

# LRAP

*Working In Partnership*

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# Adapting to Climate Change

  

## Guidance notes for NI188

Version 1.6

*The Local and Regional Partnership Board works to support Local Government and Regional Bodies on Adapting to climate change. Partners are drawn from:*

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### Version Control

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1.2	Circulated to LRAP Ni188 sub group and used at NI88 Workshops	UKCIP with Defra amendments 24/09/08
1.3	Level 3&4 included; also includes minor typographical changes; circulated to GOL, UKCIP and EA	Andy Gardner
1.4	Key suggested amendments from NI188 workshops included. Some weblinks to relevant guidance included, but needs expansion. Formatting.	C Duggan 05/11/08
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## Introduction

These guidance notes are designed to help manage the process of delivering against Performance Indicator NI 188 as part of the Local Area Agreement process. The guidance is primarily aimed at authorities and their partners. This guidance is also applicable to those Local Areas who have not explicitly signed up to NI 188 as a local area target.

This guidance recommends an approach to delivering against NI188. Under each of the levels there are also questions which might be helpful as a guide when assembling evidence of achieving a level.

Guidance on sector specific actions such as flooding, biodiversity, planning are not included in detail here. The guidance will link to any sector specific guidance where available.

This guidance is designed to be as generic as possible but each authority and organisation is different. There may therefore be sections of the guidance which don't quite fit your circumstances. Please use this guidance flexibly to meet your particular needs. We have included a glossary at the back of the document to set out what we mean when using certain generic terms.

## NI188 Planning to Adapt to Climate Change

The levels of achievement and the rationale for NI188 are below. For the full text of the Technical Definition see Annex A.

### The Levels of Achievement

Local authorities will report the level of preparedness they have reached against the levels of performance, graded 0 to 4. A higher number represents further progress made in planning to adapt. Each authority will have set their targets for the level to be reached by the end of Year One, Year Two and Year Three. The levels are:

<b>Level 0</b>	<b>Getting started</b>
<b>Level 1</b>	<b>Public commitment and impacts assessment</b>
<b>Level 2</b>	<b>Comprehensive risk assessment</b>
<b>Level 3</b>	<b>Comprehensive action plan</b>
<b>Level 4</b>	<b>Implementation, monitoring and continuous review</b>

### NI188 Rationale

To ensure local authorities are sufficiently prepared to manage risks to service delivery, the public, local communities, local infrastructure, businesses and the natural environment from a changing climate, and to make the most of new opportunities.

The indicator measures progress on assessing and managing climate risks and opportunities, and incorporating appropriate action into local authority and partners' strategic planning.

The impacts might include increases in flooding, temperature, drought and extreme weather events. These could create risks and opportunities such as: impacts to transport infrastructure from melting roads or buckling rails, increases in tourism, increased damage to buildings from storms, impacts on local ecosystems and biodiversity, scope to grow new crops, changing patterns of disease, impacts on planning and the local economy and public health.

### Aim of the indicator

The overall aim of NI188 is to embed the management of climate risks and opportunities across the local authority and partners services, plans and estates and to take appropriate adaptive actions where required.

**A 'process based' indicator**

NI188 is a 'process based' indicator. This is not typical of most of the National Indicators, which are 'outcome based'. NI188 both recognises that our understanding of the adaptation agenda is not yet sufficient to specify outcomes, but also that climate impacts are local and it is impossible to have a generic outcome indicator at the moment which is applicable to all areas.

**The levels identify both 'comprehensive' and 'partial' achievement**

NI188 is based on the pragmatic assumption that whilst an LSP will ultimately complete all of the necessary work it may not progress sequentially at the same speed for all aspects of the programme, or for all areas of risk.

NI188 seeks to be sufficiently flexible to accommodate this variety and range of responses.

NI188 therefore gauges progress of a local area to:

- Assess the risks and opportunities comprehensively across the area;
- Take action in any identified priority areas;
- Develop an adaptation strategy and action plan setting out the risk assessment, where the priority areas are – where necessary in consultation & exhibiting leadership of local partners - what action is being taken to address these, and how risks will be continually assessed and monitored in the future; and
- Implement, assess and monitor the actions on an ongoing basis.

**What is NI188 trying to achieve ?**

Without the evidence to determine outcome based targets, the best indicator available in adaptation is a measure of progress. Ultimately NI188 is trying to ensure that assessing the risks and opportunities from climate change is embedded within risk assessments, decision making, service delivery and planning. To do this NI188 asks authorities to undertake a risk assessment across their local area to determine what are the priority needs to adapt. It then asks for the local partners to then take any appropriate adaptive measures.

Adapting to climate change will be a continuous process, therefore NI188 is not looking for a local authority and partners to have completed the process by the end of the period – continual risk assessment will be key. What the indicator is looking for is evidence that the local authority and partners have put in place a mechanisms for proactively managing climate risks and taking appropriate actions.

Over the life of the indicator, several further documents on adaptation will be published including statutory guidance under the new Climate Change Act and further evidence will be made available through risk assessments and updated projections. NI188 should provide a framework that allows local partners to put in place a framework of measures which can accommodate and build in the new evidence as and when it becomes available.

**How does this link to the Comprehensive Spending Review (CSR) 07 Public Service Agreement (PSA) and the Climate Change Act (CC Act)?**

The CSR 07 PSA on climate change includes the objective to develop a robust approach to adapting to climate change in the UK. Currently under the climate change PSA, the outcome indicator measuring adaptation is on sustainable water abstraction. As the Government's adaptation programme develops, it will be looking to develop broader and more outcome based indicators of adaptation. However, until then the results from both the sustainable abstraction indicator and NI188 will form a key part of the evidence under the PSA of our progress in adapting to climate change.

The Climate Change Bill has now completed its passage through Parliament and received Royal Assent on 26 November 08. The new Climate Change Act 08 includes a power for the Secretary of State to require any public body or statutory undertaker to report on its progress on adaptation, if required. This power might be exercised where a body is seen to have a specific vulnerabilities but has not taken account of adaptation issues. With this background, there is an expectation that significant public bodies such as Local Authorities will have taken some action on adaptation.

The Act also places a duty on Government to publish an assessment of risk to the UK from climate change, its adaptation programme and progress against it. As part of this reporting, the information from NI188 will be an important tool in demonstrating progress on adapting to climate change nationally and shaping future programmes.

Prior to the statutory programme, in July 2008, the Government published its adaptation framework for action ([www.defra.gov.uk/adaptation](http://www.defra.gov.uk/adaptation)). The framework brings together the work already being led by Government and the wider public sector on adapting to climate change and sets out how the Government's Adaptation programme will co-ordinate and drive forward development of the Government's adaptation work in the future.

## ***Some initial adaptation concepts***

### **The difference between weather and climate**

Adaptation responses are required to address the impacts of both 'weather' and 'climate', so it is important to recognize the difference.

**Climate** is the average weather in a locality over an extended period. Climate scientists normally use a thirty-year period which, in periods of stable climate, has been sufficient to provide a reliable average including the inevitable peaks and troughs of natural variability.

**Weather** describes what is happening at any point in time, be it: torrential downpours of rain; exceptionally high temperatures; thunderstorms..

These differences are important because of the different impacts that can be expected and therefore the different responses that are required.

### **The concepts of Vulnerability, Impacts, Consequences and Adaptation:**

Together these terms capture the sequence of understanding required in order to become resilient to weather and climate.

**Vulnerability** is defined by the IPCC as;

*'the degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate change and variation to which a system is exposed, its sensitivity, and its adaptive capacity.'*<sup>1</sup>

Vulnerability is therefore mainly a function of locality and depends upon

- local physical features (such as topography, rivers, settlements),
- local weather and climate (averages and extremes),
- local socio-economic characteristics (such as dependence on agriculture, tourism or transport links and the presence and extent of particularly vulnerable groups); and,
- the preparedness of the local community to respond both in the short-term and the long-term.

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<sup>1</sup> IPCC Fourth Assessment Report; Working Group II Report; Impacts, Adaptation and Vulnerability  
<http://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4-wg2-spm.pdf>



**Impacts** describe the effects of different weather and climate events. So flooding and drought are examples of impacts of particular types of weather and climate.

**Consequences** are generally the focus of our attention as these are either the hazardous threats which we try to defend ourselves from, or the beneficial opportunities that we try to exploit.

**Adaptation** describes the actions that we take to reduce the negative consequences and enhance the beneficial consequences of weather and climate events. We have found it useful to distinguish between;

- Building Adaptive Capacity
- Delivering Adaptation Actions

**Building Adaptive Capacity** describes many of the adaptation responses that local partners will undertake, especially in the first instance. New project management systems need to be put in place, data on future climate will need to be assembled and shared, research commissioned, training and member / staff development required. All of these activities can be seen as Building Adaptive Capacity.

**Delivering Adaptation Actions** these are generally illustrated by physical examples such as increasing the height of a flood defence wall or installing external shading above south-facing facades. But it can also include non-physical actions, such as changing the school calendar to reduce the exposure of schoolchildren to heatwave conditions, or installing early warning systems on local flooding.

## **Sustainable Development, Mitigation and Adaptation**

It is worth repeating the principle that all adaptation takes place in the context of Sustainable Development. The 2005 UK sustainable development strategy, *Securing the Future* sets out the shared principles of sustainable development in the UK. These principles which should be applied to all adaptation actions.

### **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 projections 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. 2

As the principles make clear, adaptation and mitigation are both fundamental elements of the campaign against dangerous climate change. The two must go hand in hand, with action reinforcing our overall aims. There is little value in achieving adaptation strategies which, whilst providing resilience to changes in weather and climate, make future climate conditions worse through the emission of more greenhouse gases.

## ***How to use this guidance***

The guidance notes are presented in line with the N188 levels i.e. (0 to 4)

For each level the guidance includes:

1. **Technical Definition:** The technical definition text for NI188
2. **Rationale:** the technical definition is a high level statement of an expected level of achievement and purposefully does not contain a lot of detail on the kinds of actions that could be undertaken to achieve it. In this guidance we have included a rationale section which briefly summaries the principles that inform the requirements of each level and some of the reasons why the requirements are worth achieving
3. **Aims:** a list of the aims for each level
4. **Commentary:** a discussion on each of the aims including: a suggested approach; some questions to prompt wider consideration of each of the aims
5. **Available resources:** links to other resources, techniques and tools

### **Supplementary Guidance**

Within each of the levels, the guidance includes aims and commentary which directly relate to delivering the NI188 technical definition. In addition to this, we have also included a number of supplementary aims which while not explicitly required by the technical definition of NI188, could be helpful in delivering against it particularly in building activity for later levels.

### ***Other key sources of guidance***

General guidance for those local authorities undertaking work on climate impacts and adaptation is available on the UK Climate Impacts Programme (UKCIP) website at [www.ukcip.org.uk](http://www.ukcip.org.uk) and the Nottingham Declaration website at [www.nottinghamdeclaration.org.uk](http://www.nottinghamdeclaration.org.uk). These two sources describe a generic decision-making sequence to deal with climate risks, taking the user through a logical sequence of stages, typical of many project management frameworks. Users of these guidance notes will find it helpful to explore these two websites: to help to set the context for their work and to make use of the specific tools and resources which are referred to in these guidance notes but are described in full on the two websites.

Local Authorities should also seek additional guidance from statutory authorities, for example the Environment Agency and Natural England, on issues such as flooding, water resources, coastal management, waste, biodiversity, landscape and the natural environment.

## List of useful weblinks

### *Central Government*

Defra Adapting to Climate Change Website <http://www.defra.gov.uk/adaptation>

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

CLG web pages on the National Indicators:

<http://www.communities.gov.uk/localgovernment/performanceframeworkpartnerships/nationalindicators/>

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

### *Adaptation guidance*

[Be aware, be prepared, take action; how to integrate climate change adaptation strategies into local government](#); Environment Agency, UKCIP, LGA 2008

Nottingham Declaration [www.nottinghamdeclaration.org.uk](http://www.nottinghamdeclaration.org.uk) for advice on:

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

### *UKCIP*

UKCIP local government pages

[http://www.ukcip.org.uk/index.php?option=com\\_content&task=view&id=285&Itemid=383](http://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 ?

[http://www.ukcip.org.uk/images/stories/Pub\\_pdfs/Local\\_authority.pdf](http://www.ukcip.org.uk/images/stories/Pub_pdfs/Local_authority.pdf)

UKCIP Adaptation Wizard

[http://www.ukcip.org.uk/index.php?option=com\\_content&task=view&id=147&Itemid=273](http://www.ukcip.org.uk/index.php?option=com_content&task=view&id=147&Itemid=273)

### *Natural England*

<http://www.naturalengland.org.uk/>

### *Other Local Authority Guidance*

#### *Two tier working*

Changing Places; Local Area Agreements and two tier government

<http://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

<http://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)

<http://www.oursouthwest.com/climate/registry/CCA-and-188.pdf>

*Environment Agency*

<http://www.environment-agency.gov.uk/>

The EA are currently working on guidance to complement this document. Links to this and several case studies will be added when available.

[Surface Water Management Plans](#) - SWMPs can help with climate change adaptation by bring 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.

Sustainable Drainage Systems - These systems helps adapt the area to more extreme weather events. Resources:

- CIRIA's SUDS website [www.ciria.org.uk/suds](http://www.ciria.org.uk/suds) which includes the SUDS manual, guidance for developers etc, all free to download.
- Information about SUDS and guidance from [EA](#)
- [Training from EA](#)
- [PPS25 Guidance](#)

Flood Awareness and Flood Warming to improve people's understanding of flood risk, their preparedness and response to flood events e.g. [Floodline](#)

Improving the resistance or resilience of new and existing buildings to flood risk. Resources:

- Preparing for emergencies - [www.preparingforemergencies.gov.uk](http://www.preparingforemergencies.gov.uk)
- [CIRIA](#)
- Association of British Insurers (ABI): [fact sheet on Flood Resilient Homes](#)
- Department of Communities and Local Government: '[Preparing for Floods](#)' document
- Large number of [EA flood resistance documents](#)
- [Your Home in a Changing Climate Report](#)
- [Code for Sustainable Homes](#)

## ***Level 0: Getting Started***

### **Technical Definition**

The Authority has begun the process of assessing the potential threats and opportunities across its estate and services (for example, flood and coastal resilience plans, emergency planning, community risk registers/strategies etc) and has identified and agreed the next steps to build on that assessment in a systematic and coordinated way.

### **Rationale**

The idea of a Baseline (and Level 0) recognises that there are essential basic foundations upon which any coherent strategy needs to be built. The technical definition asks that the authority has begun the process of assessing the issues and identifying the next steps. The indicator is not explicit on how to achieve this, but in line with general project management principles some ideas of what activities could help to achieve this are;

- Scoping and preparing a project plan for the journey involved in developing an adaptation action plan
- Starting the identification of the likely procedures, personnel, resources, channels of communication funding streams necessary to develop and implement the indicator
- Undertaking a high level stock take of the relevant plans, strategies and sources of information in the area
- Starting to build up awareness [at this Level this could be in very basic terms]

The project team will need to identify, those aspects which are distinctly different and challenging about the climate adaptation agenda. These different features could include:

- uncertainty
- the varying timescales
- risk management
- the intrinsic novelty of the subject to many who will be involved in the process

During the workshops, a number of reasons for engagement on adaptation were suggested to encourage involvement. A few of the key ones are captured below for information.

1. Maintaining service delivery
2. Supporting vulnerable groups
3. Exploiting business opportunities
4. Managing strategic assessments
5. Business Continuity
6. Avoiding unnecessary expenditure

## Aims

**Note One:** The technical definition for Level 0 is not explicit about the involvement of partners. However, we have included the idea of engaging partners, especially those with a duty to co-operate, in the early stages as they could help to deliver the later levels although this is not explicitly required.

**Note Two:** As above the technical definition for Level 0 is not explicit about authorities having a vision. However, this is something that might also be considered.

(Please note; the aims in the guidance are not in sequential order and authorities can chose whichever pathway best suits their circumstances)

- 0.1 create an outline project plan with key milestones for the journey to developing the adaptation action plan linking to the calendar of mainstream business and the indicator targets (if you have them)
- 0.2 to begin the engagement of others in the process of developing an adaptation action plan
- 0.3 to begin to identify the personnel, resources and procedures and training necessary to start the long-term process of developing a comprehensive adaptation strategy
- 0.4 To undertake a high level stocktake of how adaptation, weather and climate information is currently reflected in existing plans and strategies
- 0.5 Supplementary Aim; to start the process of expressing a 'vision' for creating a 'well adapting local community' which could be linked to the Sustainable Community Strategy

## Commentary

### 0.1 Initial Project Planning

It will be important to give serious consideration to the overall planning and management of what will be a new piece of work with new topics and working with new partners. Although the timetable may change over the planning period, it will help all partners to have an initial sense of how the delivery of the indicator will be taken forward. If the programme recognises and responds to the main calendar events of council business it will be possible to influence and /or be influenced by main council decisions.

#### **Questions to ask**

*Have we developed (and shared with partners) an initial project plan ?*

*Have we consulted LSP partners on our initial project plan ?*

*Have we considered whether a joint LSP project plan would be appropriate ?*

**Output = Initial Project Plan****0.2 Engagement of Community, Service users and Key LSP partners**

Although this is not a specific requirement in the Level 0 technical definition, engagement from partners could be useful at this stage especially in helping to share information and resources but also to achieve the partnership engagement requirements at later levels. It may be useful now to find out the present position of your various partners and draw them into the process. Key partners, such as those with a duty to cooperate (e.g. Environment Agency and other statutory agencies), could be consulted at the project planning stage so they can ensure alignment of appropriate resources, and information can be made available in a timely way.

**Questions to ask**

*Have we explored the interest, initial commitment, and willingness to engage amongst the LSP?*

*Have we made a persuasive business case to LSP partners to engage?*

*What does community and service user engagement reveal about their concerns and priorities for adaptation?*

*Does our proposed project plan accommodate LSP partners and their ways of working?*

*Have you identified and resolved any dependencies between your project plan and LSP partner contributions (e.g. resources, data availability, timescales, business planning)?*

**Outcome = commitment from LSP partners****0.3 Scoping Project Resources**

It may be advisable, if resources allow, to establish an inter-departmental project team. This team should include a lead officer who will typically be in an environment or sustainable development unit. However it might be worth considering whether this is the best organisational arrangement. For example, someone in a Corporate or Strategic role may be better placed to embed consideration of climate risks into core policies and operations, and to avoid the work on adaptation being perceived as only 'environmental'.

You may also want to consider identifying an Adaptation Champion. Ideally this could be a senior officer who has a broad understanding of the authority and can influence at board level.

It may also be advisable to consider exploring member support at this stage, to help further empower their understanding and ownership of the issue and also build the public's support for local government.

One of the considerations here will also be how the division of responsibilities rests between the lead officer (and project team if there is one) and the leads of directorates, departments and delivery units. Generally, it is probably better to devolve as much of the responsibility as possible for undertaking the assessment of the risks and identifying the most appropriate measures to the leads of directorates, departments and delivery units. At this stage this might be appropriate



where there is already a good level of engagement, although it may be necessary to postpone this until a later stage for other areas.

Officers closer to service delivery are more aware of climate impacts on their operations. The lead adaptation officer (or project team) can therefore supply subject expertise, co-ordination and a progress-chasing function to bring the process together. At the outset, the project team is likely to have an important role in introducing the issue, explaining the process and facilitating key activities such as workshop sessions.

Although not explicitly required in the technical definition for this level, it may also be advisable to scope out what resources (staff and other resources) are available and could be pooled together within the LSP or with other LSPs in adjacent areas.

### **Questions to ask**

*Have we considered the management of this project in the context of other authority and partners' commitments?*

*Have we identified sufficient arrangements to manage and lead the project ?*

*Have we identified the reporting lines and governance arrangements?*

*Have we involved risk management colleagues within the council in this activity?*

*Have we decided how much of the adaptation work should be considered as a corporate function and how much should be devolved to the responsibility of individual management or service units?*

*Are there training and personal development issues for existing staff / elected members which need to be identified early on?*

*Have we considered the need for creating any new posts or changes of existing job descriptions?*

*Have we considered pooling resources across the LSP and that of other partnerships particularly on common issues ?*

### **Outcome = Project team in place**

#### **0.4 Identifying a baseline**

This stage is intended as an initial stocktake of key existing policies and plans to establish whether the region, authority and partners are already considering adaptation and if so in which areas. Your Government Office, UKCIP, EA or Regional Climate Change Partnership might be able to help you identify relevant regional and local studies in your area.

Key documents you might consider looking at initially are;

1. Any corporate or business plans
2. Corporate risk registers
3. Core strategies i.e. Local Development Frameworks
4. Other sources of risk information i.e. Community Risk Registers
5. Regional adaptation studies

6. Sector specific documents i.e. flood management plans, biodiversity strategies
7. Business Continuity Plans
8. Insurance Claims
9. Planning Reports
10. Asset Management Plans
11. Sustainable Communities Strategies

### **Questions to ask**

*Have we carried out an initial stocktake of the key existing policies and plans to establish what adaptation action is already being considered and where ? At this stage an initial identification of the broad areas should be sufficient.*

**Output = Document identifying key existing policies and data relevant to adaptation**

### **0.5 Supplementary aim; Developing a vision**

Although not a requirement of the technical definition, it might be beneficial to start thinking about whether the area should start developing a vision for a well adapting local community. The content and language and whether it is integrated into any existing vision statements will probably take some time to develop. However the idea could start its development at this stage, preferably with a number of different partners.

### **Questions to ask**

*Should we have an adaptation vision ?*

*Have we identified the most relevant partners needed to develop it ?*

*What will be a sensible shelf-life?*

*Have we considered linking with the themes in the Sustainable Community Strategy?*

*How will the vision link with those at a regional and national level ? (Governments adaptation website [www.defra.gov.uk/adaptation](http://www.defra.gov.uk/adaptation))*

*Can the vision link to your climate change mitigation or other relevant visions?*

**Output = draft vision statement**

## ***Level 1: Public commitment and impacts assessment; Assembling and evidence base***

### **Technical Definition**

The Authority has made a public commitment to identify and manage climate related risk. It has undertaken a local risk-based assessment of significant vulnerabilities and opportunities to weather and climate, both now and in the future. It can demonstrate a sound understanding of those not yet addressed in existing strategies and actions (e.g. in land use planning documents, service delivery plans, flood and coastal resilience plans, emergency planning, community risk registers/strategies etc). It has communicated these potential vulnerabilities and opportunities to department/service heads and other local partners and has set out the next steps in addressing them.

### **Rationale**

*The authority has made a public commitment..*

The involvement of local people is central to the effective development and implementation of sustainable strategies, and key to change in the longer term. Signing up to the Nottingham Declaration or developing a similar equivalent commitment may fulfill this public commitment function; though if it was signed some time ago the commitment may need to be revisited by the authority – for example with elected members. Part of the leadership role of the authority will also be fulfilled by including other LSP partners in such public commitments. Additionally, opinion polling can be equally effective when used as a snapshot of opinion to inform future campaigns and policies or when gauging differing opinions on climate change. In addition, its use by your authority would also allow comparison between your local area and the national picture.

#### *Identifying Current Vulnerability*

At Level 0, the authority is asked to start the process of identifying the potential threats and opportunities. In Level 1 there is the expectation that this work is developed further to start the process of building a wider picture and understanding of the significant impacts from weather and climate on the authority and partners' services.

An understanding of current vulnerability to weather and climate can be a powerful catalyst to further awareness and action. The creation of a [Local Climate Impacts Profile \(LCLIP\)](#), while not a specific requirement for achieving this level, has proved to be effective in some authorities at developing this understanding. An LCLIP can demonstrate physical vulnerabilities specific to the locality, but can also identify the extent to which the community is prepared and able to respond now (i.e. to deal with current weather events).

UKCIPs experience has shown that it can be helpful for authorities to undertake an LCLIP (or equivalent) early on in the process, because it provides tangible evidence of local vulnerability. This can be much more of a catalyst to action than general warnings of potential hazards reported at a global or national scale and can make a useful pre-cursor to a more formal assessment of future impacts.

*Identify potential future impacts*

Developing a list of potential impacts of future weather and climate is a fundamental part of developing an adaptation strategy. At Level 1 the list does not need to be comprehensive, but should identify the major significant potential impacts on the area in order to establish priorities for action. The [Business Areas Climate Impacts Assessment Tool \(BACLIAT\)](#) provides a checklist, which can be used to identify potential threats and opportunities looking forward. At this stage it may be sufficient if the BACLIAT tool is only applied in what appear to be critical areas.

LSP partners may also be able to help you identify current vulnerabilities. For example, the Environment Agency can provide detailed maps of existing flood risk and coastal erosion for each local authority area, as well as maps showing existing water resource availability at a catchment scale to help identify areas of 'water stress'. Local and regional biodiversity partnerships should also be able to provide data and maps detailing habitat and species extent and fragmentation.

*Managing the programme*

A project leader may have been identified at Level 0 to co-ordinate the overall project. Level 1 now recognises the importance of involving the managers and/or portfolio holders of local authority service areas and senior figures in other partner organisations to both ensure that the list of impacts is widely drawn but also that relevant managers / members are involved in the early development of adaptation responses which they will manage in due course.

*Additional Supplementary Information; Monitoring and recording weather and climate information*

Although the Technical Definition for Level 1 is not explicit about the need for monitoring and recording weather and climate information, it could be useful to begin a systematic monitoring of the impacts of weather events on the area and the success or otherwise of any coping strategies that are already in place.

**Aims**

- 1.1 to demonstrate the leadership role of the authority by making a public commitment (amongst the local community, LSP partners, etc.) to respond to the threats and opportunities of a changing weather and climate
- 1.2 to develop an understanding of current vulnerability to weather, including extreme weather events
- 1.3 to identify significant potential impacts associated with future weather and climate, particularly those that are not adequately addressed by existing policies
- 1.4 to ensure that relevant managers / elected members are aware of these and other potential impacts, and are preparing to address them
- 1.5 Supplementary Aim; to develop and maintain a monitoring system to collect information on the impacts of weather events, particularly recording the impacts on the delivery of authority services
- 1.6 Supplementary Aim; to develop and maintain a weather and climate database for the which co-ordinates evidence of past trends and projections

## Commentary

### 1.1 Including other expertise, Leadership and Public Commitment

You should be aiming to establish a leadership role on this issue within the authority, and amongst the local community and members of the LSP, including making a public commitment to climate change adaptation. If you have not already done so, you could sign the Nottingham Declaration or an equivalent public commitment and publicise this. If you have already signed the Nottingham Declaration you could reaffirm those commitments through the LAA process. In addition, you could look for other opportunities to communicate the issue to a broadly defined membership of your local community, i.e. local businesses, voluntary groups and Town and Parish Councils. You could also work with key LSP partners to identify opportunities to do this, such as new investments in flood defences or the launch of new plans. Several authorities have found it useful to share some of their early projects as demonstration examples.

#### **Questions to ask**

*Have we made a public commitment to adaptation ?*

*Have we identified any potential opportunities to make the local community aware of the work in this area?*

*Have elected members been introduced to our approach? Are there 'adaptation champions' that can be identified amongst our elected members?*

*To what extent are other members of the wider local community aware of the commitment and are involved in our adaptation? Are they formally involved through the LSP? If not, are there ways in which we can involve them specifically in this agenda?*

*Have we managed to get any initial adaptation projects reported in the local media? Have we considered holding a public event/conference/workshop/etc to increase community engagement?*

#### **Output = Public commitment on adaptation**

#### **Additional Information**

'Ways to tackle climate change' Defra Publication

<http://www.defra.gov.uk/rural/communities/parish-councils.htm>

Cutting through the green tape: the powers councils have to tackle climate change (LGA, Nabarro LLP, 2008)

<http://www.lga.gov.uk/lga/core/page.do?pageId=874285>

### 1.2 Understanding current vulnerability

At Level 1, the technical definition requires the authority to have completed a local risk based assessment of the significant vulnerabilities and opportunities to weather and climate both now

and in the future and to have an understanding of where the gaps are. This activity builds on the stocktaking work required at Level 0 by building up a more comprehensive picture of current vulnerability. As described in the rationale, some authorities have found using a [Local Climate Impacts Profile \(LCLIP\)](#) helpful in this process. Understanding and preparedness is likely to vary across your authority with some service areas that are vulnerable to current climate having some measures in place – others not.

LSP partners may also be able to help you identify current vulnerabilities. For example, the Environment Agency can provide detailed maps of existing flood risk and coastal erosion for each local authority area, as well as maps showing existing water resource availability at a catchment scale to help identify areas of ‘water stress’. Local and regional biodiversity partnerships should also be able to provide data and maps detailing habitat and species extent and fragmentation.

### **Questions to ask**

*Do we know what are the headline messages for future weather and climate in [UKCIP02](#) (and subsequent projections)?*

*Do we know what have been some of the main impacts of recent weather events on the local community and in particular on the authorities services?*

*Do we have a database of the consequences of current (extreme) weather events in our locality? If not, do we need to we undertake further investigations studies like an LCLIP or an equivalent?*

*Have we identified how can we best use this study to raise awareness of significant issues amongst members, senior officers, LSP partners and the wider community?*

*Have we used the outcomes of these studies to identify areas of particular vulnerability for the future (see 1.3 below)?*

**Output = A current understanding of vulnerability and an initial list of significant threats and opportunities in priority policy / service areas**

### **Additional Information**

Information on LCLIPs including copies of the presentations from past LCLIP events are on the UKCIP website at;

[http://www.ukcip.org.uk/index.php?option=com\\_content&task=view&id=278&Itemid=378](http://www.ukcip.org.uk/index.php?option=com_content&task=view&id=278&Itemid=378)

Oxford County Council LCLIP Pilot – includes database category information

[http://www.ukcip.org.uk/index.php?option=com\\_content&task=view&id=343&Itemid=9](http://www.ukcip.org.uk/index.php?option=com_content&task=view&id=343&Itemid=9)

### **1.3 identifying some significant potential impacts from future weather and climate**

From the wider understanding of current vulnerability, you can now explore potential future impacts and the threats and opportunities which they present. This assessment will identify both;

- a) priority areas for immediate adaptation, and;

- b) those areas that need further investigation at level 2

You may decide to undertake a review of a few critical service areas to limit the task. This can also help to develop an approach that is transferable to other service areas in due course.

### **Questions to ask**

*Have we used an appropriate method (such as [BACLIAT](#) or other equivalent and repeatable methods) to identify the significant impacts?*

*Have we focused on what we think are the significant service/business areas?*

*Have we tasked someone with responsibility for interpreting the UKCIP projections so that they can provide appropriate information for the locality on appropriate timescales, relevant weather and climate variables?*

*Have we identified any ongoing or existing climate impact studies or projects in our region?*

### **1.4 sharing the load and ongoing project planning**

The technical definition requires that the authority has communicated these potential vulnerabilities and opportunities to department/service heads and other local partners and has set out the next steps in addressing them. There may also be scope to share resources with other authorities and partners facing similar issues in your region.

### **Questions to ask**

*Are those managers responsible for managing service areas aware of the vulnerabilities and opportunities?*

*Are we confident that a range of officers within these units is actively involved in the development of these proposals? Are next steps being developed in these units?*

*Have we explored joint working opportunities with other organisations faced with similar issues?*

### **Output = Next steps**

### **1.5 Supplementary Aim; monitoring future impacts**

The LCLIP process typically uses media sources to discover what have been the major weather impacts on an authorities programme. More detailed evidence can also be drawn from within the authority itself. It might therefore be useful to start the process of systematic monitoring of the consequences of (particularly extreme) weather events. Start with those service units that have been revealed as currently vulnerable by an LCLIP or similar. The explicit purpose is to know what the serious consequences are for the authority (reduced service provision, increased income, financial loss, loss of reputation, etc).

### **Questions to ask**

*Have we installed procedures for monitoring the ongoing impacts of weather and climate and our response(s) to these impacts?*

*In our authority, is such monitoring best carried out centrally or by individual service units?*

*Do we know if records of this sort are already kept by certain service areas? If so which service areas, and what type of evidence does it yield?*

*How can we make sure we have a record of both weather its consequences ?*

## **1.6 Supplementary Aim; weather and climate database**

At some point in the development of an adaptation plan there will need to be some interpretation of the scientific, meteorological data as it relates to your local community. The data available from UKCIP02 projections are perceived as having only limited value as they contain much uncertainty and provide data mainly on climate (annual and seasonal averages) rather than data on (extreme) weather events that are more often the cause of serious impacts.

The publication of the new climate projections offers the prospect of better dealing with uncertainty (by quantifying probability) and predicting weather (through a 'weather generator'). A local authority will considerably improve its understanding of potential future impacts by having access to these data. When the new data is available you could consider using a central data unit or devolving data functions to those departments with quantitative technical decision-making to make best use of the new data. When the new projections are available there will be training available to users of the data details of which will be available nearer the release date. Some LSP partners will also be rich sources of information and data, such as the Environment Agency's environmental monitoring data sets.

### **Questions to ask**

*Do we know what specific data we would find useful in helping us to understand future weather and climate in our locality for the critical time periods that we have identified?*

*Who will lead on helping us to understand the available data? Is this something that should be devolved to individual service units or managed centrally?*

*Is there anyone in the office who is confident and competent in working with weather and climate statistics? Can this expertise be extended to include working with the user-interface of the climate projections? (Link to the new climate projections will be made via UKCIP website)*

*Is there an existing business unit in the authority which has expertise in this area and already deals with statistics, GIS, or similar data handling software? Do we need to bring in new expertise or provide training opportunities for existing staff / elected members?*

*Have we capitalised on using existing data sets and knowledge banks from our LSP partners?*

### **Available Resources and examples**

Rainfall and River Flow, reservoir information, groundwater recharge information both currently and in the past can be found at;



<http://www.environment-agency.gov.uk/subjects/waterres/457898/?version=1&lang=e>

Contact your local EA office for local information on specific recent weather impacts.

Guidance and information on undertaking and completing a Strategic Flood Risk Assessment – [A guide for developers](#) and [A Guide for LPA's](#).

## ***Level 2: Comprehensive risk assessment (with prioritised action in some areas)***

### **Technical Definition**

The Authority has undertaken a comprehensive risk based assessment of vulnerabilities to weather and climate, both now and in the future, and has identified priority risks for its services. It has identified the most effective adaptive responses and has started incorporating these in council strategies, plans, partnerships and operations (such as planning, flood management, economic development, social care, services for children, transport etc). It has begun implementing appropriate adaptive responses in some priority areas. In its role as a community leader the council has started working with its LSP encouraging identification of major weather and climate vulnerabilities and opportunities that affect the delivery of the LSP's objectives

### **Rationale**

At Level 2 the authority will need a comprehensive assessment of the potential impacts of the weather for specified periods into the future. This will yield a long list of potential impacts across all parts of the authority and amongst LSP partners. It will be helpful to keep this list proportionate (by not including what appear to be trivial impacts) and to give this list some status within the authority's documentation and reports and to establish a procedure for systematic updating.

From this comprehensive assessment of potential impacts it will be possible to identify priority areas for action. These priorities should be established using a rigorous (repeatable) risk-based approach in order to ensure that impacts are dealt with in a proportionate way. Your approach to risk assessment should be informed by the risk procedures that are generally used across the authority. In all cases the rigorous risk assessment should be:

- repeatable
- combine the 'likelihood of occurrence' with the 'severity of the consequence'

This process will generate a priority list of risks for which a range of possible adaptation responses can now be developed.

In some cases only a few sensible options will exist - in others serious consideration will be required to assess the benefits of different adaptation responses. Some issues will require immediate practical adaptation responses whilst others will require more extended periods of investigation. These might include research, cost-benefit appraisal and other types of capacity building initiatives, many of which will involve integration with other authority and partnership projects and programmes. We might expect to see some early adaptation actions at this level, whether these are prompted by rigorous assessment, crisis management or seizing opportunities.

Although not specifically required by the technical definition before this level, we have suggested bringing in partners earlier than Level 2. At this Level the process of engaging LSP partners is required and in some cases will continue from previous levels. A high aspiration for this level would be to persuade significant partners to undertake risk assessments i.e. like those undertaken by the authority at Level 1.

## Aims

**Note 1:** Although the technical definition at Level 2 is not explicit about continuous monitoring, it seems sensible to continue an (annual) review of authority and LSP partner projects and programmes to ensure that additional risks are not being introduced through other business.

**Note 2:** Although the technical definition at Level 2 is not explicit about monitoring the subsequent performance of adaptation actions, it will be sensible in some cases to consider making arrangements for this at Level 2.

The main aims of this level therefore are:

- 2.1 To ensure that the authority now has a comprehensive assessment of climate threats and opportunities across its operations for specified periods in the future
- 2.2 To identify using a risk-based method, preferably already employed by the authority, the priority risks that need to be considered
- 2.3 To establish methods and procedures for identifying adaptation options and develop some priority 'quick-win' actions
- 2.4 To begin to implementing some priority actions which will include both 'practical adaptation actions' and 'building adaptive capacity'
- 2.5 To encourage activity amongst LSP partners to undertake risk based assessments of their significant vulnerabilities and opportunities
- 2.6 Supplementary Aim; To introduce arrangements for monitoring other business in order to be aware of any new risks
- 2.7 Supplementary Aim; To introduce arrangements for monitoring the effectiveness of adaptation measures as they become exposed to the increasing extremes of the changing weather

## Commentary

### 2.1 Comprehensive assessment of potential impacts

This is the stage at which the authority, and preferably its LSP partners, develop a comprehensive understanding of the potential impacts (threats and opportunities). Earlier work at Level 1 will have produced a partial list of potential impacts. Now the challenge is to be as comprehensive as possible. This broad-brush approach will be assisted if each department/service area/business unit/LSP partner undertakes its own impacts assessment.

It has proved useful elsewhere to consider potential impacts over different timescales. These must be determined locally, but might be determined by political/policy cycles within the authority, anticipated socio-economic changes and/or the (30 year) periods for which climate change data are available.

**Questions to ask**

*Have all active units within the LSP undertaken an impacts assessment?*

*Have they used a risk based methodology to identify climate risks and drawn on best practice guidance (such as that produced by UKCIP)?*

*Have we agreed sensible periods of time over which to consider these future impacts?*

*Have we aligned these impacts alongside other threats/opportunities?*

**2.2 The risk-based assessment revealing priority issues**

The risk-assessment process is designed to bring significant issues to the top of the list for consideration and correspondingly to demote less significant issues. Ideally the approach to risk-assessment should be the same as that adopted across the authority for other types of risk. This will allow climate and weather risks to be dealt with in a proportionate way compared with other risks – thus climate risks will not be exaggerated and claim excessive resources nor will they be trivialized and given insufficient attention.

Information on what criteria Government has identified for the national adaptation programme are on the Defra Adaptation pages;

[www.defra.gov.uk/adaptation](http://www.defra.gov.uk/adaptation)

**Questions to ask**

*Have we explored with partners if risk management expertise exists elsewhere within the LSP?*

*In undertaking a risk based assessment have we adopted a robust and repeatable method for determining the 'likelihood of occurrence'?*

*In undertaking a risk based assessment have we adopted a robust and repeatable method for determining the 'severity of consequence'?*

*Have we now prepared a comprehensive risk-based assessment of the threats and opportunities presented by changing weather and climate over relevant time scales?*

*Have we compared the outcomes of the risk assessment with the authority wide risk register?*

*What conclusions can we make about relative risks across the whole authority?*

**2.3 Identify priority actions**

Having decided what are the priority impacts, by identifying the impacts that present the greatest risk, you now need to explore how best to deal with these impacts. A more comprehensive and systematic adaptation plan will be developed and implemented at Level 3, but at Level 2 the process of developing adaptation options will begin. So, you might decide to deal with impacts that look relatively easy i.e. the quick wins, but also to begin exploration of one or two more complex issues.

Practical responses to some impacts may be quite obvious though there will always be issues of cost and implementation to consider. Other impacts will require considerable study before appropriate responses can be identified. Such study is likely to take place within technical units

or with external partners which should be encouraged and it will not always be necessary to design your own responses.

Technical specifications with improved climate resilience may already exist and can be found in guidance, standards or codes from relevant government departments or professional bodies. In other cases it may be necessary to explore alternatives in-house. Cost-benefit analysis, life-cycle investment, community expectations, Green House Gas emissions, sustainable development and other performance indicators will feature in exploring alternatives.

### **Questions to ask**

*Have we developed an appropriate mechanism for identifying the impacts which present the greatest risk in the list?*

*Have we identified the responses that need to be taken to address those identified as a priority?*

*Does the list of priority risks naturally fall into a few obvious categories – for example different service units?*

*Are there other priority risks that will clearly involve us in co-ordination between several units?*

*Have we researched examples of adaptation responses which have already been implemented elsewhere?*

*Have we considered what knock-on effects adaptation might create for other areas, i.e. the need to avoid mal-adaptation.*

*Do we have a robust set of criteria against which to judge ideas?*

## **2.4 Implement priority actions**

At this level you will probably not expect to be in a position to implement many adaptation actions. A more comprehensive and systematic adaptation plan will be developed and implemented at Level 3. So here there will be a few priority practical actions to implement and probably many more actions which will help to build adaptive capacity. At this level the authority is not required to have a comprehensive adaptation action plan but will need to demonstrate that any quick wins have been taken.

Some actions may take many years of investigation and public consultation before practical adaptation actions can be implemented. Where adaptation needs a long lead-time the authority will need to show that investigations have started or that actions are included in the forward looking work programmes. It is likely that areas that are already well developed at assessing future climate risks, such as flood risk management, will be quick-wins at this stage.

### **Questions to ask**

*Have we distinguished between those practical adaptation actions which can (or must) be implemented now and those actions for which we need to build adaptive capacity for implementation in due course?*

*Have we undertaken an appropriate assessment of the options?*

*Have we identified relevant sources of funding and developed the necessary bids to implement the priority actions?*

*Have our implementation plans included appropriate arrangements for monitoring the performance of adaptation actions in the face of the changing climate?*

## **2.5 integrate LSP partners**

By Level 2, whatever the starting point has been, you should now expect a to be involving LSP partners.

### **Questions to ask**

*How can we keep LSP partners informed of progress on the overall project?*

*Have we demonstrated the approach and methods that we have adopted with a view to partners adopting similar approaches?*

## **2.6 Supplementary Aim; monitor new business**

Not only will the weather and climate continue to change, but so will the priorities, community demands, political climate, etc. So, the authority will inevitably have new business with new plans and projects which will be subjected to the future impacts of weather and climate. Appropriate procedures could usefully be introduced at this level to ensure that the authority continues to be resilient with a changing programme as well as with a changing climate.

## **2.7 Supplementary Aim; monitor effectiveness of early adaptation measures**

To build up a picture of the effectiveness of early adaptation measures, it might be advisable to put in place arrangements to monitor their effectiveness. These will differ according to the type of adaptation measures. The performance judgement for each measure will also need to include data on the weather event or changing climate which the measure is intended to address.

## **Available Resources and examples**

Guidance and information on undertaking and completing a Strategic Flood Risk Assessment – [A guide for developers](#) and [A Guide for LPA's](#).

### **PPS25 Guidance**

[Water Cycle Studies](#) - these provide a strategic framework drawing together interested parties and plans associated with flood risk, water supply and water quality. They help ensure a coordinated approach to water at the local level, and help identify priority actions.

### ***Level 3: Comprehensive action plan (and prioritised action in priority areas)***

#### **Technical Definition**

The Authority has embedded climate impacts and risks across council decision making. It has developed a comprehensive adaptation action plan to deliver the necessary steps to achieve the existing objectives set out in council strategies, plans, investment decisions and partnership arrangements in light of projected climate change and is implementing appropriate adaptive responses in all priority areas. This includes leadership and support for LSPs in taking a risk based approach to managing major weather and climate vulnerabilities/opportunities across the wider local authority area.

#### **Rationale**

A comprehensive Adaptation Action Plan is the main outcome of work at this level. The principal purpose of the plan is to ensure continuity of service across the whole authority and its partners.

The Adaptation Action Plan will build on the risk-based approach from the previous Levels to set out the priorities, and adaptation options. As with the guidance at the earlier levels, although the development of the plan may be managed by the project team it will be important to make use of technical expertise amongst all partners in developing the plan.

At Level 2, the technical definition requires the authority to start encouraging LSP partners to identify their significant vulnerabilities and opportunities. At Level 3, this expectation goes to the next stage and expects the authority to support LSP partners to take a risk based approach to managing vulnerabilities and opportunities. This plan should probably therefore, as well as including proposals for practical adaptation actions, also contains actions that will help to build the adaptive capacity of all partners.

#### **Aims**

- 3.1 To develop a comprehensive adaptation action plan which sets out the necessary steps to achieve objectives in the light of projected climate change
- 3.2 To ensure that a consideration of changing climate impacts and risks is embedded into all authority decision making
- 3.3 To implement appropriate adaptation responses to the priority issues identified in the comprehensive risk assessment.
- 3.4 To ensure that the authority is supporting the LSP and partner organisations in managing changing climate risks across the wider local authority area.

#### **Commentary**

### 3.1 Developing a comprehensive Adaptation Action Plan

An adaptation action plan should respond to the risks (and opportunities) identified by the comprehensive risk-based assessment undertaken at Level 2. Some adaptation responses will have already been identified at Level 2 and some priority actions may be underway. *(See 2.3 for discussion of some approaches to developing practical adaptation actions.)*

At this level, you should be using an appropriate systematic approach to [identify and assess adaptation options](#) in order to identify practical, cost-effective actions. Such an approach should include a means of identifying potential adaptation options and a method for assessing the pros and cons of alternative approaches e.g by the use of an appraisal matrix setting out the key aims and objectives for adaptation measures. Much of this work is likely to most effective when undertaken within the relevant service delivery units and should make use of any relevant technical specifications, standards, codes or guidance available. It will also benefit from a wide-ranging consultation with partners.

Given our current understanding of adaptation and the complexity of some of the issues raised (see 2.4), it is likely and reasonable that your initial plan will include many actions requiring further investigations of key issues and building institutional capacity as well as measures for delivering actual adaptation actions.

Although monitoring is not explicitly mentioned until level 4, a comprehensive action plan should probably include the proposed means of monitoring and reporting the delivery of the plan and how well the measures performed once implemented.

#### Questions to ask

*Does the plan include clear actions in response to the priority risks (and opportunities) identified in the comprehensive risk assessment?*

*Do these actions include actions designed to ‘build adaptive capacity’ as well as those intended to ‘deliver adaptation actions’?*

*For each action, does the plan set out:*

- *A clear timetable for implementation;*
- *Responsibilities for the delivery and management of actions;*
- *Identify the resources required, including where these are not available within existing staffing and budgets, confirmed (or potential) sources of additional funding, both within LA and LSP;*
- *A programme for monitoring and reporting the delivery of the action;*
- *Measures for monitoring the performance of the adaptation measure;*
- *A timetable for reviewing the action plan;*
- *A timetable for reassessing changing climate risks to the delivery of the authorities and where appropriate partners objectives;*
- *Links to business planning cycles;*
- *An appraisal of the action in the context of sustainable development*



### **3.2 Embedding climate risks into decision making**

Effective adaptation to climate change is the on-going process of managing climate risks. As such, it is important that consideration of changing climate risks is embedded within all authority and wider LSP decision making. Ideally, this should be included within the authority's existing risk management procedures. However, because climate change is an emergent consideration, it may be appropriate to introduce new procedures, or processes, for ensuring that climate risks are assessed for all key decisions.

It may be appropriate to include proposals for developing effective means of ensuring that climate risks are embedded in decision-making as one of the key actions in your adaptation action plan.

#### **Questions to ask**

*Have we investigated current risk management procedures in use by your authority?*

*Can these be used to ensure that climate risks are considered in all relevant decisions?*

*If not, have we developed alternative proposals and have they been embedded into our and wider LSP practice?*

### **3.3 Implementing adaptation responses**

At this level, it is expected that your authority is implementing appropriate adaptation responses to all the priority areas identified in the comprehensive risk assessment undertaken at level 2. As noted in 2.4, some actions may require considerable investigation and involve significant lead times. It is therefore likely that appropriate adaptation responses will include a mix of practical adaptation measures in response to some of the simpler issues and programmes of further investigation and development for the more complex issues.

#### **Questions to ask**

*Are we implementing practical adaptation responses, where possible at this time, for all the priority areas identified in the comprehensive risk assessment?*

*Have we included both 'building adaptive capacity' and 'delivering adaptation actions'?*

*Are we undertaking systematic programmes of investigation and development for all priority areas that cannot be practically implemented in the short term?*

*Have we included robust arrangements for monitoring and review?*

### **3.4 Supporting LSP and partner organisations**

Ideally, LSPs and partners should be involved throughout the levels, but in practice there are likely to be wide variations in engagement. However, at this level, it is expected that the LSP and partner organisations are engaged in the process of assessing the risks and managing their own organisations and the wider local community to a changing climate. Consideration should be

given to those LSP's with a duty to cooperate and activity here should probably focus on those actions identified by the authority which are dependent on LSP involvement to deliver and where there are synergies, conflicts and dependencies.

**Questions to ask**

*Is the LSP and partner organisations engaged in adapting their organisations and the wider community to climate change?*

*Are they adopting a risk-based approach to understanding and managing climate risks?*

*Is our authority undertaking a leadership role within the LSP?*

*Are we communicating effectively with the LSP and partner organisations to encourage and support their approach to adapting to climate change?*

*Are we sharing our experiences and examples of adopting a risk-based approach to adapting to a changing climate?*

## ***Level 4: Implementation, monitoring and continuous review***

### **Technical Definition**

The Authority and LSP are implementing the comprehensive adaptation action plan across the local authority area, and there is a robust process for regular and continual monitoring and review to ensure progress with each measure and updating of objectives. The Authority and LSP are taking appropriate adaptive responses.

### **Rationale**

By this level, the technical definition requires that the authority and all of the LSP partners have mainstreamed climate adaptation into all aspects of their normal business and the Adaptation Action Plan is being implemented.

To ensure that climate risks are being managed effectively robust systems for monitoring, reviewing and updating actions are required. These need three components:

- systems for monitoring the implementation of planned actions;
- systems for monitoring the performance of adaptation measures once implemented;
- systems for reviewing and updating of plans and responses in the light of changing circumstances and new evidence

### **Aims**

- 4.1 To ensure that there are robust systems for monitoring and reporting the implementation of the Adaptation Action Plan including the roles of all partners
- 4.2 To establish robust systems for monitoring, against the objectives of the plan, the performance of adaptation measures undertaken in the delivery of the Adaptation Action Plans, including the actions of all partners.
- 4.3 To ensure that all relevant adaptation plans are reviewed and updated at appropriate intervals in the light of their performance, changing circumstances and objectives and the latest climate change projections.

### **Commentary**

#### **4.1 Monitoring implementation of plan**

In common with all action plans, the Adaptation Action Plan should include robust provisions for monitoring and reporting to ensure that plans are running to schedule and budget.

### ***Questions to ask***

*Does our organisation have existing performance management systems that can be used to monitor and report the implementation of the climate change adaptation action plan?*

*If not, have we established an effective means of monitoring the implementation of the plan?*

*How are we going to manage any problems arising during the implementation of the plan?*

*Do we have mechanisms for resolving any disagreements between partners?*

*Do we have a mechanism for revising planned actions due to changing circumstances during the course of the plan period?*

## **4.2 Monitoring performance of adaptation actions**

Your plan should include provisions for monitoring the performance of adaptation actions once implemented especially when weather extremes occur. In some cases it may be possible to get an idea of the performance of adaptation measures during less extreme events, for instance, the behaviour of changes to surface water drainage systems during moderate rainfall may help indicate their performance during more intense rain events.

### **Questions to ask**

*Does our plan include measures to monitor the performance of adaptation measures once implemented?*

*Does our plan include measures to monitor and record extreme weather events and their impacts?*

*Have you established reporting protocols with partner organisations so data / information is provided in a regular and timely manner?*

## **4.3 Review and updating of plans**

Adapting to a changing climate is an ongoing process and it is important to review and update plans regularly in the light of their performance and changing circumstances. This is particularly important in the light of our relative inexperience in responding to the challenges of adapting to climate change. Typically, an initial Adaptation Action Plan is likely to cover a period of 3 to 5 years. There should be provision for revision and update towards the end of the plan period. Ideally, there should also be provision for updating the plan as it runs its course, if any major new factors come to light. As part of managing changing climate risks, there should be a schedule for reassessing risks and opportunities at appropriate intervals, although these may extend beyond the period of the plan.

### **Questions to ask**

*Does our plan include a timetable for reviewing and updating proposals?*

*Do we have a system in place for monitoring relevant research and data that may inform the adaptation action?*

## Glossary

References to IPCC definitions and descriptions are derived from the Glossary to the IPCC AR4 working group 2 report (2007).

- **Adaptation** – is the term used to describe responses to the effects of climate change. The IPCC defines *adaptation* as “adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.”

In this guidance the term is used in the narrower sense of planned responses aimed at minimising the threats and maximising the opportunities of a changing climate.

Adaptation can also be thought of as the ongoing process of managing changing climate risks.

- **Adaptive capacity** – is defined by IPCC as “the ability of a system to adjust to *climate change* (including *climate variability* and extremes) to moderate potential damages, to take advantage of opportunities, or to cope with the consequences.”
- **BACLIAT** - Business Areas Climate Impacts Assessment Tool is a simple checklist for assessing the potential impacts of climate change under the following headings: logistics, finance, markets, process, people, premises and management implications. Although originally developed to assist private businesses, it also provides a useful framework for public sector organisations to identify potential impacts on their operations and objectives.
- **Baseline** – is defined by IPCC as “the state against which change is measured. It might be a ‘current baseline’, in which case it represents observable, present-day conditions.” The definition of NI188 describes Level 0 as ‘Baseline’ meaning the extent to which the impacts of climate changes are already being considered by the local authority’s policies and operations.
- **Capacity building** – in the context of *climate change*, capacity building is developing the technical skills and institutional capabilities to adapt to a changing climate. (Modified from IPCC.)
- **Climate** - is usually defined as the ‘average weather’, or more rigorously, as the statistical description in terms of the mean and variability of relevant quantities over a period of time. These quantities are most often surface variables such as temperature, precipitation, and wind. The conventional period of time over which weather is averaged to calculate climate is 30 years, as defined by the World Meteorological Organization (WMO). (Modified from IPCC.)
- **Climate change** – the IPCC defines this generally as “...any change in *climate* over time, whether due to natural variability or as a result of human activity.” This usage differs from that in the *United Nations Framework Convention on Climate Change (UNFCCC)*, which defines ‘climate change’ specifically in relation to human influence as: ‘a change of climate which is attributed directly or indirectly to human activity that alters the

composition of the global *atmosphere* and which is in addition to natural climate variability observed over comparable time periods’.

- **Climate model** – is a numerical representation of the *climate system* based on the physical, chemical, and biological properties of its components, their interactions and *feedback* processes, and accounting for all or some of its known properties. (Modified from IPCC.) Modelling for the UK climate projection is undertaken by the Met Office Hadley Centre (MOHC).
- **Climate projections** – are the calculated response of the *climate system* to *emissions* or concentration *scenarios* of *greenhouse gases* and *aerosols*, usually based on simulations by *climate models*. Climate projections critically depend on the emissions/ concentration/*radiative forcing* scenario used, and therefore on assumptions of future socio-economic and technological development that are highly uncertain. (Modified from IPCC.)
- **Climate (change) projection** is a plausible and often simplified representation of the future *climate*, based on an internally consistent set of climatological relationships and assumptions of *radiative forcing*, typically based on emission scenarios. A ‘climate change projection’ is the difference between a climate *scenario* and the current climate. (Modified from IPCC.)
- **Consequence** – the end result or effect caused by a situation or event. In order to undertake a risk assessment, it is necessary to make a quantitative, or qualitative, estimate of the magnitude of the consequence(s) of an event. Note that there will typically be a range of consequences for different receptors affected by a weather event or the impact of a climate change.
- **Emission scenarios** – are assumed future emissions of greenhouse gases used as inputs to climate models in order to estimate future climate changes. The IPCC formally defines an emission scenario as “a plausible representation of the future development of emissions of substances that are potentially radiatively active (e.g. greenhouse gases, aerosols), based on a coherent and internally consistent set of assumptions about driving forces (such as demographic and socio-economic development, technological change) and their key relationships.” The current set of scenarios used by the IPCC and for the UK climate projections are known as SRES and are described in the IPCC Special Report on Emission Scenarios (Nakićenović et al., 2000).
- **Exposure** – is a term used in risk management to describe the extent to which a system is exposed to a particular stimulus (usually hazardous). In the context of adaptation, it is used to refer to the extent to which a particular climate risk is received by a system of interest. See also **exposure unit** below.
- **Exposure unit** – is a term used to describe the system considered to be at risk from climate change. An exposure unit is often defined in terms of a geographical area, location, or the population of a particular receptor of interest. For instance, an entire local authority area could be considered an exposure unit, as could a particular school, or

the population of primary school pupils in an education authority area. See also **receptor** below. Note that in some cases an exposure unit and a receptor may be considered as synonymous.

- **Hazard** – a term used in risk management for a situation or event with the potential to cause harm.
- **Impact** – a beneficial or (more usually) detrimental consequence (of a situation or event). The IPCC describes climate change impacts as the “effects of climate change on natural and human systems”. When considering adaptation it can be useful to distinguish between:
  - **potential impacts** – all the impacts that may occur given a projected climate change, without considering adaptation; and
  - **residual impacts** – the impacts of a climate change that may occur after the implementation of any adaptation measures.
- **IPCC** – Intergovernmental Panel on Climate Change was set up jointly by the World Meteorological Organisation (WMO) and the United Nations Environment Programme (UNEP) to provide an authoritative international statement of scientific understanding of climate change. Most recently they published their Fourth Assessment Report(s) in 2007.
- **LCLIP** – Local Climate Impacts Profile 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 recent 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.
- **Likelihood** – a general concept relating to the chance of an event (or impact) occurring. Generally expressed as a probability or frequency. In order to undertake a risk assessment, it is necessary to make a quantitative, or qualitative, estimate of the likelihood of a particular (hazardous) event or impact occurring.
- **LRAP** – Local and Regional Adaptation Partnership Board – a joint partnership of various local and regional organisations (UKCIP, Environment Agency, Natural England, Nottingham Declaration, Local Government Association, Government Offices, Regional Development Agencies, Local Strategic Partnerships, Regional Climate Change Partnerships and Defra) chaired by Government Office for London who have come together to support delivery of adaptation at the local and regional level. Details of the Board and its programme of work can be obtained via the Government Offices.
- **Receptor** – the entity that may be harmed by a particular set of hazardous events. Examples of receptors that are likely to be relevant to local authorities and partners include people, premises and aspects of the environment. See also **exposure unit** above
- **Resilience** – is defined formally by IPCC as “the ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the

capacity for self-organisation, and the capacity to adapt to stress and change.” This definition has its origins in ecology and, in practice, improving the resilience of human systems may involve some changes to structure and function. A much simpler description is the ability of a system to recover from the effect of stress. One way of thinking about adaptation is as the process of improving resilience to projected climate changes. See also the term **robustness** below.

- **Risk** – the combination of the likelihood, or probability, of an event occurring, and the magnitude of the impact(s), or consequence(s), associated with that event.
- **Robustness** – is the ability of a system to continue to perform satisfactory under stress. The concept of robustness is very similar to that of resilience, but tends to emphasise continuity of performance whilst under stress rather than the capacity to recover from the effects of stress.
- **Sensitivity** – the degree to which a system would be affected by a stimulus.
- **Threshold** – the IPCC defines threshold as “the level of magnitude of a system process at which sudden or rapid change occurs”. In terms of adaptation, the term threshold is often used to describe a level at which the magnitude of a consequence is considered unacceptable, for instance, an internal temperature above which there are significant health risks to vulnerable people.
- **Vulnerability** – the magnitude of harm that would result from a particular hazardous event. The IPCC describes vulnerability as “the degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change.” Note that different types of **receptors** may differ in their vulnerability to a particular level of hazard.



## **ANNEX A: The technical definition of NI188**

### **NI 188: Planning to Adapt to Climate Change**

#### **Rationale**

To ensure local authority preparedness to manage risks to service delivery, the public, local communities, local infrastructure, businesses and the natural environment from a changing climate, and to make the most of new opportunities. The indicator measures progress on assessing and managing climate risks and opportunities, and incorporating appropriate action into local authority and partners' strategic planning. The impacts might include increases in flooding, temperature, drought and extreme weather events. These could create risks and opportunities such as: impacts to transport infrastructure from melting roads or buckling rails, increases in tourism, increased damage to buildings from storms, impacts on local ecosystems and biodiversity, scope to grow new crops, changing patterns of disease, impacts on planning and the local economy and public health. Examples of the processes, tools and evidence that could be used to reach the various levels have been included. However, this list is not exhaustive and any appropriate methodology can be used.

#### **Definition**

Local authorities should report the level of preparedness they have reached against the 5 levels of performance, graded 0 to 4. The higher the number, the better the performance. The criteria for achievement of each of the levels are detailed below.

#### **Level 0: Baseline:**

The Authority has begun the process of assessing the potential threats and opportunities across its estate and services (for example, flood and coastal resilience plans, emergency planning, community risk registers/strategies etc) and has identified and agreed the next steps to build on that assessment in a systematic and coordinated way.

Examples of evidence:

- The Authority has identified a lead official to identify and provide advice to service/department heads on potential impacts of future climate change on its functions
- The Authority has undertaken an audit of existing relevant risk registers and action plans in place (eg community risk register)
- The Authority has established a process for actions it needs to take to meet higher levels

#### **Level 1: Public commitment and prioritised risk-based assessment:**

The Authority has made a public commitment to identify and manage climate related risk. It has undertaken a local risk-based assessment of significant vulnerabilities and opportunities to weather and climate, both now and in the future. It can demonstrate a sound understanding of those not yet addressed in existing strategies and actions (e.g. in land use planning documents, service delivery plans, flood and coastal resilience plans, emergency planning, community risk registers/strategies etc ). It has communicated these potential vulnerabilities and opportunities to department/service heads and other local partners and has set out the next steps in addressing them.

Examples of evidence:

- The authority and partners have made a public commitment to manage climate risks e.g. signed up to the Nottingham Declaration or an equivalent
- A Local Climate Impacts Profile or equivalent process is ongoing
- Initial assessment produced using the UK Climate Projections
- Department/service heads facing significant vulnerabilities and opportunities have an understanding of the issues, with evidence of actions already in place to address these
- Evidence of working in partnership and pooling of resources and expertise across sectors, areas and council tiers where applicable

### **Level 2: Comprehensive risk-based assessment and prioritised action in some areas:**

The Authority has undertaken a comprehensive risk based assessment of vulnerabilities to weather and climate, both now and in the future, and has identified priority risks for its services. It has identified the most effective adaptive responses and has started incorporating these in council strategies, plans, partnerships and operations (such as planning, flood management, economic development, social care, services for children, transport etc). It has begun implementing appropriate adaptive responses in some priority areas. In its role as a community leader the council has started working with its LSP encouraging identification of major weather and climate vulnerabilities and opportunities that affect the delivery of the LSP's objectives.

Examples of evidence:

- Comprehensive risk assessment produced (for example using the UKCIP method)
- Nottingham Declaration accreditation
- Council Members and department and service heads have a detailed understanding of weather and climate risk in all vulnerable areas identified in risk assessment and actions taken in priority areas.
- Documents like Local Development Frameworks include climate change adaptation
- Local adaptation partnership established
- LSP partners are aware of actions being taken by the council, feel engaged in the process and confirm they have started to identify weather and climate risk that affect the delivery of their own objectives.

### **Level 3: Comprehensive action plan and prioritised action in all priority areas:**

The Authority has embedded climate impacts and risks across council decision making. It has developed a comprehensive adaptation action plan to deliver the necessary steps to achieve the existing objectives set out in council strategies, plans, investment decisions and partnership arrangements in light of projected climate change and is implementing appropriate adaptive responses in all priority areas. This includes leadership and support for LSPs in taking a risk based approach to managing major weather and climate vulnerabilities/opportunities across the wider local authority area.

Examples of evidence:

- Action plan developed and published

- Nottingham Declaration accreditation at a higher level
- Detailed understanding of risk and action taken to embed relevant adaptation response in council strategies, plans, partnerships and operations by all department/service heads where weather and climate risks have been identified.
- Initial cost analysis undertaken and potential sources of funding identified for major vulnerabilities
- LSPs feel fully engaged and action plan includes commitment from authority and LSP
- Pooling of skills, knowledge and resource across LSP
- Consulted with authorities responsible for climate change management and others who can provide advice on good practice e.g. Environment Agency, Natural England, Defra.

**Level 4: Implementation, monitoring and continuous review:** The Authority and LSP are implementing the comprehensive adaptation action plan across the local authority area, and there is a robust process for regular and continual monitoring and review to ensure progress with each measure and updating of objectives. The Authority and LSP are taking appropriate adaptive responses

Examples of evidence:

- Clear and robust continuous monitoring and review system in place
- Outputs from the review and monitoring process are ploughed back into the action plan and other relevant council and LSP strategies

### Further Guidance

Good quality performance can be typified by assessments and plans which seek to include local authority strategic partners throughout the stages. Sources of guidance, tools and resources which can assist with undertaking the assessments required for levels 0-4 are outlined below. Each contains several useful processes and tools which can be used to achieve each of the stages. However, any appropriate methodology can be used to achieve the stages of this indicator.

Guidance on how to undertake climate risk assessments and action plan processes is available in the Nottingham Declaration Action Pack. The pack uses an overall 5 step process as a guide to developing an adaptation action plan. Much of this guidance will relate directly to the tasks in levels 0-4 of the indicator [www.nottinghamdeclaration.org.uk](http://www.nottinghamdeclaration.org.uk) In addition to the information provided here, other resources are available to support local authority work in this area:

The UK Climate Impacts Programme (UKCIP) [www.ukcip.org.uk](http://www.ukcip.org.uk) has a range of tools and resources that will assist in achieving the level 0-4 tasks. The production of a Local Climate Impacts Profile (LCLIP) could assist with defining the local climate vulnerabilities and risks and increasing awareness amongst officers and members. Local Authorities should seek additional guidance from statutory authorities, such as the Environment Agency and Natural England, on issues such as flooding, water resources, coastal management, waste, biodiversity, landscape and the natural environment.

## **ANNEX B: Generic themes for Self Assessment and Review**

UKCIP is working with others to develop a framework for self assessment which would be available for use by LAAs. Below are some potential assessment themes and how these might be expressed at the different levels. The matrix below has also been suggested by some as a useful mechanism which could be developed further into a self assessment tool.

### **Taking a leadership role**

Responsibility for pro-actively setting the framework, personnel and management of the adaptation agenda within the lead local authority and its constituent departments and amongst the individual member organisations of the LSP.

### **Engaging partners**

Ensuring that individual member organisations of the LSP (particularly second-tier authorities in two-tier partnerships) are fully involved in the decision-making processes and the development and delivery of adaptation action plans, both for their own organisations and fully integrated across the whole LSP.

### **Assessing current vulnerability**

Understanding the impacts of recent weather and climate related events, their consequences and the preparedness of responsible agencies to deal with such impacts. This is in order both to manage current vulnerability and to help anticipate future impacts and their consequences.

### **Assessing future risk**

Assessing the risks and opportunities associated with future weather and climate. Potential impacts should be considered for sensible (and specified) time periods, making use of robust models for climate projections and rigorous and repeatable methods for risk assessment. Risks so identified should be prioritised and related to other non-climate risks.

### **Developing Adaptation Approach and Strategy**

Exploring alternative adaptation options in terms of potential effectiveness, cost benefit, relationship with other LA and LSP strategies and plans, and wider sustainability objectives.

### **Completing Adaptation Action Plan**

Finalising decisions on preferred adaptation options for inclusion in an adaptation action plan. This may be developed incrementally (ie to deal with priority issues first). Whilst an Adaptation Action Plan will be a useful document it should not stand alone from delivery-/action- plans for other programmes and projects across the local authority(s) and LSP members organisations, with which adaptation actions should be fully integrated.

### **Implementing Adaptation Actions**

Delivering adaptation actions, initially for those aspects which can be delivered quickly and/or have the highest priority, and subsequently to include all of the actions in the agreed Adaptation Action Plan. Such actions can be drawn from two broad categories: a) Building Adaptive Capacity (BAC) and b) Delivering Adaptation Actions (DAA). BAC will include the development of policy, strategies and plans; monitoring; training; risk assessment; research; etc. DAA will include

actions such as changing the school calendar to avoid periods of excess heat; incorporating flood defences into town re-generation project; agreeing emergency planning arrangements in the event of extreme weather events.

**Monitoring/review and feedback**

Systematic monitoring of the impacts of weather and climate on council and LSP activities can be introduced at an early stage, and any significant evidence used to influence future plans. This monitoring should continue. Ultimately, monitoring and review will consider the extent to which proposed plans have actually been delivered and their effectiveness in achieving declared objectives. A formal review process will also include a review of the initial objectives and any necessary changes prompted by this review.

**NI188: Assessment Matrix for Levels 0 to 4**

	<b>Leadership</b>	<b>Partnership</b>	<b>Assess current situation</b>	<b>Assessing future risks</b>	<b>Developing an approach</b>	<b>Action plan</b>	<b>Implementation</b>	<b>Monitoring and review</b>
<b>0</b>	Identify lead officer Establish (outline) process		Audit of existing PPPs, etc. Begin process of looking at local risks		Establish process (see leadership)			
<b>1</b>	Public commitment to manage climate-related risks Ensure good communication within the authority	Communicate relevant vulnerabilities and risks to other partners	Undertake risk assessment of significant local vulnerabilities	Assess how risks and vulnerabilities may change in future using UK climate projections	Establish approach for next stage		(Examples include suggestion of evidence of any actions in place to address significant vulnerabilities and opportunities.)	
<b>2</b>		LA engaged with other LSP partners that are aware of LAs's work LSP (and other partners) have started to assess the impacts of cc on their objectives	Undertake comprehensive risk-based assessment of (current local) vulnerabilities Identify priority risks	Undertake comprehensive risk-based assessment of (future local) vulnerabilities Identify priority risks	Identify effective adaptation responses to priority risks		Started implementing adaptation measures in some priority areas	
<b>3</b>	Embed climate impacts and risks across council decision-making	Support LSPs in taking a risk-based approach to managing major weather and climate risks.				Develop a comprehensive Adaptation Action Plan	Implement appropriate adaptation responses in all priority areas	
<b>4</b>							All units in LA and all partners in LSP are implementing the comprehensive Adaptation Action Plan.	Robust procedures are in place for regular and continual monitoring and review to ensure progress with each measure and updating of objectives.