilience measures are estimated to have improved the resilience of 1500 homes.

A key focus of the county council's work has been to embed climate change within its risk management approach, and to use risk management as the council's strategic approach.

what are the risks of inaction on adaptation?

As the example shows, tackling the problem therefore is not just an environmental issue; it is about the long-term security and resilience of the area where people live. Identifying and planning for the impacts of climate change in your local area and on the services you provide is both a prudent and essential use of resources.

Local strategic planning needs to build resilience to changing climate and extreme weather events. If local policies fail to factor in climate change, then who will be held accountable? At local election time, would a candidate with policies to tackle climate change be more or less likely to get voted in?



"Climate change has an impact on us all. Regardless of what political party we represent, the economic and social case for taking action speaks for itself... Local government must continue to take a lead in building more resilient communities, using our local knowledge to tackle both the immediate economic problems and the longer-term environmental challenges that we face."

Cllr Dame Margaret Eaton, Chairman of the Local Government Association (LGA)

The politics of climate change

- Over three quarters (76 per cent), of people agree that councils have a key role to play in tackling climate change.
- 70 per cent of people believe that climate change should be one of the top five priorities for their council.
- 65 per cent of people believe that more can be done by their council with the existing resources to tackle climate change.
- 62 per cent of people state they would be more likely to vote for a candidate committed to tackling climate change in a local election.
- Source: *LGA Climate Change Public Opinion Polling*, March 2008.

emerging good practice

Different approaches to adaptation

Adaptation can be categorised as measures and strategies that contribute either to:

building adaptive capacity: this describes developing all organisations institutional capacity to respond to climate change effectively. For example, new project management systems need to be put in place, data on future climate will need to be assembled and shared, research commissioned, and training and member/staff development provided; or


delivering adaptation actions: these are generally practical responses to climate change such as increasing the height of a flood defence wall or installing external shading above south-facing facades. But they can also include non-physical actions, such as changing the school calendar to reduce the exposure of school children to heat wave conditions, or installing early warning systems on local flooding.

Case study: A 'Mini-Stern' review, undertaken by **Manchester City Council** found that failure to adapt to the legislative, policy and physical aspects of climate change could result in potential losses of £20 billion to the city region economy and £70 billion to the North West. However, it is also clear that this agenda could present a significant economic opportunity for the city region if it takes early action.

Case study: The **3 Counties Alliance Partnership** (Leicestershire, Derbyshire and Nottinghamshire County Councils) have worked together to identify current and future impacts on highways policies and standards.

Case study: Urban drainage: **Leeds City Council** is working with Yorkshire Water and the Environment Agency to prepare a Surface Water Management Plan, and has installed rain gauges and cleared gulleys to reduce the risk of pluvial flooding.

Case study: **Gloucestershire County Council's** foresight in using its risk management approach to identify risks of future flooding enabled them to insure the county's schools in 2006/07 and save £1.9 million when they were flooded in 2007. Now the county council is working with



Stroud District Council to raise awareness of the importance of a risk management approach across each of six district councils, through a series of workshops for all elected members and senior managers, and emergency planning officers and risk managers.

Case study: Preston Water Efficiency Initiative aims to reduce water demand in social housing. It is a partnership project between Reigate and Banstead Borough Council, Raven Housing Trust, Sutton and East Surrey Water, the Environment Agency and Surrey County Council, with funding from the government's *New Growth Points Programme*.

Case study: Leicester City Council: *Climate Change Adaptation Action Plan* helped to identify a number of issues that were considered to require immediate attention to reduce the impact of future climate change. These were flood risk; summer heatwaves and prolonged periods of increased average temperatures and water availability. By identifying these issues, the council was then able to develop objectives and an action plan for each.

Case study: By integrating climate change within council policies and regeneration activities, the **London Borough of Barking and Dagenham** has been able to promote the incorporation of a wide range of sustainable drainage systems (SUDS) into future development, including marsh plants and reeds, permeable paving; rain gardens; swales; and attenuation ponds. These will help with adaptation to flooding events, which are expected to be more frequent in future, by slowing down flows and offering more opportunities for surface water runoff. They will also be crucial for local water capture and storage to deal with expected water shortages in the future.

Case study: Kent County Council, Business Support Kent and the Environment Agency are working together to help businesses adapt to climate change. The Environment Agency's Southern Regional Flood Defence Committee (RFDC) has funded a full time 'business flood risk advisor' post. This person provides small and medium enterprises with direct advice for managing their flood risk and adapting to climate change.

The Kent Climate Change Network consists of environment directors and officers across local authorities and partner organisations who work together to prepare for climate change.



The group meets three times a year to discuss ongoing projects, resolve common problems, share knowledge, and develop partnership wide activities. One of the main projects undertaken to date has been a Local Climate Impacts Profile for the county, (funded by Improvement and Efficiency South East), and this has helped to identify priorities for addressing in partnership, maximising use of resources and expertise.

Kent County Council has benefited from the scrutiny approach to increase buy-in across the council for climate change adaptation. Select committees were set up for both climate change (2006) and flood risk management (2007) resulting in wide ranging actions and the embedding of climate change awareness into the council's processes and planning.

Case study: Oxfordshire County Council and UKCIP have produced the *Local Climate Impacts Profile*. This is a resource that local authorities can compile so that they better understand their exposure to weather and climate. It is based on evidence of a locality's vulnerability to severe weather events and in particular how these events affected a local community as well as the authority's assets and capacity to deliver services. The main value of the profile is in demystifying

much of the perceived complexity of the climate scenarios. One advantage of a local study is that it enables the likely impact of extreme weather to be more fully considered.

Case study: Our schools will need to be built with suitable ventilation and shading. Highbury Grove School in **Islington** is an excellent example of adaptation by design. A number of passive design measures have been incorporated to prevent overheating – these include exposed thermal mass in all classroom spaces, solar control glass and green roofs on over 50 per cent of roof space. Fresh air entering the school is drawn through Earth Tubes which moderate its temperature, cooling the school in summer and heating it in winter. Highbury Grove also incorporates rainwater harvesting which collects water from the roofs and some paved areas for reuse in flushing toilets.

the wider context

the Civil Contingencies Act 2004

The Civil Contingencies Act 2004 provides a single framework for civil protection in the UK and involves local authorities as key players alongside the emergency services, health bodies and the Environment Agency: known as Category 1 Responders. One of the key requirements of this legislation is for key emergency responders and specific supporting agencies to form a 'Local Resilience Forum' (LRF) based on police areas. Extreme weather events fall under the remit of this legislation and there is a legal duty on Category 1 Responders to have emergency plans in place.

Climate Change Act 2008

The Climate Change Act 2008 became law on 26 November 2008. The Act enhances the UK's ability to adapt to the impacts of climate change. Key provisions include:

- a National Adaptation Programme must be put in place and reviewed every five years to address the most pressing climate change risks to England; and in the first case by 2012;
- establishing an 'adaptation sub-committee' of the independent committee on climate change in order to oversee progress on the adapting to climate change programme and advise on the UK climate change risk assessment;³
- the government has the power to require key public sector organisations and statutory undertakers (companies like water and energy utilities), to report on how they have assessed the risks of climate change to their work, and what they are doing to address these risks. This power is known as the Adaptation Reporting Power⁴. Local authorities fall under the definition of reporting

3 www.theccc.org.uk/about-the-ccc/adaptation-sub-committee

4 www.defra.gov.uk/environment/climate/legislation/reporting.htm



authority in the Act, however in the first round of reporting 2010/11 local authorities will not be required to report due to the existence of National Indicator 188 in the local government performance framework. The government has however indicated that the existence of NI188 does not mean that local authorities are indefinitely exempt from reporting, but it does mean that there is sufficient scrutiny of authorities through the self-assessment process and NI188. 2009-11 will be a period during which the government evaluates the benefits brought through NI188.

planning framework

Planning policy has a key role to play in delivering resilient communities and reducing vulnerability to climate change. Under the requirements of the Planning Compulsory Purchase Act 2004 and Planning Policy Statement 12 (PPS12) the local planning authority must carry out Sustainability Appraisals (SAs) of their Local Development Frameworks (LDFs), to help in fulfilling the aims of sustainable development. This includes adaptation.

All National Policy Statements on new nationally significant infrastructure projects must take climate change mitigation and adaptation into account. All regional strategies and LDFs must also take climate change into account through Planning Policy Statement No.1 supplement on climate change.

performance framework⁵

The introduction of a new performance indicator on adaptation – NI 188 – in the Local Government Performance Framework has made adapting to climate change a key issue for local government. 37 per cent of local area agreements include a commitment to NI188, which measures progress towards assessing and addressing the risks and opportunities of a changing climate, and all local areas are required to report on their progress annually. All local areas need to demonstrate and report on progress in adapting to climate change as part of the comprehensive area assessment. Local authorities and partners are expected to Build Adaptive Capacity (to enable the local areas to 'deliver adaptation actions') through:

- organisational change and leadership;
- assessing current and future risks;
- local strategic partnership and community engagement;
- early implementation of adaptation actions;
- strategy and action plan development; and
- monitoring, review and evaluation.

⁵ www.defra.gov.uk/corporate/about/what/localgovindicators/ni188.htm

checklist for local authorities on adaptation to climate change

Where are we?	<ul style="list-style-type: none">• Do we have an understanding of how climate risks affect core service delivery, infrastructure, assets and the wellbeing of local communities?• What are the data challenges in gathering that information?
Where do we want to be?	<ul style="list-style-type: none">• Do we know what impact climate change could have on our area?• How do we get decision makers to think about adaptation?• How does this agenda influence/integrate with other policy/service areas?
How do we get there?	<ul style="list-style-type: none">• Can we deliver adaptive change?• How will relationships with other local partners be managed?• How do we promote greater understanding amongst communities and other sectors on the nature of climate risks and management?• How do we provide leadership and co-ordination?• What other risk management, tools and information are available? (LCLIP, PACT)
How much will it cost?	<ul style="list-style-type: none">• Do we know the cost of adapting?• What are our financial and human resource implications?• What is the cost of inaction?

support for local authorities

Local and Regional Adaptation Partnership (LRAP)

To help local authorities respond, the Adapting to Climate Change Programme team, Government Offices, the Nottingham Declaration Partnership, the Local Government Association, Environment Agency, UKCIP and others, have come together through the Local and Regional Adaptation Partnership (LRAP) to support local authorities in adapting to climate change. The programme focuses on providing opportunities for shared learning, understanding the issue and bringing together good practice across local government.

Councils can get support to adapt to future climate change impacts from -

Defra

Investment in the government's ACC Programme has been increased to provide greater support and resources for adaptation at all levels (national, regional, local and organisational) and now totals £9 million annually. The ACC Programme team and its externally funded organisations provide a broad range of support to other government departments, regional bodies, local government, public services and business. This includes promotional work to raise awareness

and understanding of projections, through regional and sector events; training and guidance in interpreting and using the scientific data and climate projections; guidance in undertaking risk assessment; and funding and support for Regional Climate Change Partnerships to build capacity at that level.

Defra Adapting to Climate Change Website
www.defra.gov.uk/adaptation

Defra NI 188 web page: www.defra.gov.uk/environment/localgovindicators/ni188.htm

Environment Agency (EA)

The Environment Agency is one of the leading public bodies on climate change adaptation with a key role to play in reducing vulnerability and risks from climate change and ensuring communities, businesses and individuals are resilient to future impacts (such as increased flooding, drought, and storm surges).

Surface Water Management Plans - SWMPs can help with climate change adaptation by bringing multiple benefits to flood risk, water quality and amenity/biodiversity. SWMPs have links with managing the risks identified in an authorities strategic flood risk assessments and showing that

a Local Development Framework is addressing drainage issues. SWMPs will also assist with local authorities' sustainable communities and green infrastructure objectives.

Natural England

Natural England is a statutory body created in 2006, charged with the responsibility to ensure that England's unique natural environment is protected and improved. Natural England's purpose is to ensure that the natural environment is conserved, enhanced and managed for the benefit of present and future generations, thereby contributing to sustainable development.

www.naturalengland.org.uk

UK Climate Impacts Programme (UKCIP)

UKCIP is an advisory service helping organisations make decisions on adapting to climate change. UKCIP:

- provides a range of tools including an Adaptation Wizard and Local Climate Impacts profile to help others understand the possible impacts of climate change, including the UK Climate Projections that show how our climate might change at a regional and national level;
- offers advice on adaptation; and assists research. UKCIP focuses on making complex scientific

information understandable and useful to stakeholders.

- the UKCIP website is an excellent information source if you want to find out about the future climate of the UK and how to adapt.

UKCIP local government pages

www.ukcip.org.uk/index.php?option=com_content&task=view&id=285&Itemid=383

UKCIP Climate Change and Local Communities – how prepared are you? www.ukcip.org.uk/images/stories/Pub_pdfs/Local_authority.pdf

UKCIP Adaptation Wizard

www.ukcip.org.uk/index.php?option=com_content&task=view&id=147&Itemid=273

Other central government

Communities and Local Government (CLG) web pages on the National Indicators: www.communities.gov.uk/localgovernment/performanceframeworkpartnerships/nationalindicators/

The Data Hub: <https://www.hub.info4local.gov.uk/dihweb/logon/default.aspx>

LGA Group

The LGA Group continues to place a strong emphasis on adaptation within its broader environmental work. We continue to work closely with national and regional partners, on the national Adapting to Climate Change (ACC) programme, in particular supporting the delivery of the performance indicator on climate change adaptation (NI 188), the roll out of UKCP09 and the statutory programme arising from the Climate Change Act 2008.

A climate of change: final report of the LGA Climate Change Commission [LGA, 2007]
www.lga.gov.uk/lga/publications/publication-display.do?id=20630

Be aware, be prepared, take action: how to integrate climate change adaptation strategies into local government [LGA,EA,UKCIP 2008]
www.lga.gov.uk/lga/publications/publication-display.do?id=566301

Cutting through the green tape: the powers councils have to tackle climate change [LGA,2008]
www.lga.gov.uk/lga/core/page.do?pagelid=874285

Climate change and local communities - how prepared are you? An adaptation guide for local authorities in the UK

www.onerc.org/dataweb/documents/UKCIP_Localcommunities_per_cent20preparation.pdf

Nottingham Declaration Partnership (NDP)

For advice on:

- developing a climate change action plan;
- how to prepare council services for the impacts of climate change.

Other sources:

Two-tier working

Changing places; local area agreements and two tier government

www.lga.gov.uk/lga/publications/publication-display.do?id=1032701

Emergency Planning and Civil Contingencies

UK Resilience – Cabinet Office website on emergency planning and preparedness

www.ukresilience.gov.uk

Planning to adapt to climate change (NI 188):

Prioritised risk-based assessments and the Civil Contingencies Act 2004 (South West Climate Change Impacts Partnership)

www.oursouthwest.com/climate/registry/CCA-and-188.pdf

The Pitt Review is an independent review of the flooding emergency that took place in June and July 2007, conducted by Sir Michael Pitt at the request of ministers. This review highlights both the successes and failures stemming from the floods and suggests sectors and bodies particularly vulnerable to these events.

<http://archive.cabinetoffice.gov.uk/pittreview/thepittreview.html>

Heatwave plan for England 2009 (Department of Health) highlights how the health and social care services and other bodies are vulnerable from severe hot weather. Extreme weather events are likely to increase in frequency and intensity with climate change and so current vulnerabilities highlighted in these reports can be used as a proxy for future vulnerability.

www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_099015

The **Association of British Insurers (ABI)** has published various pieces of research including *Guidance on Insurance for New Developments* and more recently the *Financial Risks of Climate Change* which combines climate models with insurance catastrophe models to examine the financial implications of a changing climate.

www.abi.org.uk

notes



Local Government Association

The Local Government Association is the national voice for more than 400 local authorities in England and Wales. The LGA group comprises the LGA and five partner organisations which work together to support, promote and improve local government.



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