

# Planning to Adapt to Climate Change

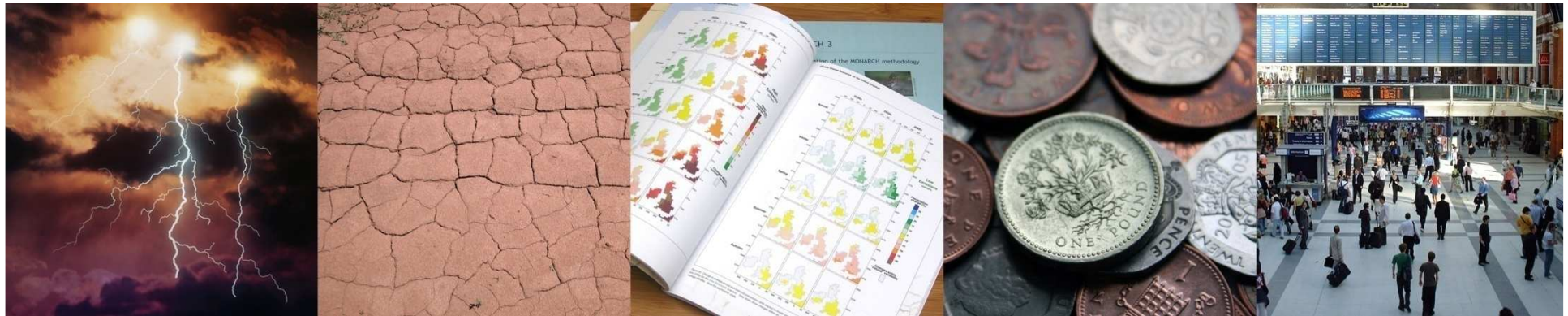
**A risk based approach**

**Laurie Newton**

**UKCIP**

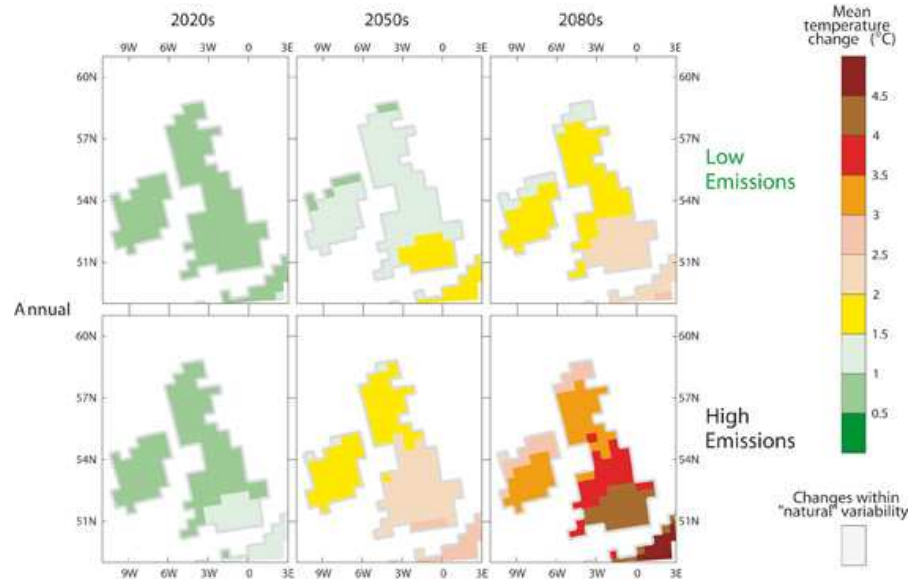
**Government Office for the South West**

**9<sup>th</sup> October 2008**



# Managing climate risks

## A changing climate

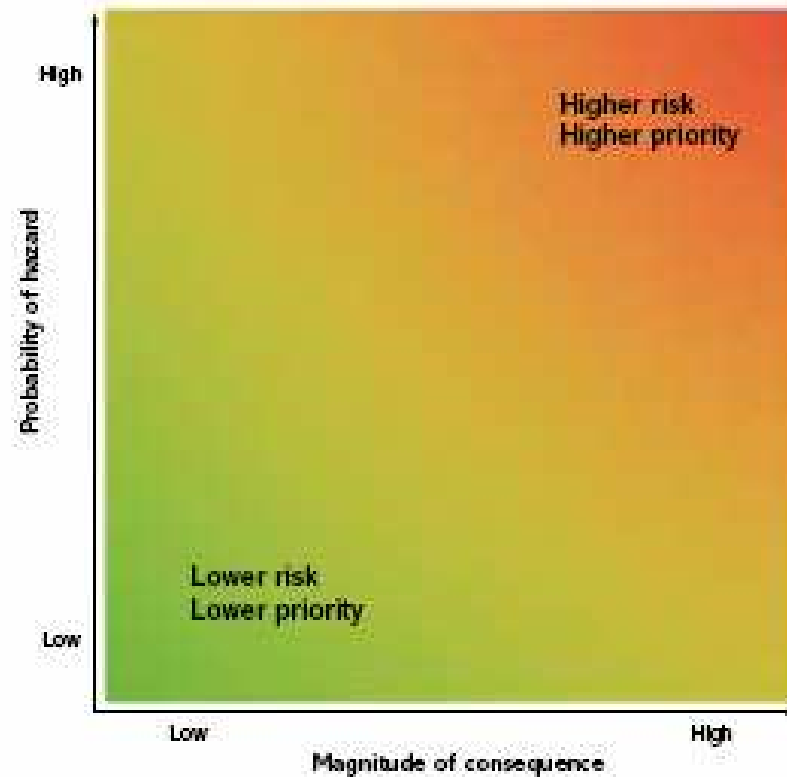


**To plan an adaptation strategy you need to know:**

- **What are the threats and opportunities?**
- **When are they likely to occur?**
- **How serious they will be?**

# Risk

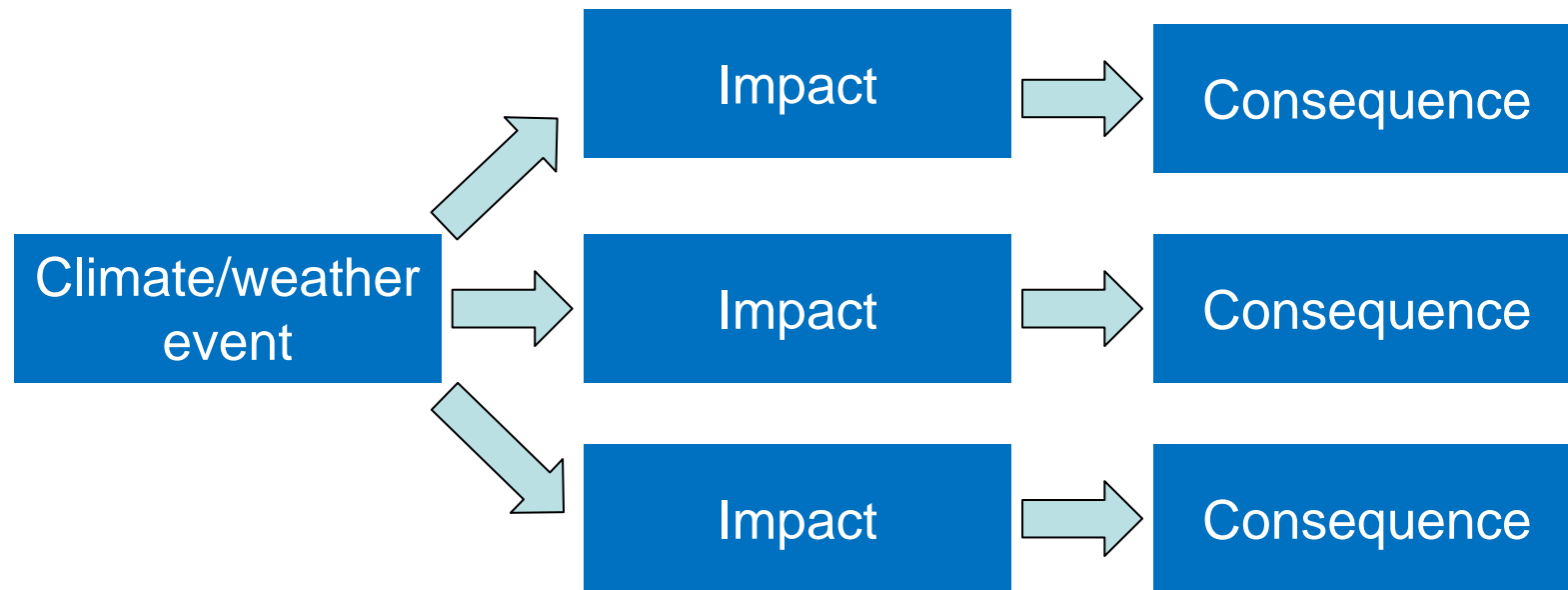
- the combination of the likelihood, or probability, of an event occurring, and the impact(s), or consequence(s), associated with that event



# Risk assessment terminology

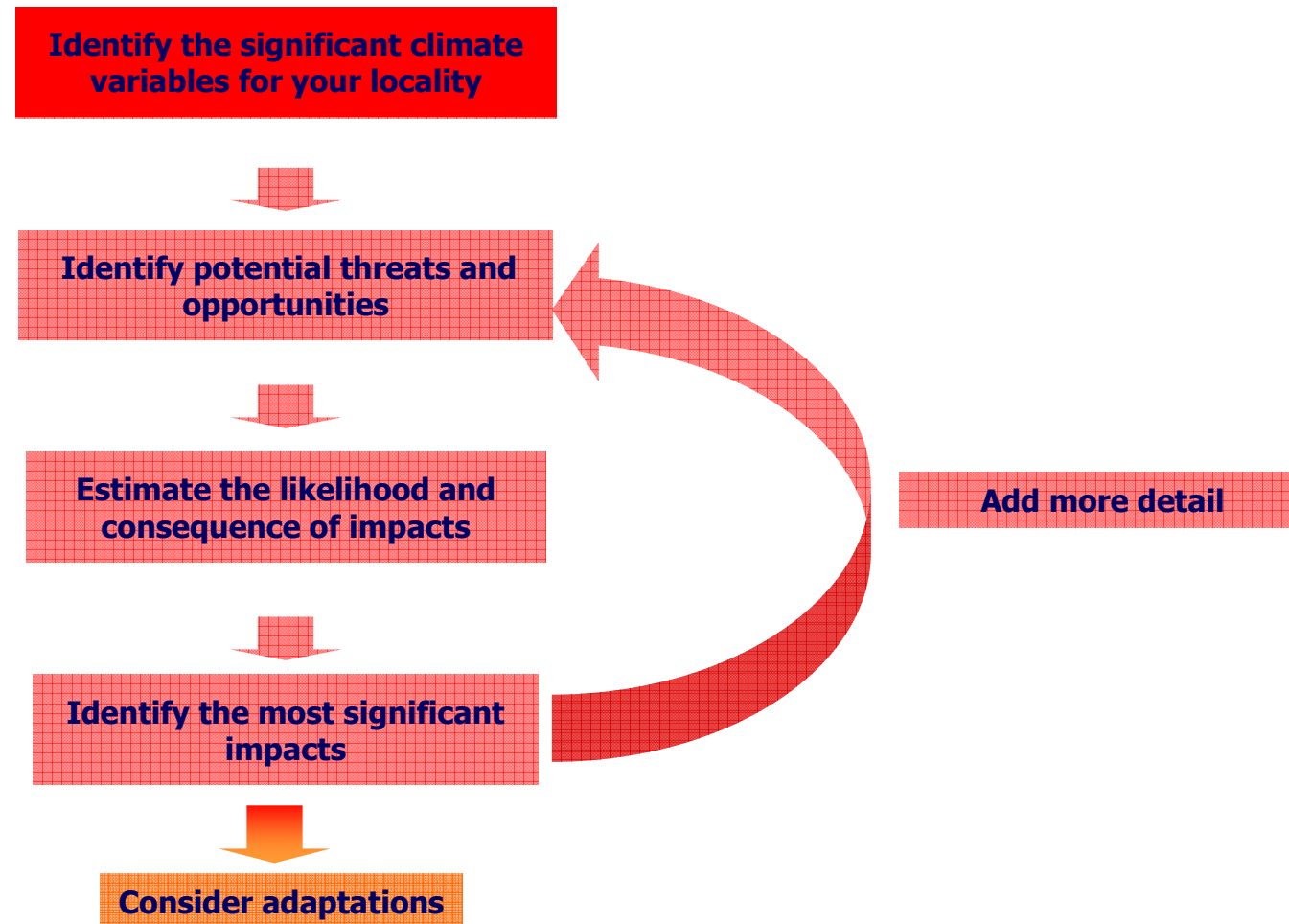
- **Hazard** – a situation or event with the potential to cause harm
- **Impact** – a beneficial or (more usually) detrimental consequence (of a situation or event)
- **Consequence** – the end result or effect caused by a situation or event
- **Likelihood** – a general concept relating to the chance of an event (or impact) occurring. Generally expressed as a probability or frequency
- **Receptor** – the entity that may be harmed by a particular set of hazardous events
- **Sensitivity** – the degree to which a system would be affected by a stimulus
- **Vulnerability** – the magnitude of harm that would result from a particular hazardous event. Note that different types of receptors may differ in their sensitivity to a particular level of hazard

# Weather, impacts and consequences



Impacts and consequences may vary  
for different receptors

# Assessing the local impacts of climate change

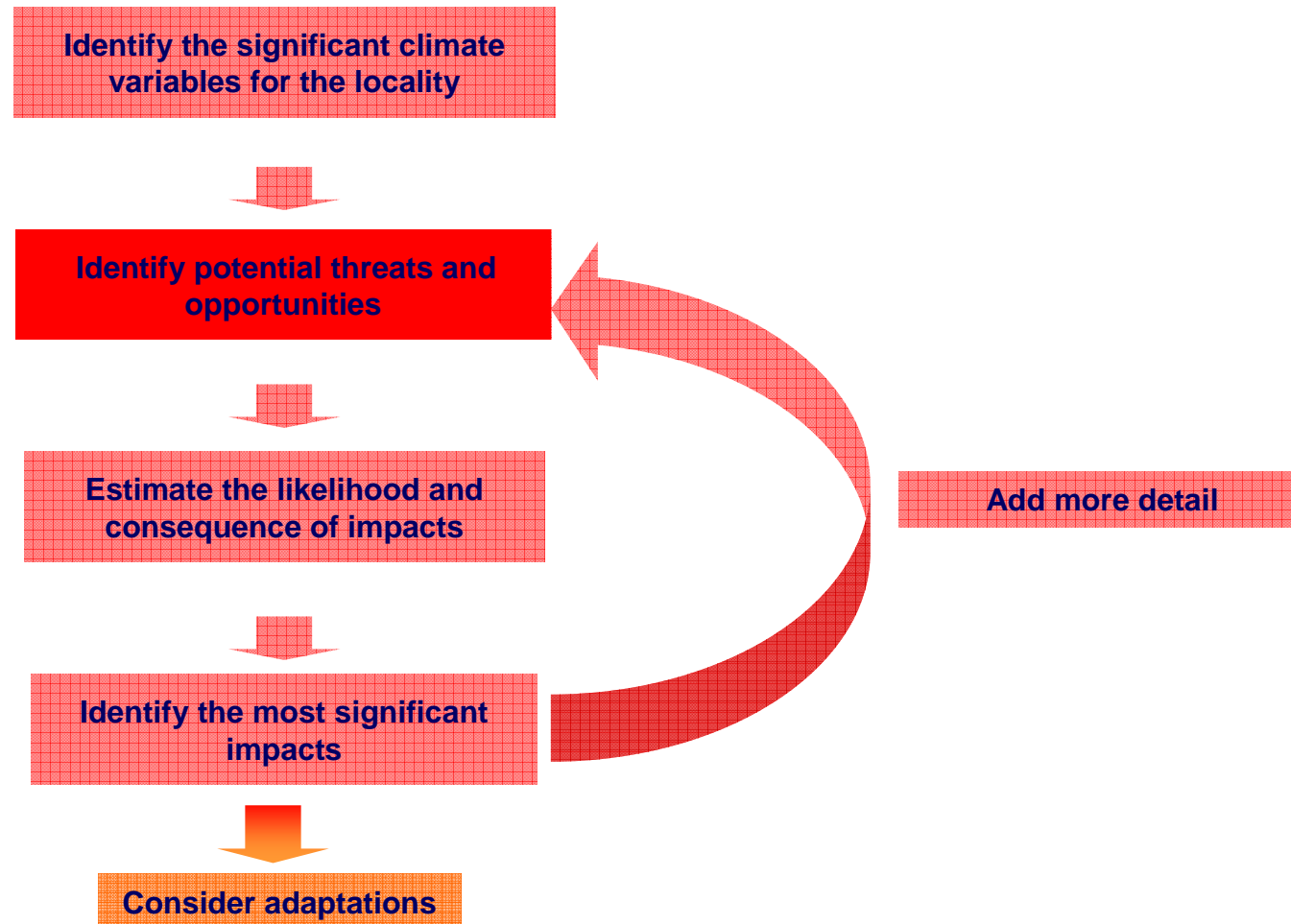


# Summary of expected climate changes in the UK

- **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

**In many cases these broad summary projections will be sufficient to develop a climate adaptation action plan**

# Assessing the local impacts of climate change



## Some factors to consider when identifying climate impacts

- **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
- **Environment:** how will climate changes impact on the environment in your area?

# Identifying potential climate impacts

## Assessing climate impacts on LA services

Service area		
Completed by:		Date:

Climate variables	Impacts	Threat(t)/ opportunity(o)/ ambiguous(a)	Notes
<b>Changes in annual or seasonal means</b>			
<b>Hotter summers</b>			
People - Clients			
- Staff			
Demand			
Premises			
Process			
Finance			
<b>Drier summers</b>			
People - Clients			
- Staff			
Demand			
Premises			
Process			
Finance			

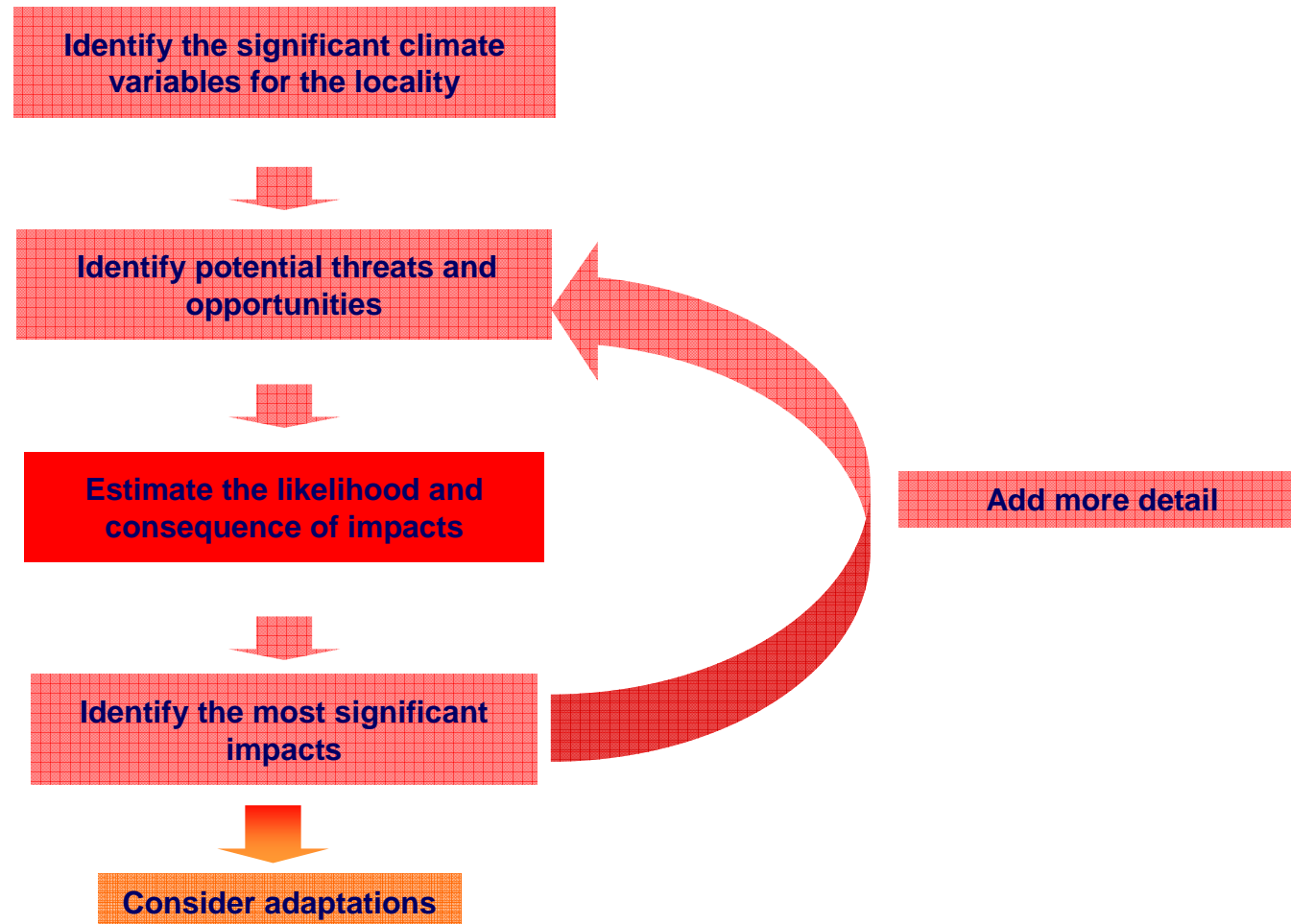
# Example of some potential impacts on care homes for the elderly

## Assessing climate impacts on LA services

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

Climate variables	Impact	Threat (t)/ opportunity (o)/ ambiguous (a)	Notes
<b>Changes in annual or seasonal means</b>			
<b>Hotter summers</b>			
People - Clients	Difficulty maintaining comfortable internal temperatures during summer	<b>t</b>	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	<b>o</b>	May be need for shading to take advantage of this opportunity
- Staff	Difficulty maintaining comfortable internal temperatures during summer	<b>t</b>	Reduction of staff efficiency
	Potentially greater risks to outdoor workers	<b>t</b>	Likely to be most extreme in heat waves (see below)

# Assessing the local impacts of climate change

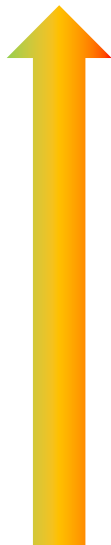


# Estimating the likelihood and consequence of impacts

e.g. frost/  
snow



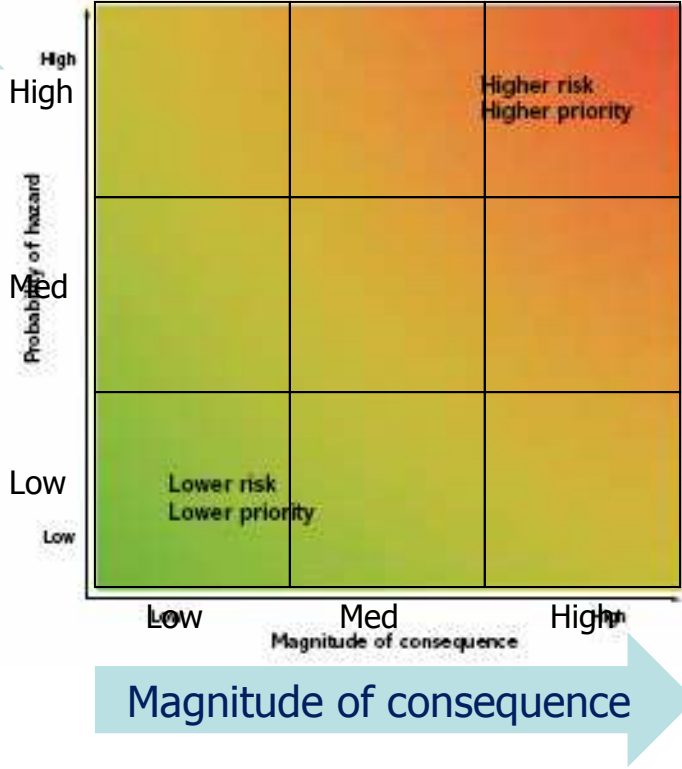
Time



e.g. intense rain/  
heatwave

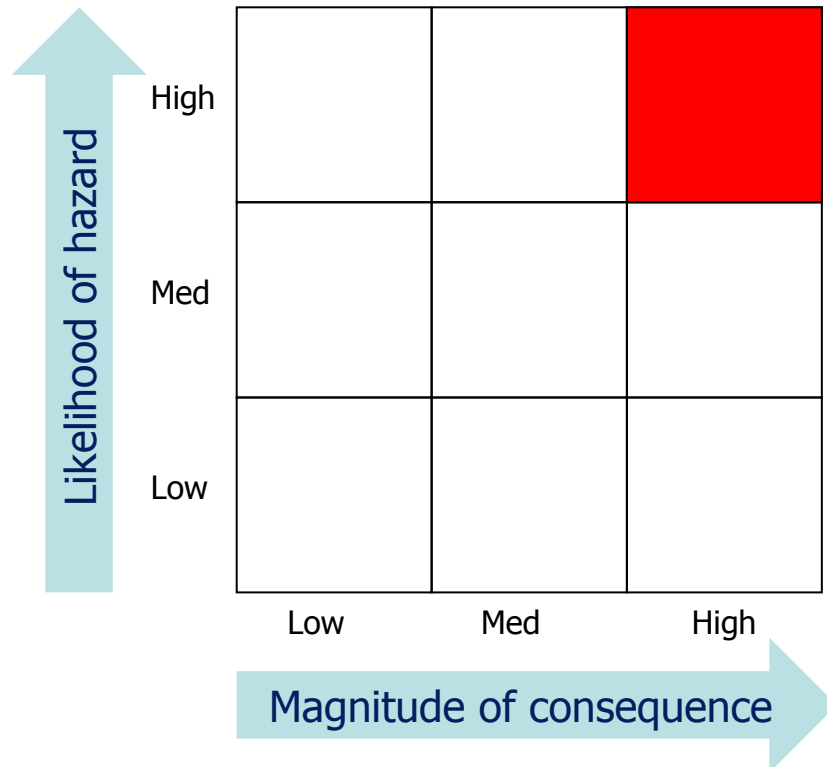


Likelihood of hazard



# Consequences of impacts may vary with receptors

Example: **Residential care for the elderly**



Receptor: Elderly residents

Potential consequence: Death

Timescale: Short/medium/long

Impact: Heatwave

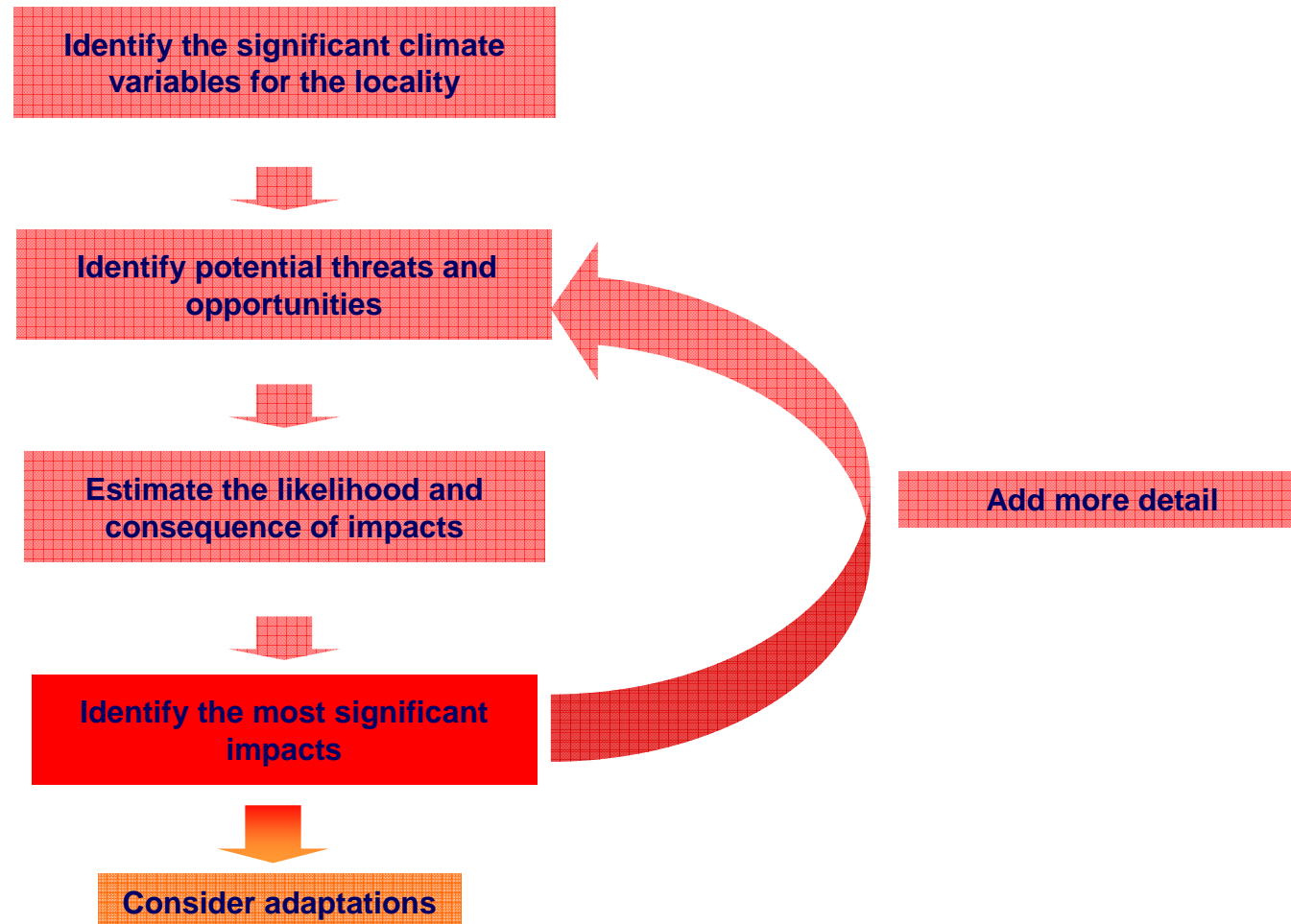


Receptor: Premises

Potential consequence: None

Timescale: Short/medium/long

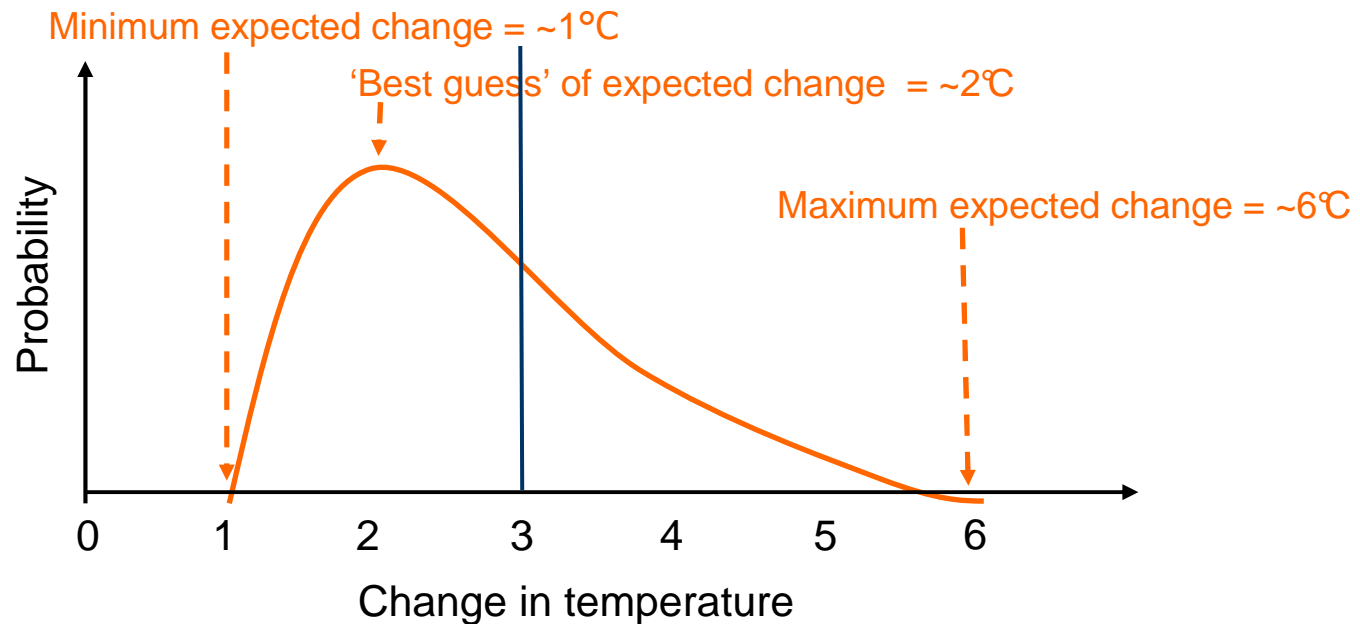
# Assessing the local impacts of climate change



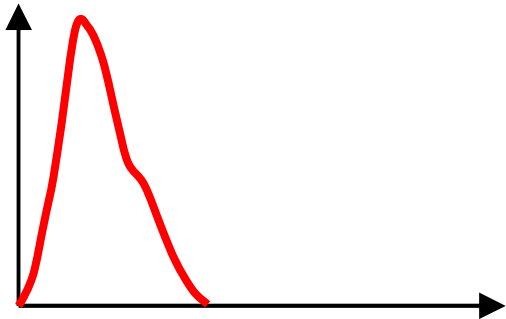
# Forthcoming UKCIP08 Scenarios

**Single value projection (UKCIP02)**  
**Average change in temperature**  
**Effectively a 'best guess'**

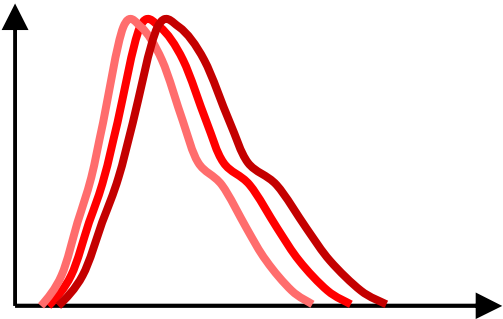
**Probabilistic projection (UKCIP08)**  
**Shows range of model results**  
**Plan according to attitude to risk**  
**eg. Maximum expected change**



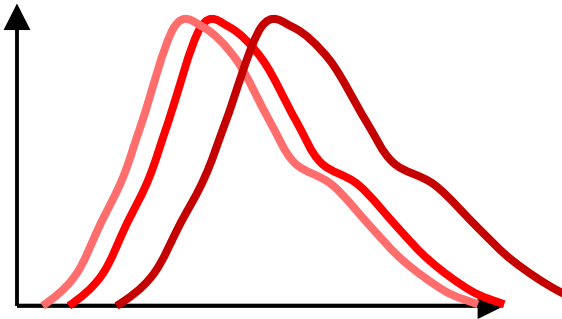
# Using UKCIP08 to examine change over time



**2020s**



**2040s**



**2060s**

[www.ukcip.org.uk](http://www.ukcip.org.uk)

