

UK Climate Impacts Programme

What is climate adaptation?

Adapting to what in Oxfordshire?

20th January 2010



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UKCIP

The UK Climate Impacts Programme (UKCIP)

Mission:

To help organisations assess how they might be affected by climate change, so that they can prepare for its impacts.

Set up by UK Government in 1997

based at University of Oxford

core funded by central government -- Defra

recently expanded to 20+ people

current work-programme to 2011

works through:

partnerships and programmes

capacity building

stakeholder-led research



Mitigation and adaptation

Mitigation of climate change

slow down global warming by reducing greenhouse gas emissions

Adaptation to climate change

respond to the (predicted) impacts of climate change

Adaptation to climate change

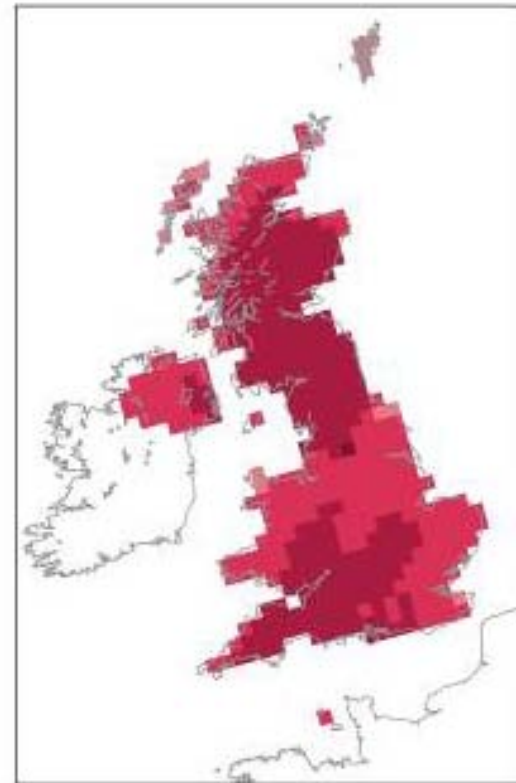
Not just an environmental issue – it's about understanding vulnerability and managing risks in a changing climate

To plan your adaptation strategy you need to know:

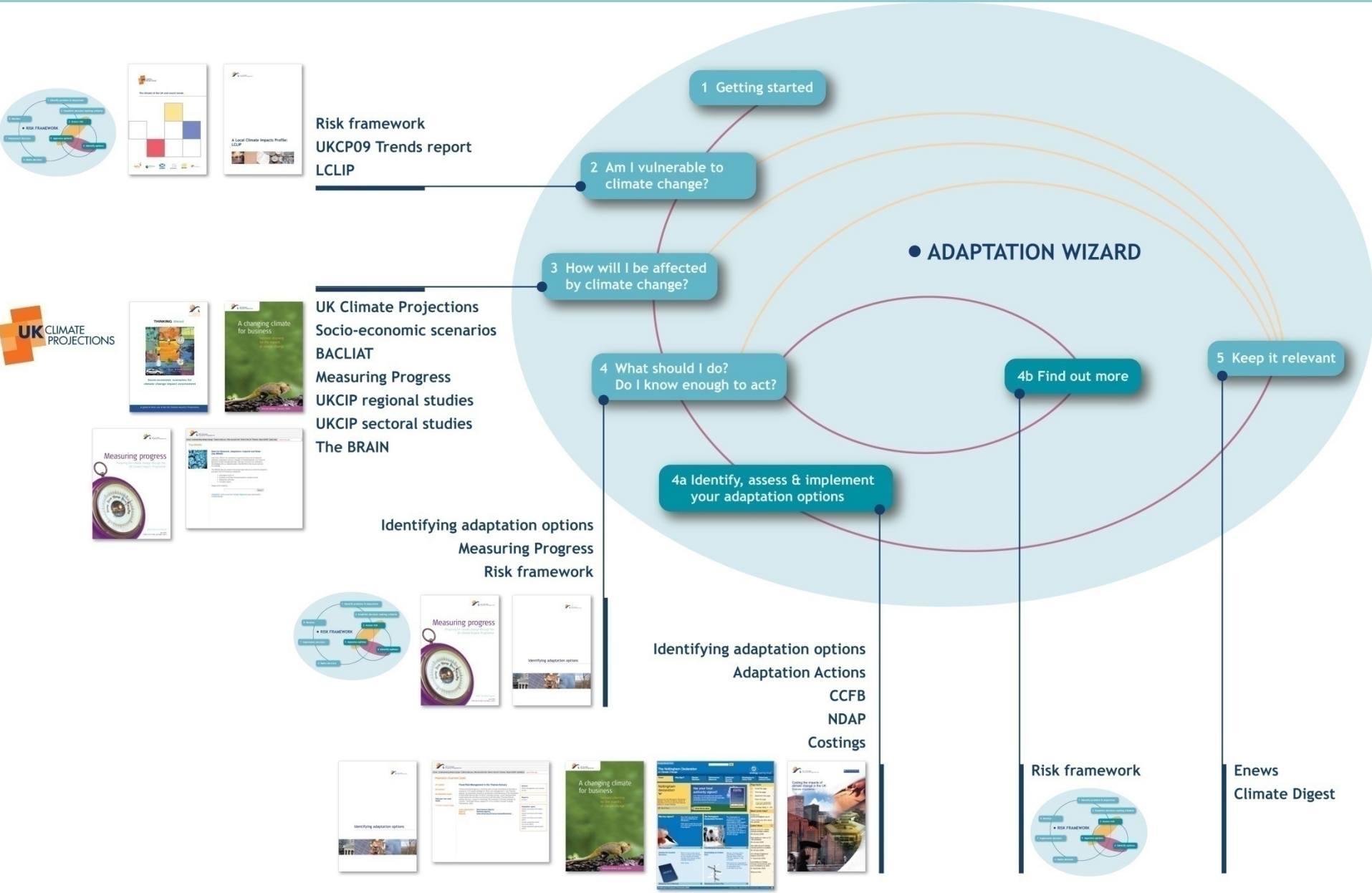
What are the threats and opportunities?

When are they likely to occur?

How serious they will be?



UKCIP Tools to support adaptation



ADAPTATION WIZARD

1 Getting started

2 Am I vulnerable to climate change?

3 How will I be affected by climate change?

4 What should I do? Do I know enough to act?

4b Find out more

5 Keep it relevant

4a Identify, assess & implement your adaptation options

Risk framework
UKCP09 Trends report
LCLIP

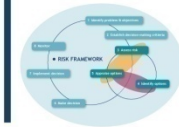
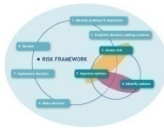
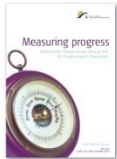
UK Climate Projections
Socio-economic scenarios
BACLIAT
Measuring Progress
UKCIP regional studies
UKCIP sectoral studies
The BRAIN

Identifying adaptation options
Measuring Progress
Risk framework

Identifying adaptation options
Adaptation Actions
CCFB
NDAP
Costings

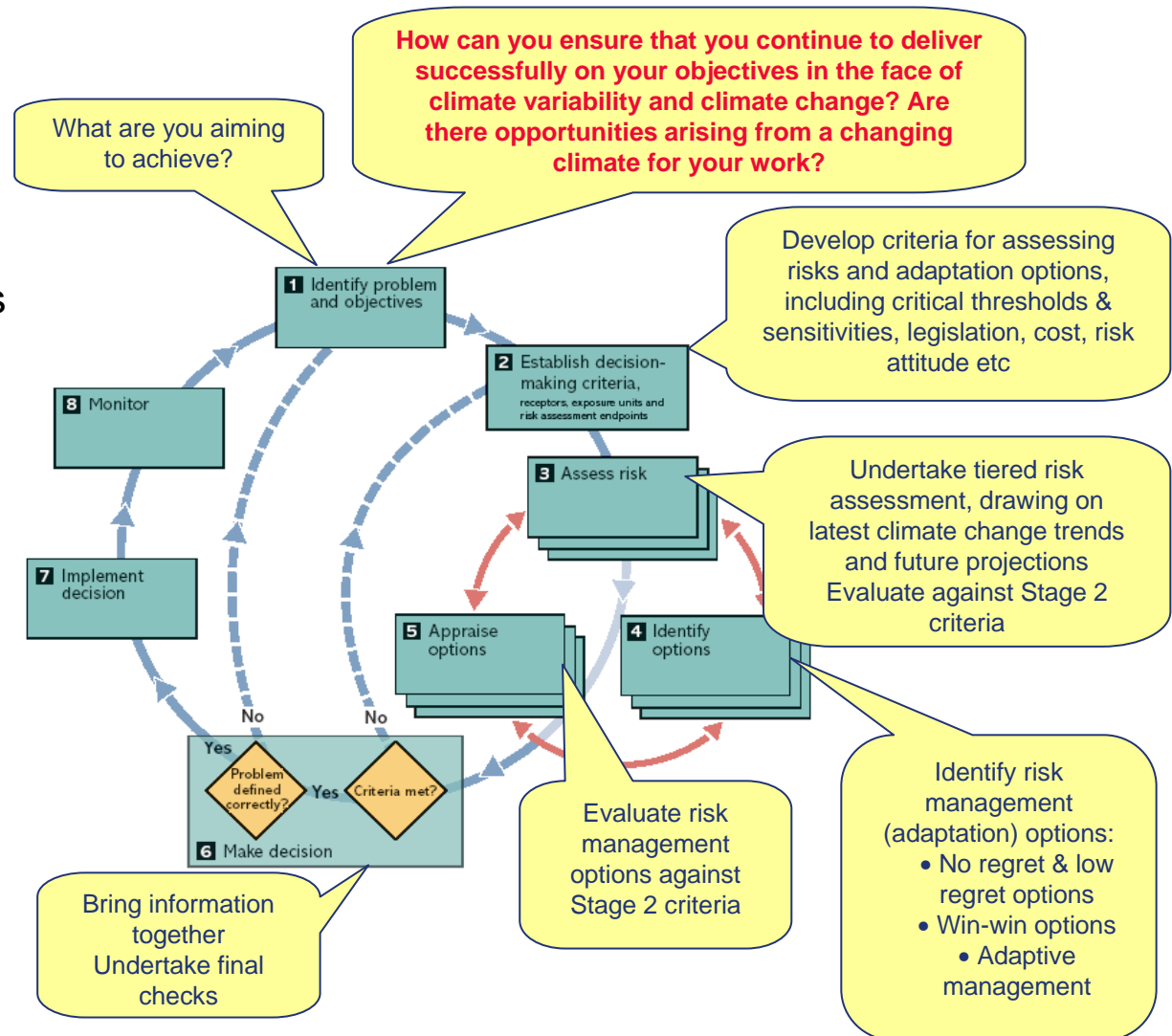
Risk framework

Enews
Climate Digest



Climate risks can be embedded into mainstream decision-making

- Bring 'climate adaptation' and 'risk management' worlds together
- Mainstream climate risks within existing risk management processes
- Start with the strategic objectives and how these will be affected
- Drill down to functional levels



UK climate scenarios

UK climate scenarios produced since 1991

UKCIP published climate scenarios in 1998 and 2002

Each version has become more detailed, building upon:

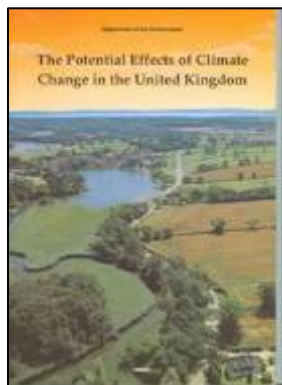
- improved scientific knowledge

- increased computing power

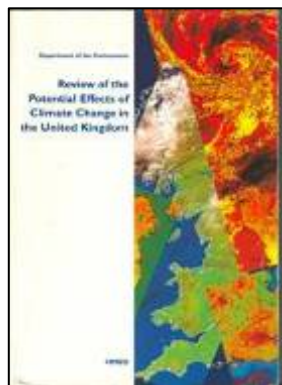
- stakeholder requirements

Each has represented best scientific understanding at that time

Audience has evolved and grown



CCIRG91



CCIRG96



UKCIP98



UKCIP02



UKCIP09



UKCIPnext

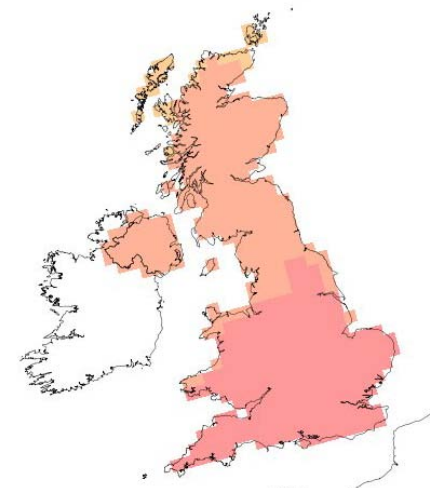
The core messages from UKCP09 are similar to those of UKCIP02

Annual / seasonal averages

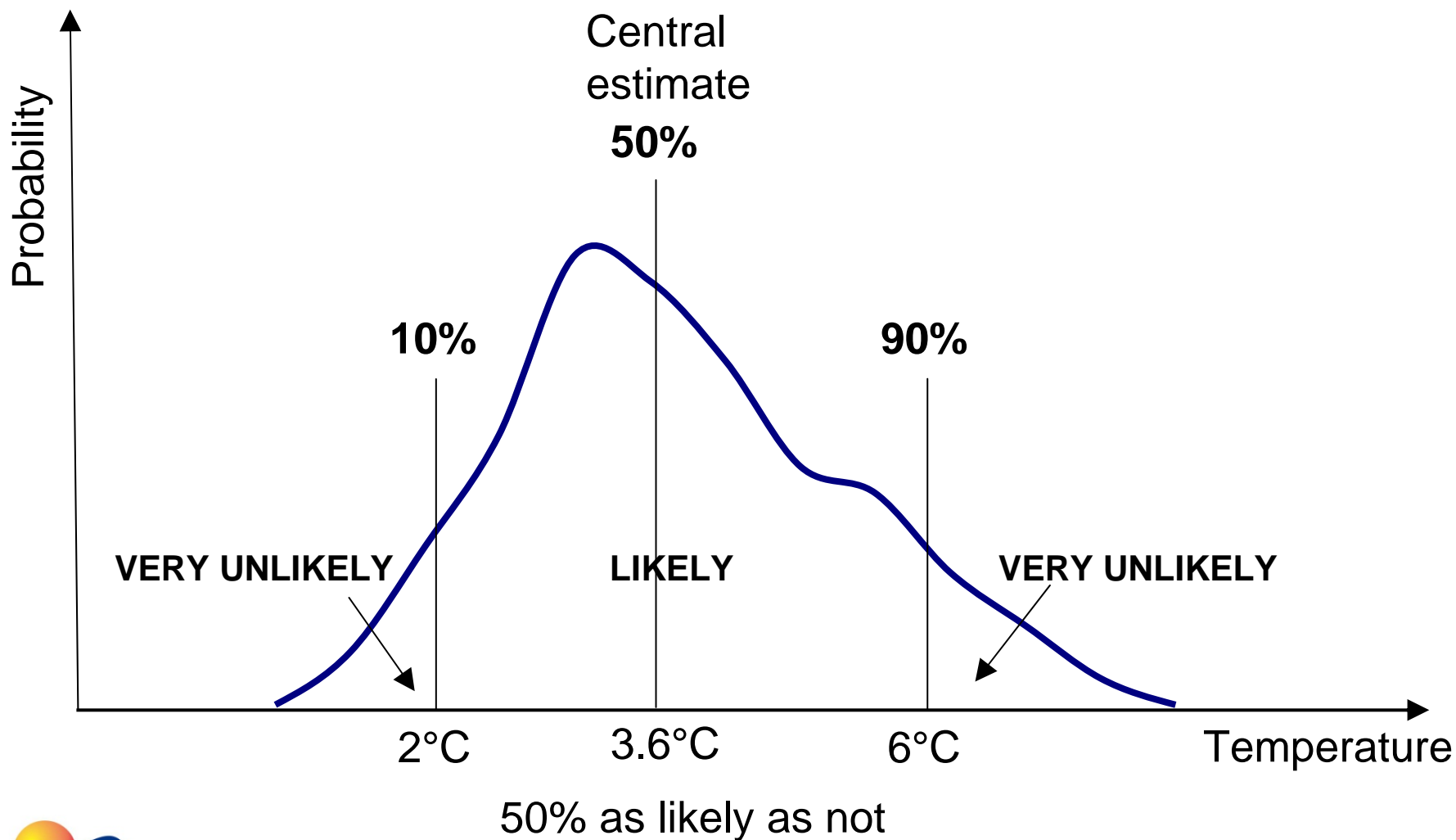
- Warmer, drier summers (spring, autumn too)
- Milder, wetter winters
- Rising sea levels
- Seasonal shifts

Extremes

- More very hot days
- More intense downpours of rain
- Shorter return periods for high water levels at coast
- Uncertain changes in storms – possible increase in winter



Probabilistic data - Key Findings

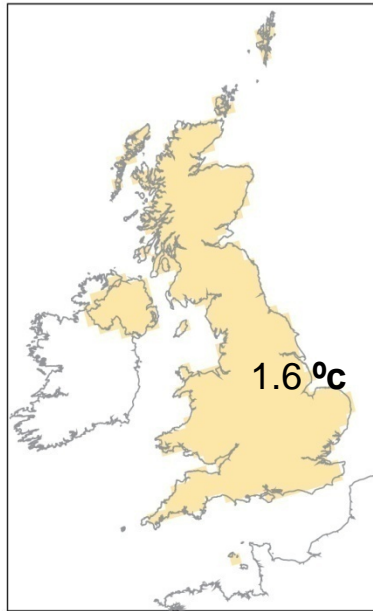


Summer mean temperature

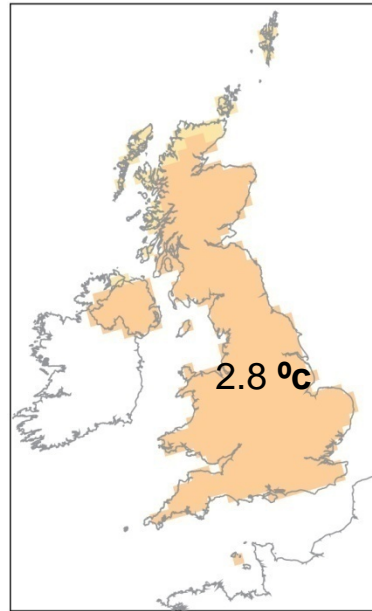
medium emissions scenario

50% probability level, Central estimate

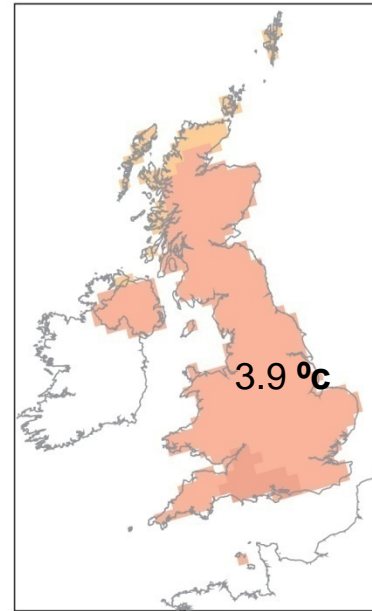
2020s



2050s



2080s



Change in summer mean temperature (°C) under the medium emissions scenario

SE England range (10% to 90% probability levels)

2020's range 0.6 – 2.7 °C

2050's range 1.3 – 4.6 °C

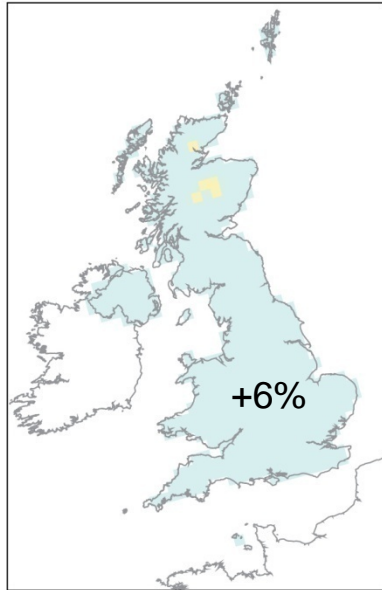
2080's range 2 – 6.5 °C

Winter mean precipitation

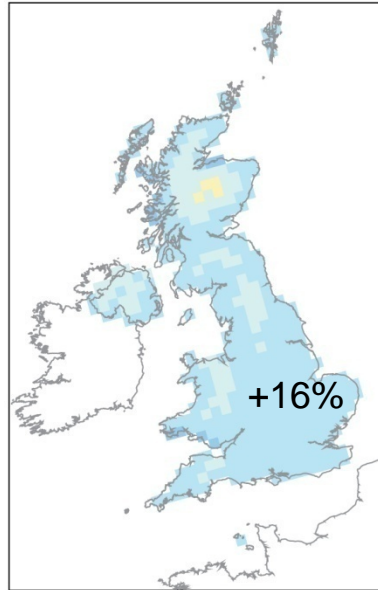
medium emissions scenario

50% probability level, Central estimate

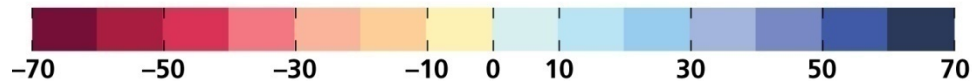
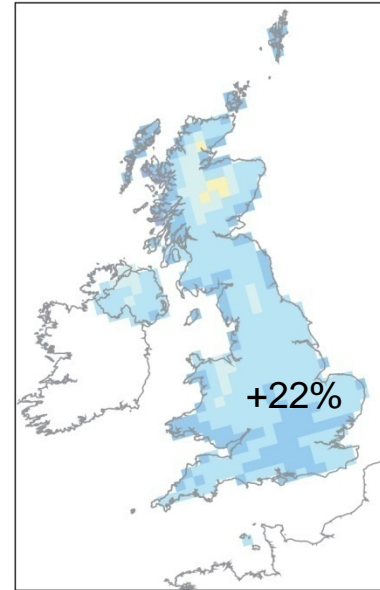
2020s



2050s



2080s



Change in winter precipitation (%) under the medium emissions scenario

SE England range (10% to 90% probability levels)

2020's: -4% to 19%

2050's: 3% to 38%

2080's: 5% to 51%

Impacts

- Hotter, drier summers
- Increase in extremely warm days
- Increase in frequency of intense rainfall events
- Increased thermal discomfort in buildings
- Greater demand for air conditioning
- Increased pressure on sewer/drainage and associated water quality impacts

Am I vulnerable to current weather?

Scenarios only report future climate

- No information on weather events
- No information on possible impacts
- No information on potential consequences
- No information on local preparedness

Can you describe weather events from the recent past and how it affected your business/service.

- Torrential rain / flash flooding
- High winds / stormy weather
- Riverine / surface flooding
- High temperatures / heatwave
- Drought
- Snow/ ice/ frost

What were the consequences?

What was the response?

A Local Climate Impacts Profile (LCLIP)



2006 Headline messages - Road Damage

High temperatures (34.8°C on 19th July) create 'sticky' conditions on more than 37 roads over two day period.

Consequences:

- Heat damage
- Road closures

Responses

diversions

Gritting

'Slippery road'

Cost

estimates £3.6m



2006 Headline messages – School Closures

Heat-wave – July 06.

Some schools recorded temperatures of more than 36°C (97°F) in classrooms.

Consequences

Temperature in some classrooms exceed 36°C

Responses

6 schools closed for either an afternoon, one or two days.

Head teachers decided that pupils should be sent home.

Over 970 students affected.



2006 headline - Older people at risk

Heat-wave July 06

Concern over high temperatures in care homes and risks to older people over 75 living alone

Consequences

a rise in emergency calls from those affected by the heat.

a number of hospitalizations but no deaths recorded by Social and Community Services

Responses

'Heat-wave plan' – issue guidance leaflets

S&CS use data-bases of clients to take action to protect the most vulnerable with extra visits.

Growing concern over the effects of conservatories in care homes



Advice for staff for dealing with the severe weather Jan 2010

All major council offices are open...

Council staff are working hard to maintain services for residents...

While gritting has been limited because of the national salt shortage...

Your safety is important and you should not travel if it would be unsafe to do so. ..

If you unable to make it to work but can otherwise safely leave your home, you might consider how you can assist in your local community. ...



OCC Internal communications Jan 2010

January 2010 – Heavy snow

Costs

- Oxfordshire County Council has calculated that the highway related costs of the cold weather by the end of January will be approximately £1.5m - £630,000 more than the authority sets aside for winter snow clearance and gritting for the November to January period.

Staff resource

- The county council has completed more than 25,000 miles of gritting and even more miles of snowploughing since the snow began - involving drivers working through the night on long shifts in often very difficult weather conditions.

Likely types of priority risks

Current risks/vulnerabilities

Physical environment

Socio-economic vulnerability

Service delivery – business continuity

Current actions/decisions with long term consequences

Investments

Developments

Contracts

Development of policies and strategies

Potentially significant impacts in longer term as climate changes

Physical environment

Service delivery

Policy objectives

Some factors to consider in identifying potential climate risks

People: implications for workforce, customers/clients and changing lifestyles

Demand: changing demand for services

Premises: impacts on building design, construction, maintenance and facilities management

Process: impacts on the processes of service delivery

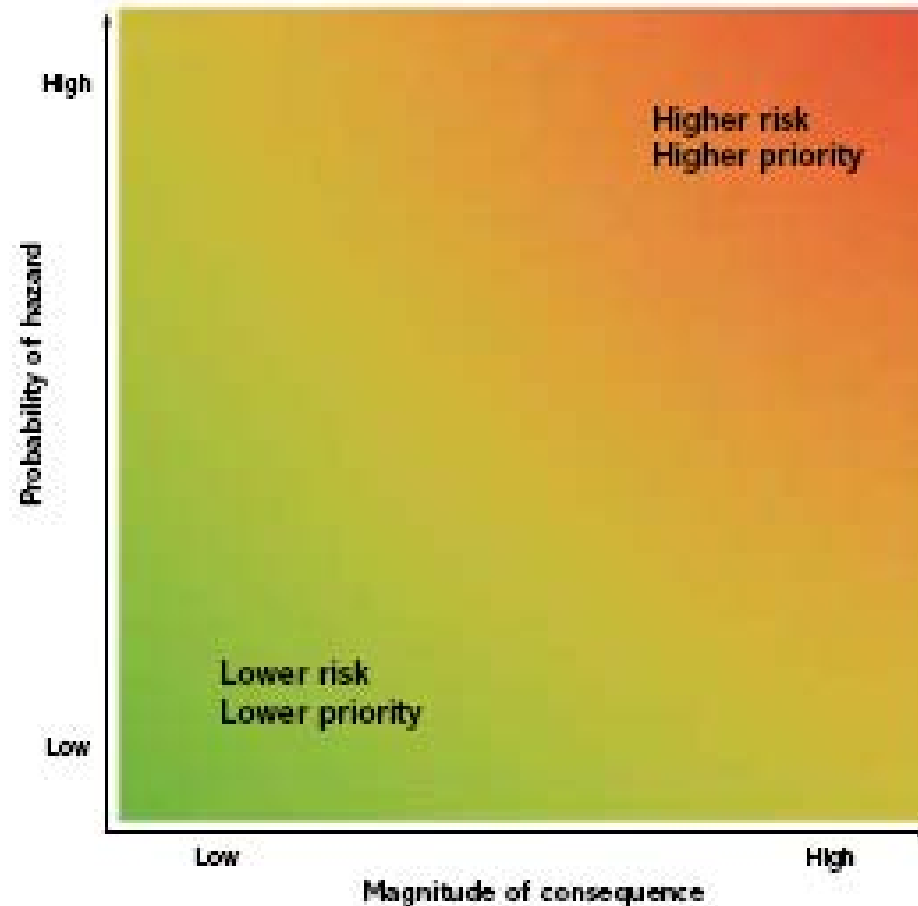
Finance: implications for investment, insurance and stakeholder reputation

Logistics: vulnerability of supply chain, utilities and transport infrastructure

Management implications: how will climate risks and impacts be managed effectively?

Risks

- the combination of the likelihood, or probability, of an event occurring, and the impact(s), or consequence(s), associated with that event



Example of some potential impacts on care homes for the elderly

Assessing climate impacts on services

| | | | |
|---------------|----------------------------|-------|--|
| Service area | Care homes for the elderly | | |
| Completed by: | | Date: | |

| Climate variables | Impact | Threat (t)/ opportunity (o)/ ambiguous (a) | Notes |
|--|--|---|--|
| Changes in annual or seasonal means | | | |
| Hotter summers | | | |
| People - Clients | Difficulty maintaining comfortable internal temperatures during summer | t | The elderly are particularly vulnerable to high temperatures, particularly at night. Likely to be most extreme during heat waves (see below) |
| | May offer more opportunities for outdoor activities | o | May be need for shading to take advantage of this opportunity |
| - Staff | Difficulty maintaining comfortable internal temperatures during summer | t | Reduction of staff efficiency |
| | Potentially greater risks to outdoor workers | t | Likely to be most extreme in heat waves (see below) |

Join in the 'place-shaping' agenda

Place Shaping

- Weather and climate are local phenomena
- Impacts and consequences of weather are even more local
- Local preparedness reduces local vulnerability
- LSP is about place or locality
- People tend to identify with 'place' rather than institutions (eg LAs)
- Adaptation initiatives will reveal themselves in the locality
- Many adaptation actions will reveal themselves as physical changes
- Community can become involved in increasing local resilience

www.ukcip.org.uk

