

PRESENTATION

Julia King, Baroness Brown of Cambridge

Chair, Adaptation Committee of the Climate Change Committee

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Priorities for Adaptation in the UK

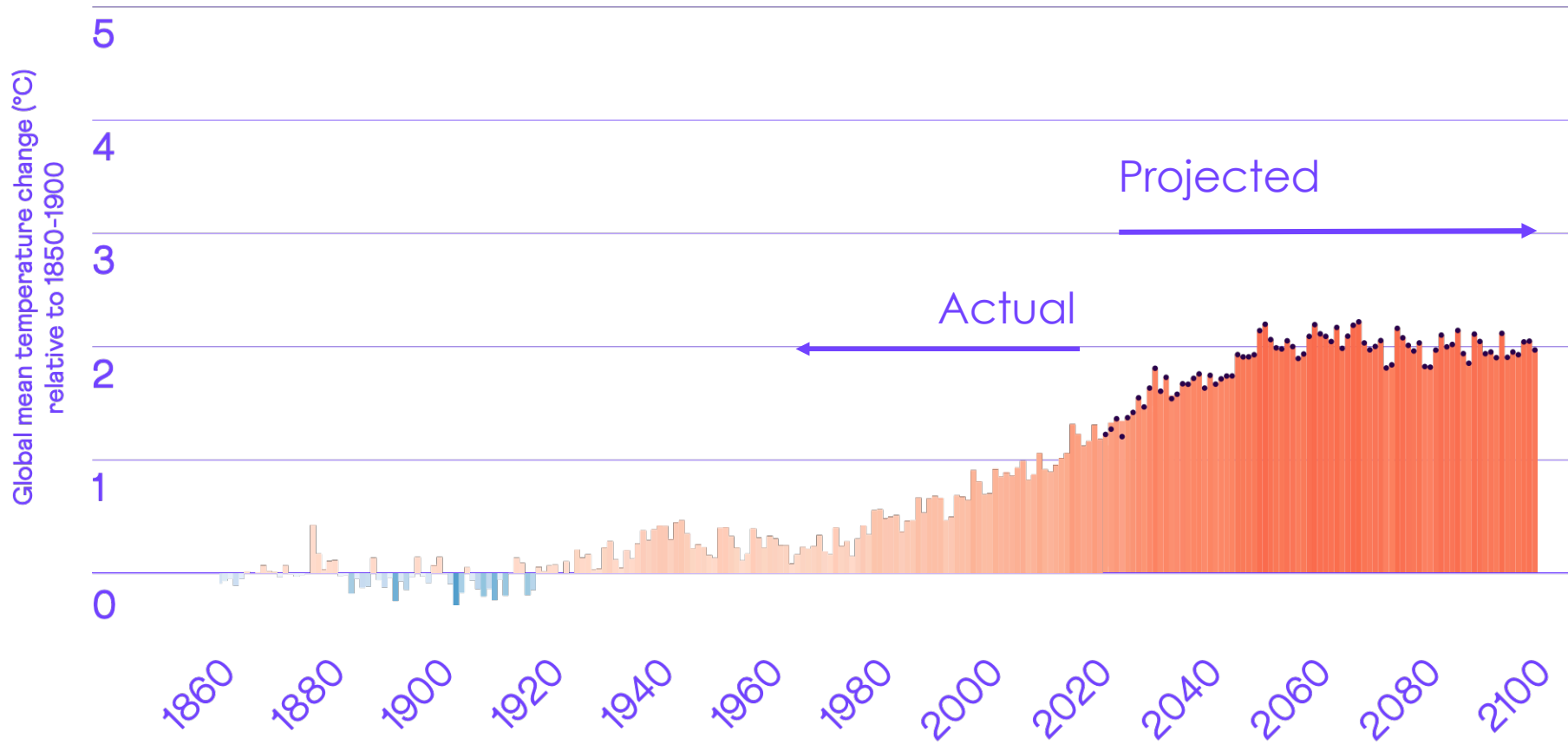
Julia King, Baroness Brown of Cambridge FREng FRS FMedSci
Chair, Adaptation Committee, UK Climate Change Committee

21st November 2023
Association of Drainage Authorities

The need for adaptation and resilience

Our changing climate

Global temperature changes from 1860 to meeting Net Zero in 2050



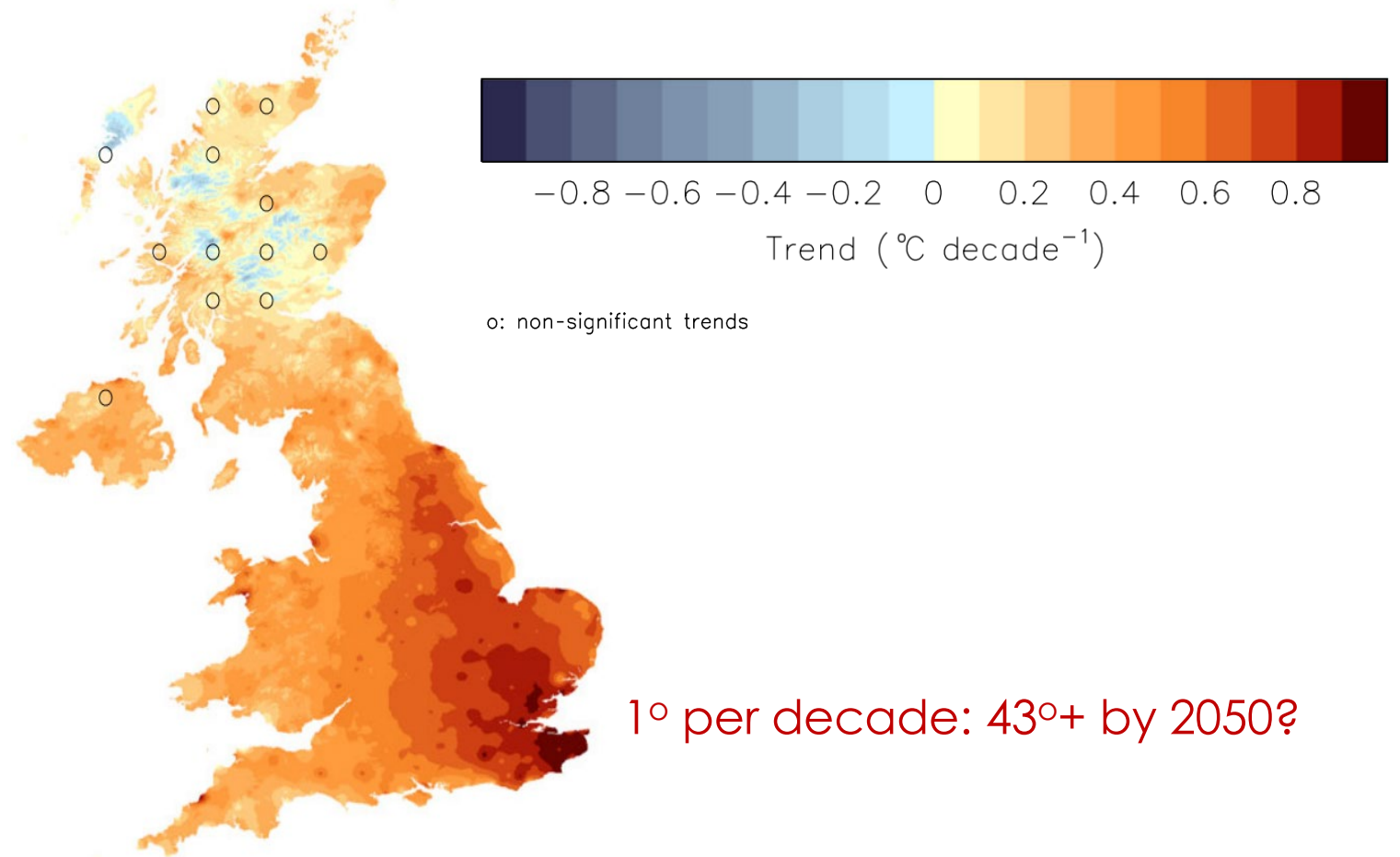
Example climate future with global warming limited to 2°C by 2100

Recent UK experience

2023: the hottest year on record.....

- Record UK temperature 40.3°C in summer 2022
- Record September heatwave in 2023
- Average temperatures in Europe rising at 0.5° per decade - double the global average (WMO 2022)
- A sequence of damaging storms already this year

Rate of increase in hottest daytime temperatures (1960 to 2019)



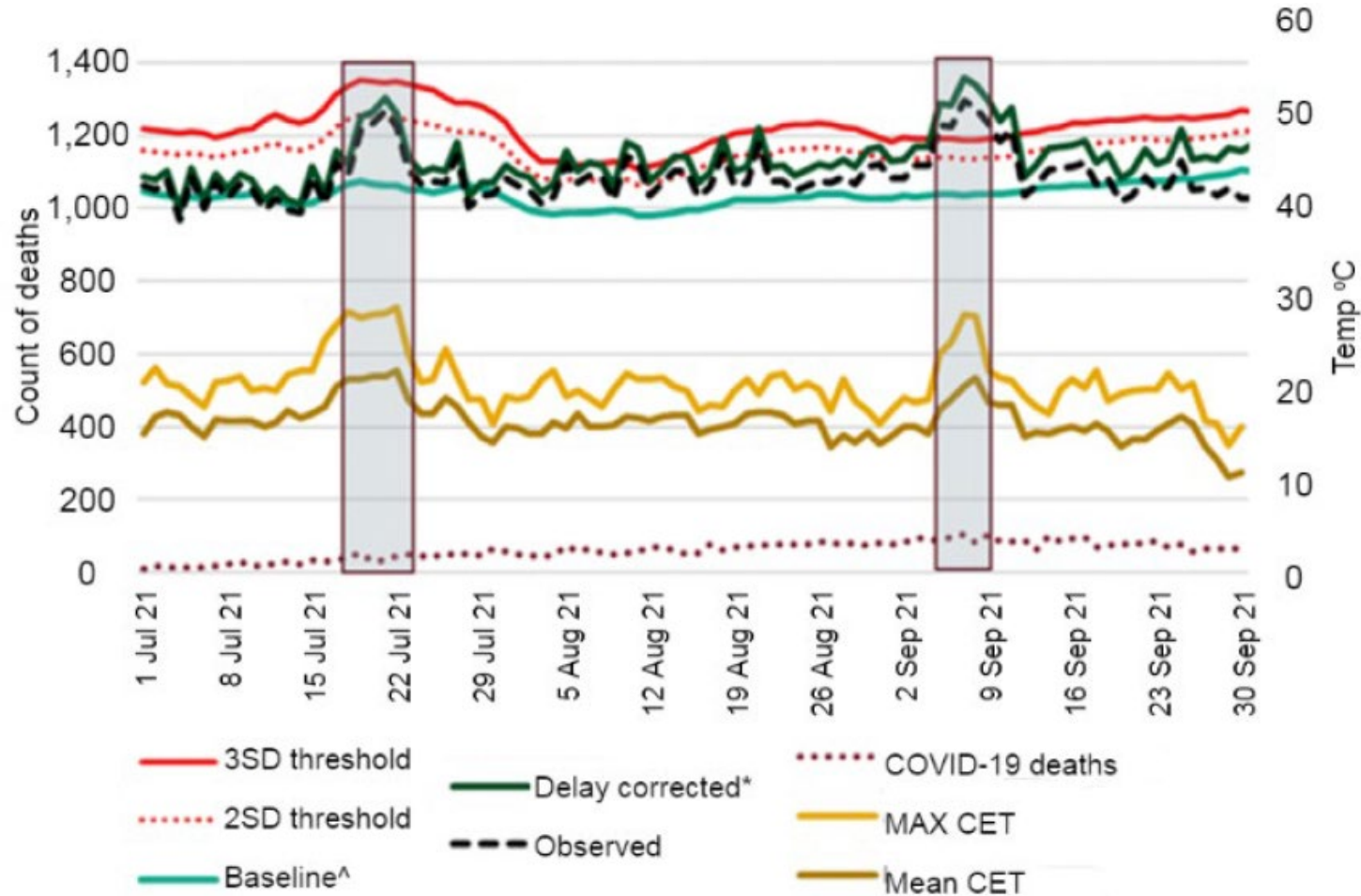
The UK's changing climate

Further climate change is inevitable

	Observed change to date	Inevitable change by mid-century	2°C by 2100C	4°C by 2100
Average annual UK temperature	~1.2°C above pre-industrial levels	~0.6°C from present	~0.7°C from present by mid-2080s	~3.0°C from present by mid-2080s
'Hot summer' occurrence	10 – 25% chance of a '2018 summer'	50% chance each year	50% chance each year	90% chance each year
Average summer rainfall	No significant long-term trend	-11% (to -24%)	-15% (to -28%)	-29% (-53%)
Average winter rainfall	No significant long-term trend	+5 % (+16%)	+6% (+18%)	+18% (+41%)
Heavy rainfall	No significant long-term trend	10% from present	20% from present	50% to 70% from present
Sea level rise	~16cm since 1900	3 - 37 cm from present by 2060	5 - 67cm from present	27 - 112cm from present

Summer heat-related impacts

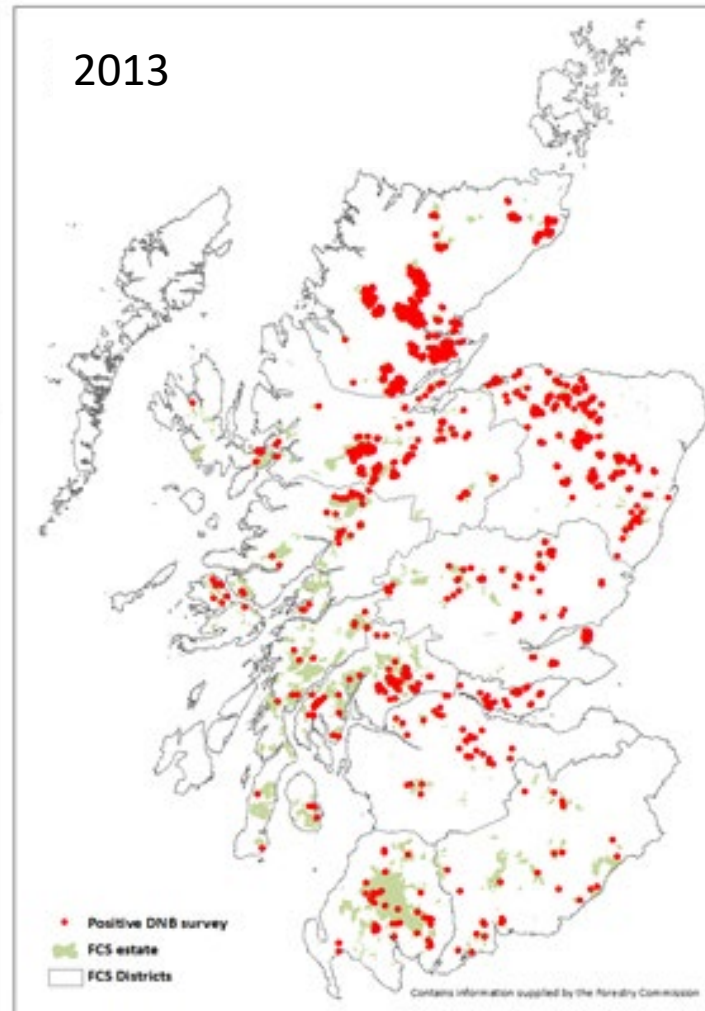
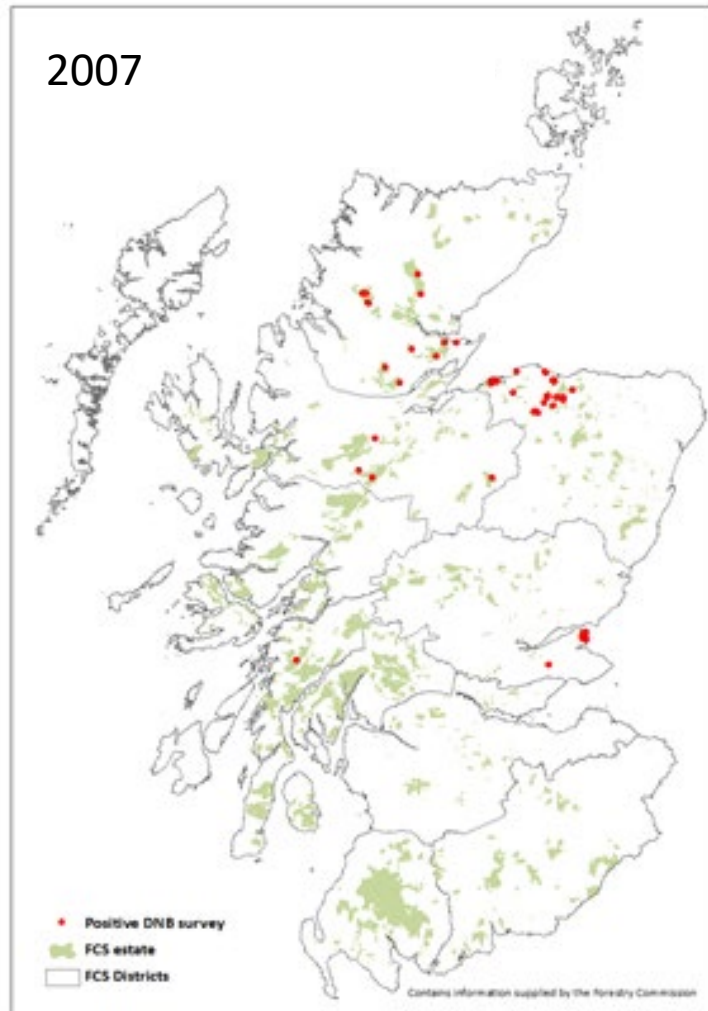
All cause excess mortality in age 65+ during Heat-Health alerting periods 2021



- Typically 2000 heat-related deaths per year in the UK
- 4500 excess deaths in England in 2022 associated with very hot weather
- 20% of homes overheat today
- 90% hospital wards at risk of overheating
- On a 2° path 0.4% loss in economic output in London in a warm year due to productivity impacts

New and spreading pests and diseases

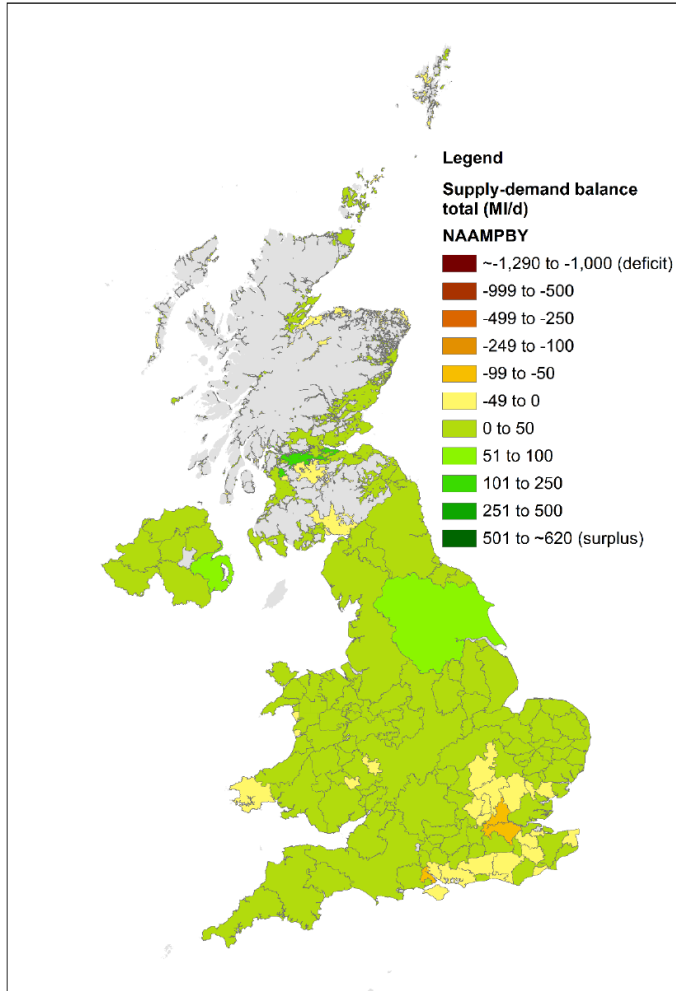
Incidence of Dothistroma needle blight in the Forestry Commission Estate



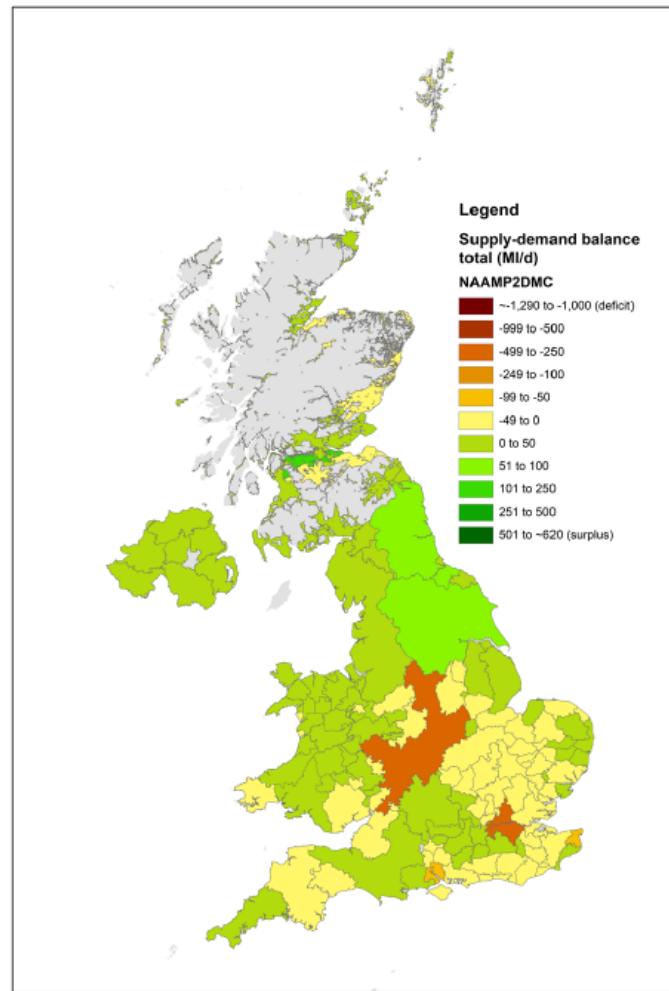
Growing water shortages

UK water deficits on 2° and 4° warming pathways

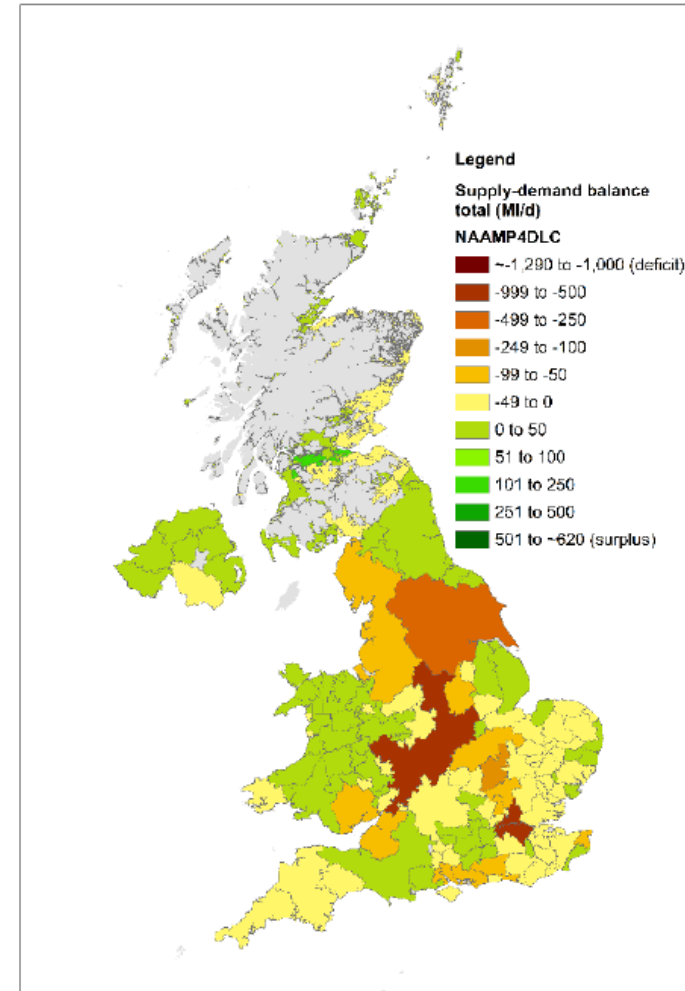
Today



2° no additional adaptation 2050



4° no additional adaptation 2080



Homes at significant flood risk

7 of the UK's ten **wettest years** since 1998, 2014 and 2016 two wettest on record

Current



1.8 million people in the UK are living in areas at significant risk of flooding.

2050s



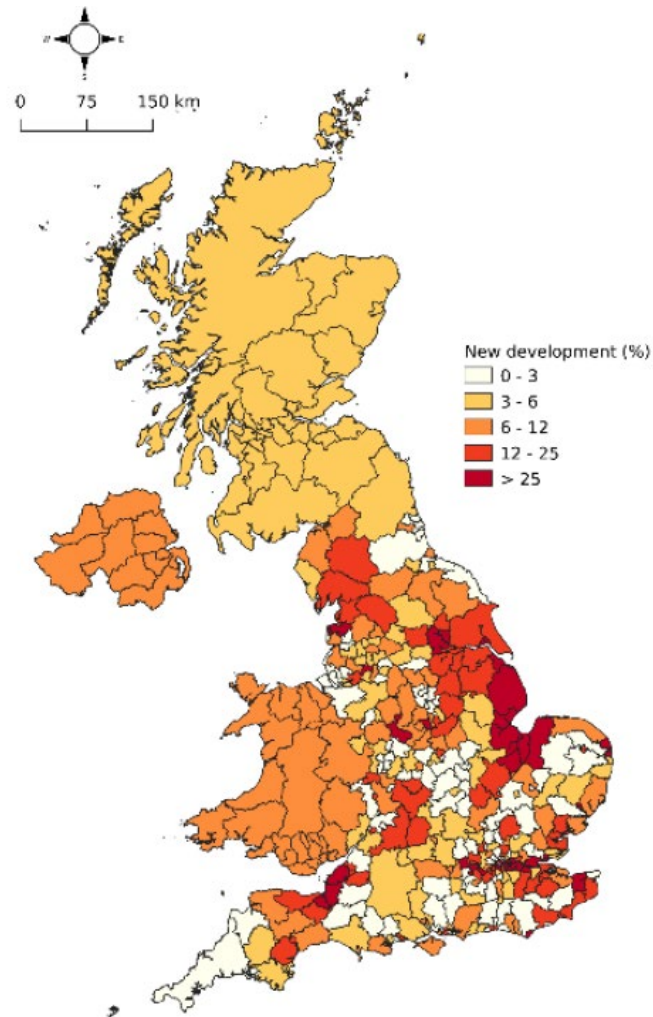
The number of people at risk is projected to rise to **2.6 million** in a 2°C global warming scenario.



Maybury Hill 2016

Further lock-in still taking place

Proportion of new development in the floodplain: past 5-10 years



Wye Valley Hereford Storm Dennis 2020

Christopher Furlong/Getty Images

Note: values for Scotland are estimated by Scottish Government. In the absence of data for Wales and Northern Ireland, the UK average is assumed

Note: in some local authority areas (e.g. Hull) there is very little suitable land area that does not sit on the floodplain

Impacts on agriculture and forestry

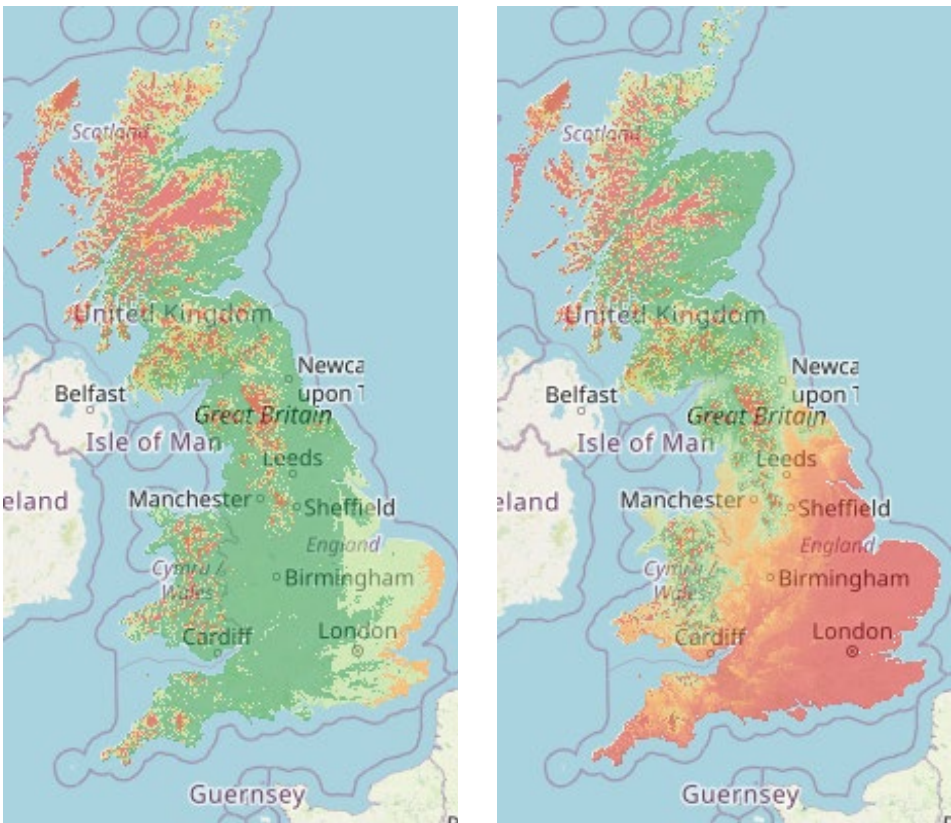
South and East of England unsuitable for beech and Sitka spruce by 2050

Beech

Sitka Spruce

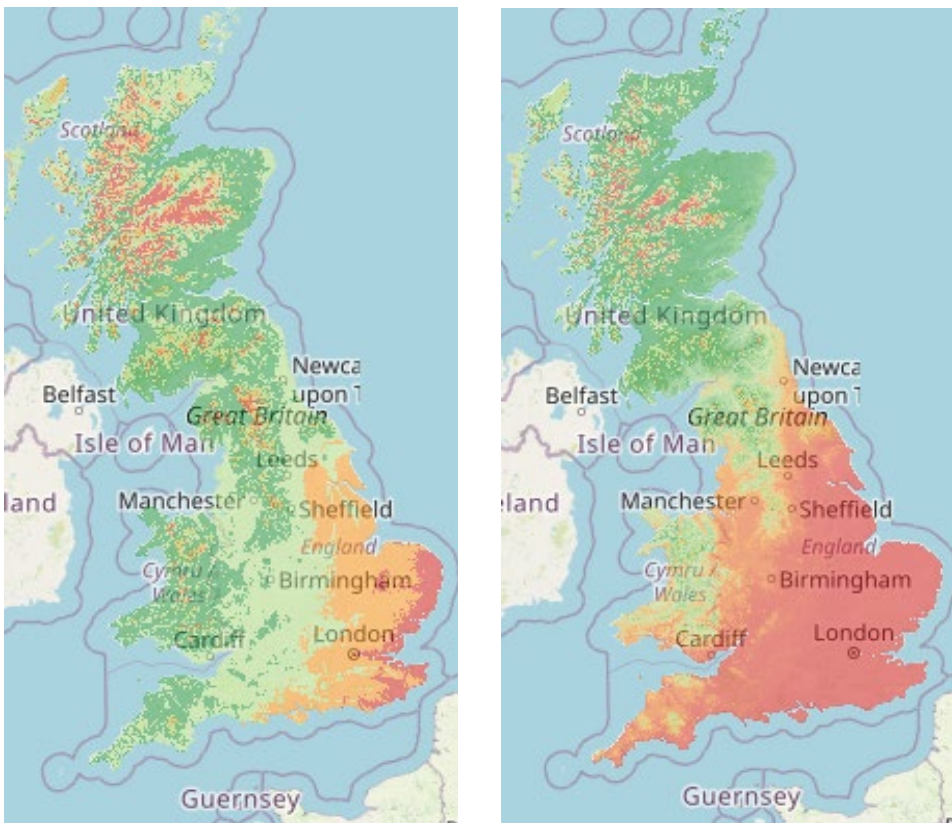
Present day

2050



Present day

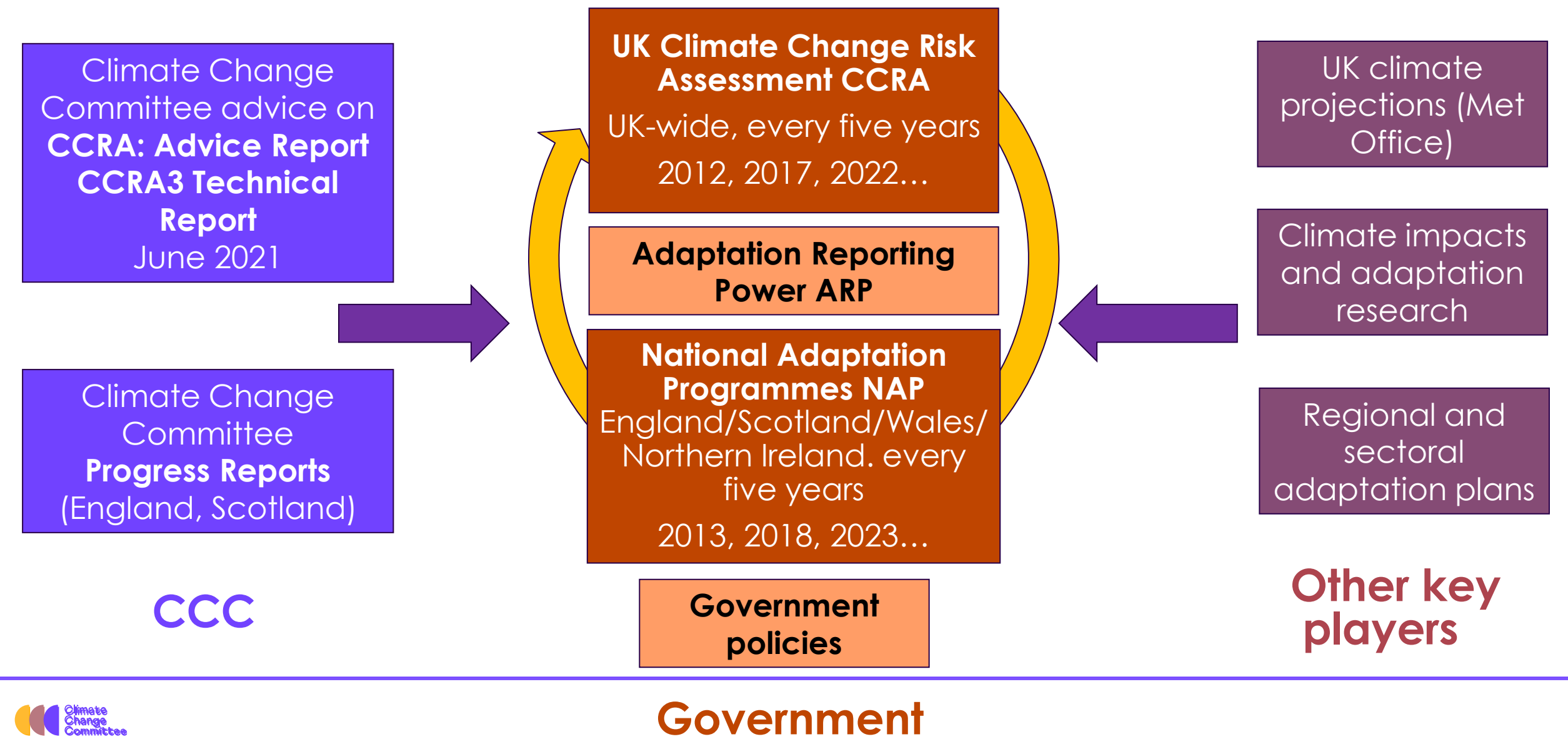
2050



Addressing adaptation

Adapting to climate change

The Climate Change Act 2008 introduces a robust reporting framework



CCC analysis of priorities

CCRA3 2021 Risks and Opportunities

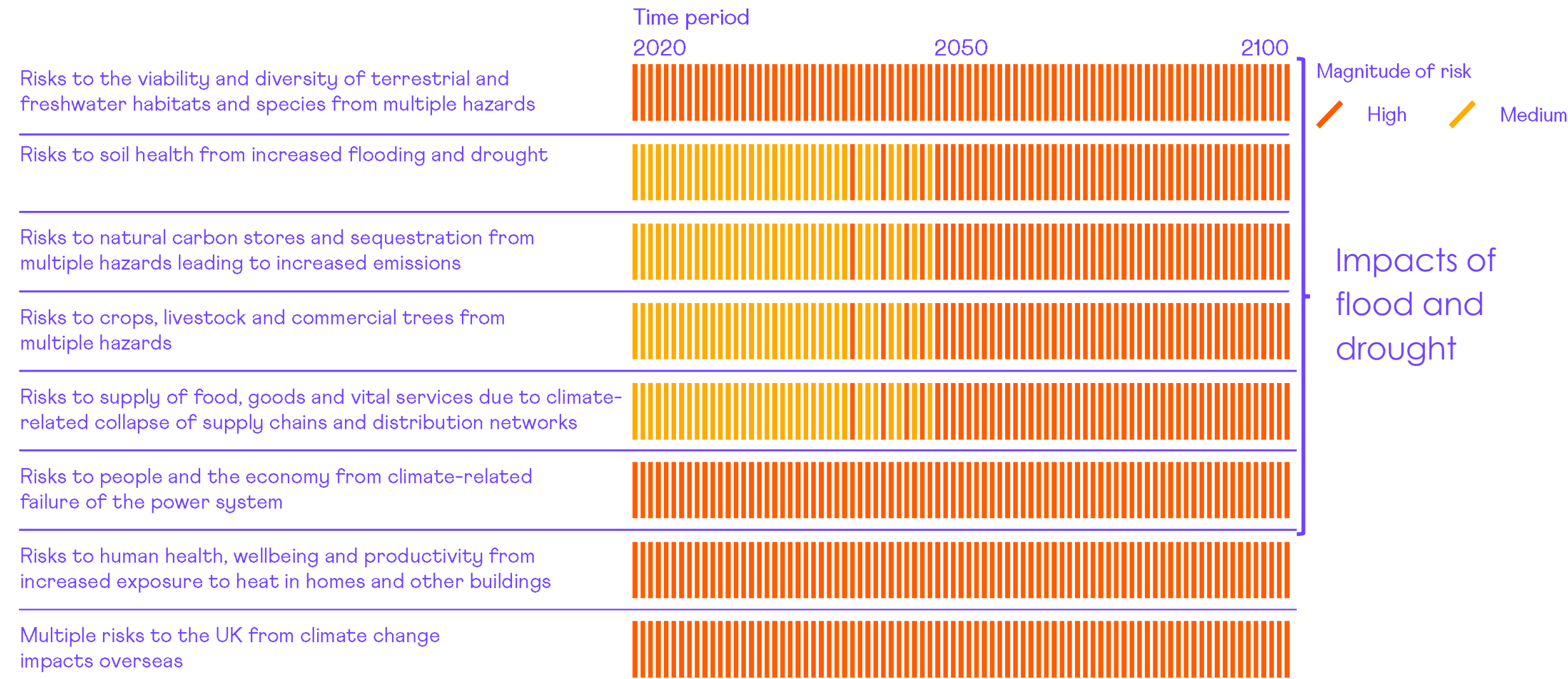
61 risks and opportunities identified – 54 with high urgency scores

N1 Risks to terrestrial species and habitats	N2 Risks to terrestrial species and habitats from pests, pathogens and INNS	N4 Risk to soils from changing conditions, including seasonal aridity and wetness	N5 Risks to natural carbon stores and sequestration from changing conditions	N6 Risks to and opportunities for agricultural and forestry productivity	N7 Risks to agriculture from pests, pathogens and INNS	N8 Risks to forestry from pests, pathogens and INNS	N11 Risks to freshwater species and habitats
N12 Risks to freshwater species and habitats from pests, pathogens and INNS	N14 Risks to marine species, habitats and fisheries	N16 Risks to marine species and habitats from pests, pathogens and INNS	N17 Risks and opportunities to coastal species and habitats	I1 Risks to infrastructure networks from cascading failures	I2 Risks to infrastructure services from river and surface water flooding	I5 Risks to transport networks from slope and embankment failure	I8 Risks to public water supplies from reduced water availability
I12 Risks to transport from high and low temperatures, high winds, lightning	H1 Risks to health and wellbeing from high temperatures	H3 Risks to people, communities and buildings from flooding	H4 Risks to people, communities and buildings from sea level rise	H6 Risks and opportunities from summer and winter household energy demand	H8 Risks to health from vector-borne diseases	H11 Risks to cultural heritage	H12 Risks to health and social care delivery
H13 Risks to education and prison services	B1 Risks to business sites from flooding	B2 Risks to business locations and infrastructure from coastal change	B6 Risks to business from disruption to supply chains and distribution networks	ID1 Risks to UK food availability, safety, and quality from climate change overseas	ID5 Risks to international law and governance from climate change overseas that will impact the UK	ID4 Risks to the UK from international violent conflict resulting from climate change	ID9 Risk to UK public health from climate change overseas
ID7 Risks from climate change on international trade routes	ID10 Risk multiplication from the interactions and cascades of named risks across systems and geographies	N3 Opportunities from new species colonisations in terrestrial habitats	N9 Opportunities for agricultural and forestry productivity from new species	N10 Risks to aquifers and agricultural land from sea level rise, saltwater intrusion	N15 Opportunities for marine species, habitats and fisheries	N18 Risks and opportunities from climate change to landscape character	I3 Risks to infrastructure services from coastal flooding and erosion
I4 Risks to bridges and pipelines from flooding and erosion	I6 Risks to hydroelectric generation from low or high river flows	I7 Risks to subterranean and surface infrastructure from subsidence	I9 Risks to energy generation from reduced water availability	I10 Risks to energy from high and low temperatures, high winds, lightning	I13 Risks to digital from high and low temperatures, high winds, lightning	H2 Opportunities for health and wellbeing from higher temperatures	H5 Risks to building fabric
H7 Risks to health and wellbeing from changes in air quality	H9 Risks to food safety and food security	H10 Risks to health from poor water quality and household water supply interruptions	B3 Risks to businesses from water scarcity	B5 Risks to business from reduced employee productivity – infrastructure disruption and higher temperatures	B7 Opportunities for business - changing demand for goods and services	N13 Opportunities to marine species, habitats and fisheries	I11 Risks to offshore infrastructure from storms and high waves
B4 Risks to finance, investment, insurance, access to capital	ID8 Risk to the UK finance sector from climate change overseas	ID2 Opportunities for UK food availability and exports	ID3 Risks to the UK from climate-related international human mobility	ID6 Opportunities (including Arctic ice melt) for international trade routes			

 More Action Needed
  Further Investigation
  Sustain Current Action, Watching Brief

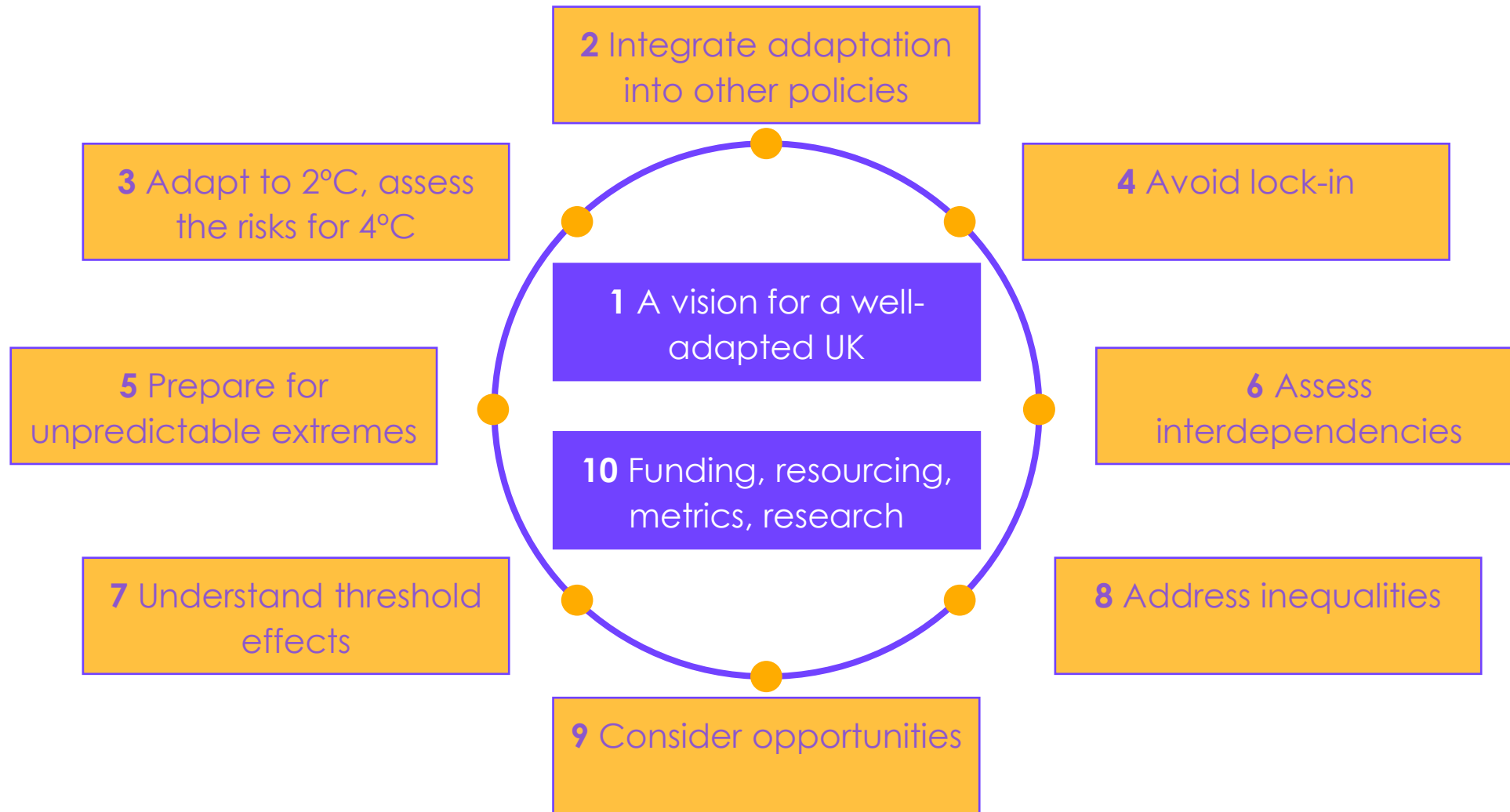
CCC advice report 2021: highest priorities for further adaptation

Eight key risk areas for urgent action in the next 2 years



Ten principles for effective adaptation

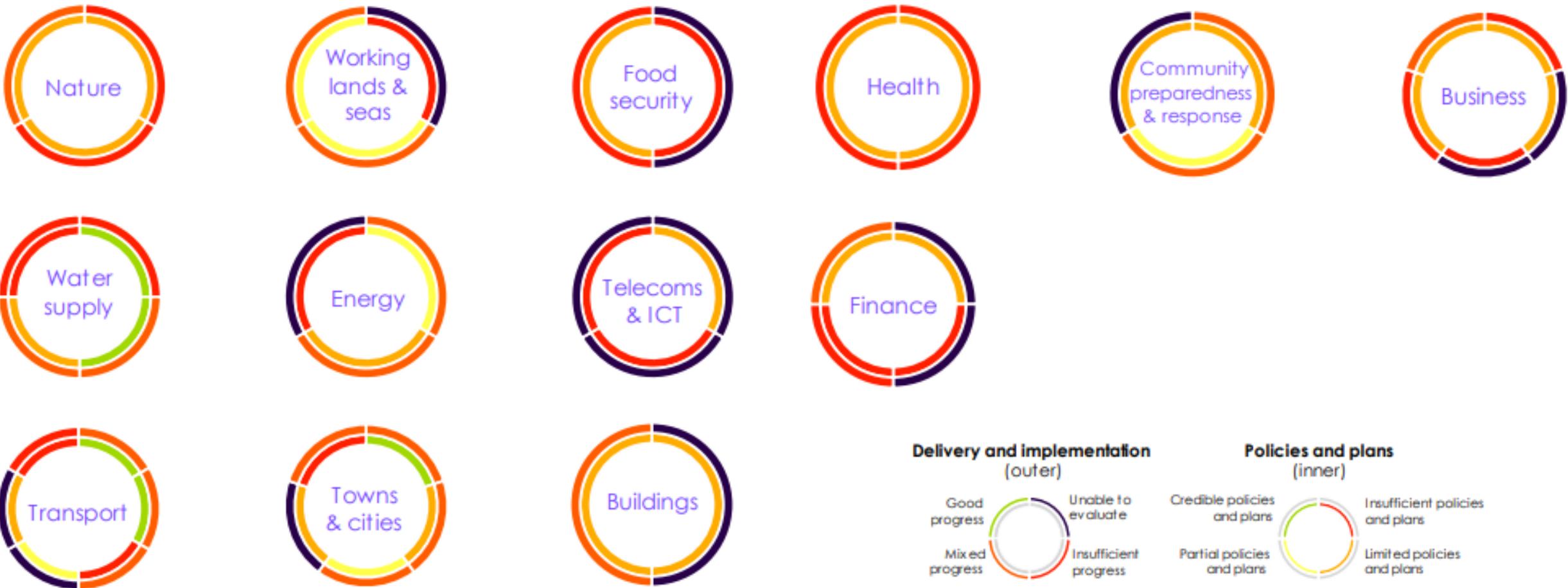
Still largely missing from UK adaptation policy



CCC progress report 2023: delivery and implementation

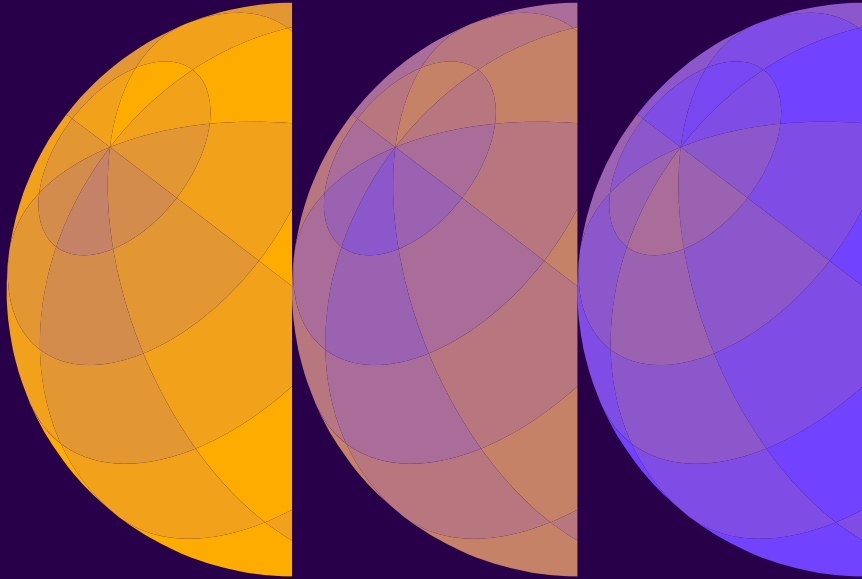
Policies and plans: progress in some areas

Delivery and implementation: insufficient progress or evidence



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