11th November 2021

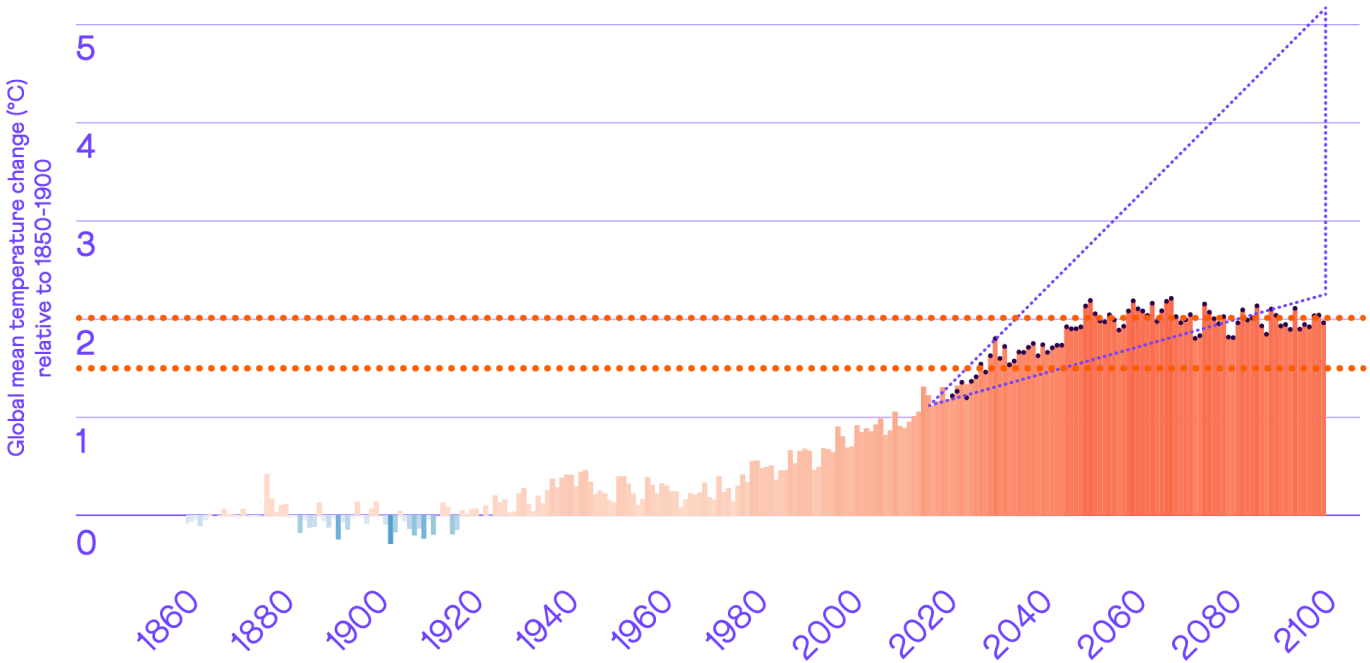
Meeting with the Climate Change, Environment and Infrastructure Committee of the Welsh Parliament

Baroness Brown

Chair of Adaptation Committee, CCC

Our changing climate

Global temperature changes since 1860

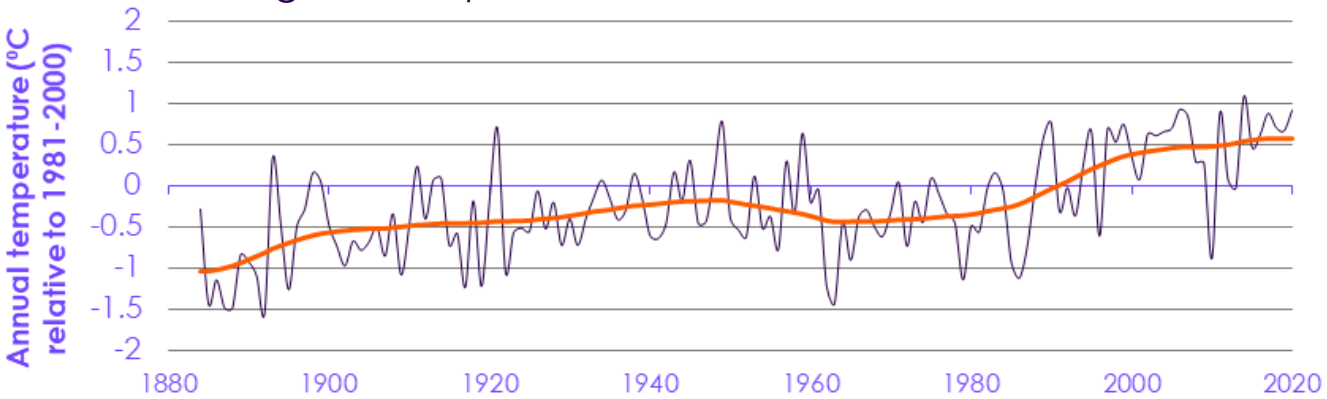


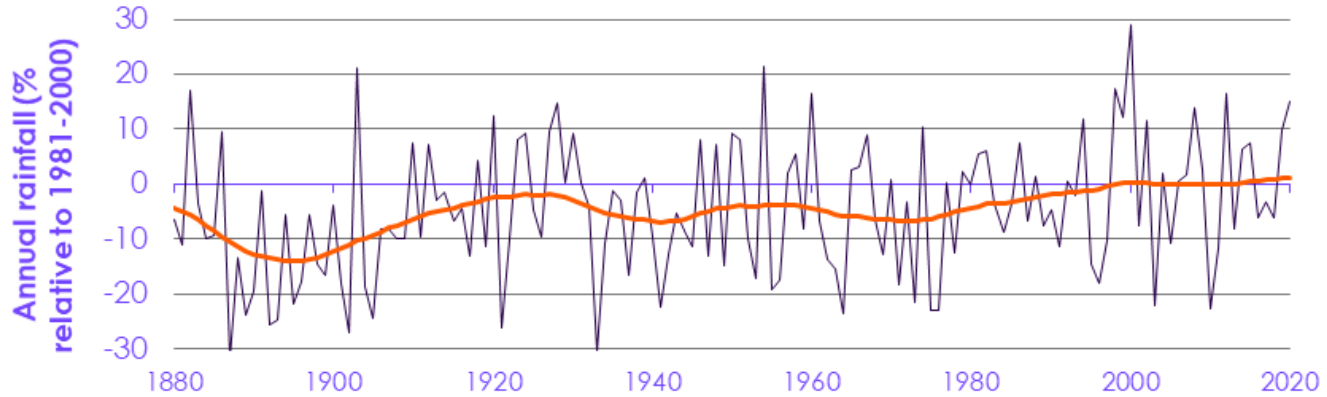
The UK's changing climate

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

Observed changes in temperature and rainfall in Wales

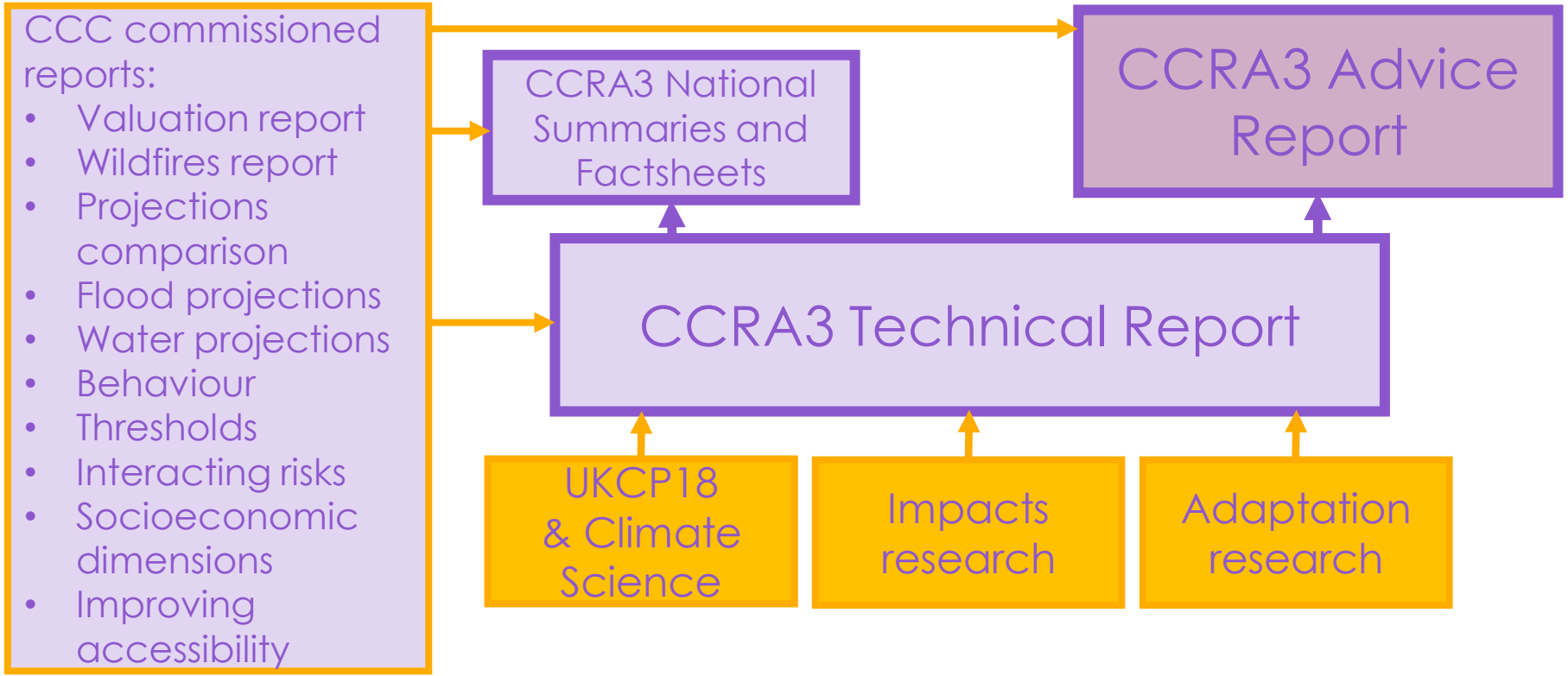




Source
CCC analysis; HadUK-Grid dataset, Kendon, M. et al. (2020)

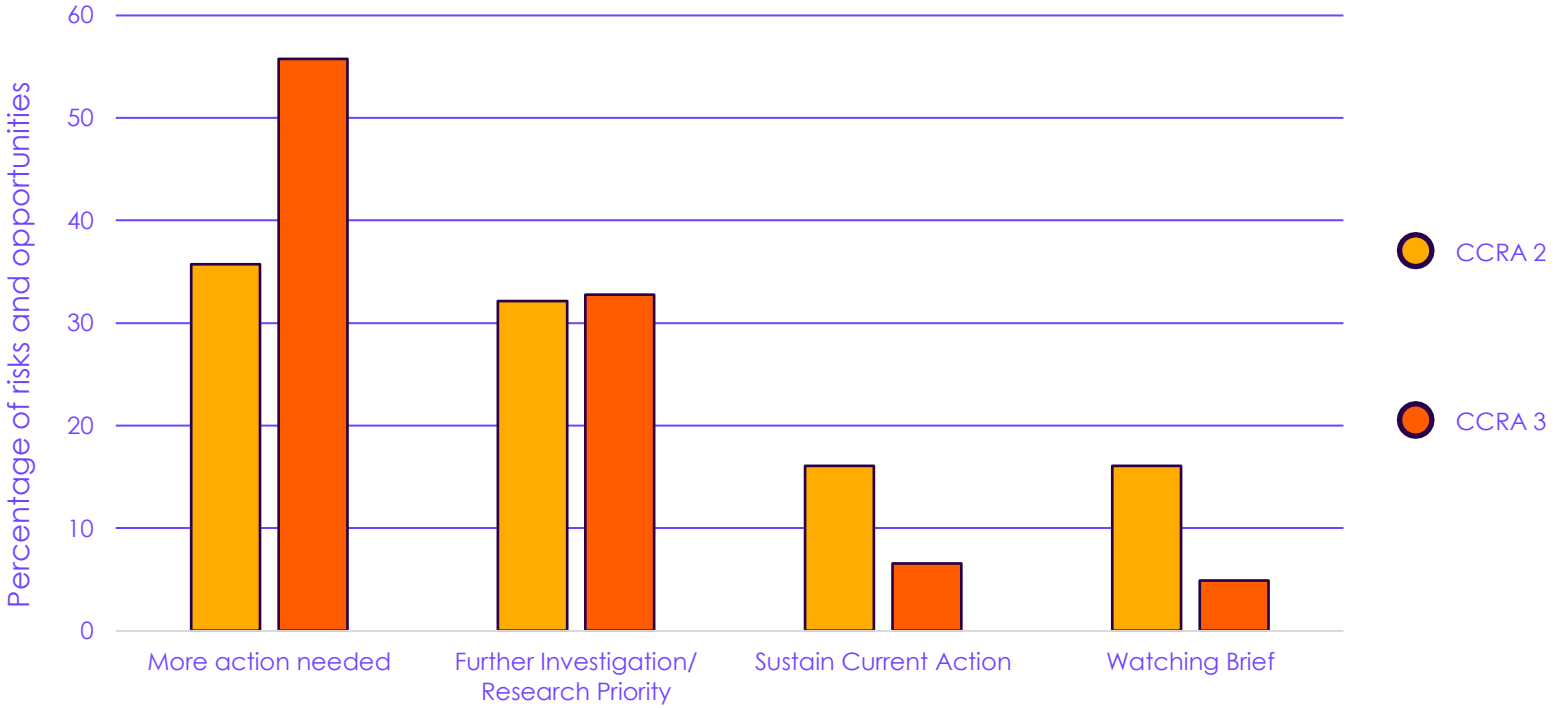
Navigating CCRA3

Components of the CCRA3 Independent Assessment of UK Climate Risk



Independent Assessment of UK Climate Risk

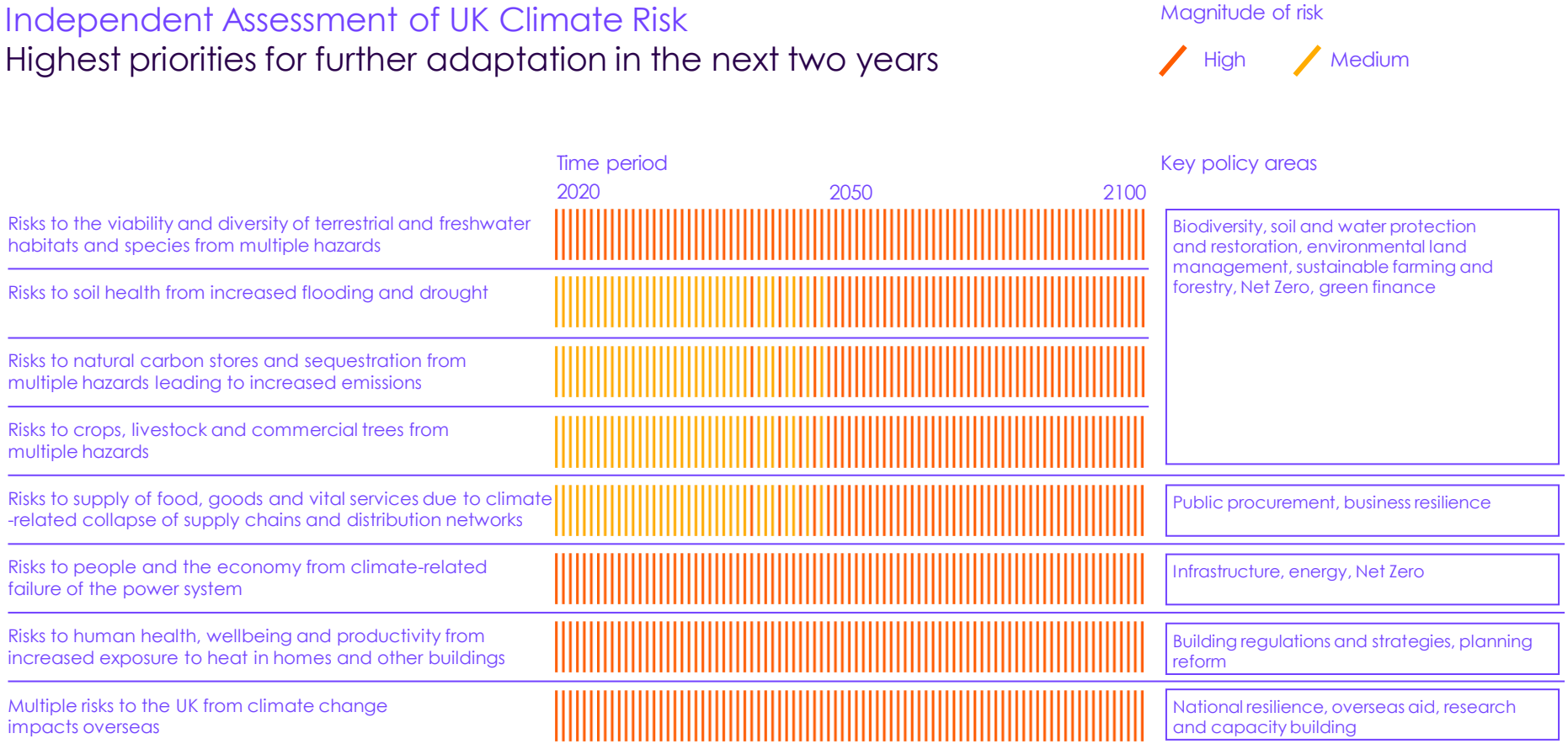
The level of urgency of adaptation has increased since 2017



Source
CCC Analysis

Independent Assessment of UK Climate Risk

Highest priorities for further adaptation in the next two years



Independent Assessment of UK Climate Risk

Many of the priorities have particular relevance to Wales

Risks to the viability and diversity of terrestrial and freshwater habitats and species from multiple hazards

Risks to soil health from increased flooding and drought

- Risks from intense rainfall are higher on soils made of unconsolidated materials from contaminated land and spoil tips in former mining areas

Risks to natural carbon stores and sequestration from multiple hazards leading to increased emissions

- Wales needs to have ~4 – 7 Mt of nature-based removals in 2050 as part of achieving its Net Zero pathway

Risks to crops, livestock and commercial trees from multiple hazards

- Without adaptation, 57% of the best and most versatile agricultural land could be at risk of river flooding by the 2050s

Risks to supply of food, goods and vital services due to climate-related collapse of supply chains and distribution networks

Risks to people and the economy from climate-related failure of the power system

Risks to human health, wellbeing and productivity from increased exposure to heat in homes and other buildings

- Heat-related death rates in Wales could more than double by the middle of the century without further adaptation

Multiple risks to the UK from climate change impacts overseas

Independent Assessment of UK Climate Risk

Examples of key risks to Wales

1. Risks to communities, business and infrastructure from coastal erosion

    - Risk to the viability of coastal communities rises to high in Wales by the end of the century, above the levels seen in other parts of the UK

2. Risks to infrastructure and buildings from ground subsidence

    - There are over 2,000 coal tips in Wales, predominately in the South Wales Valleys, of which 294 have been identified as a high risk to transport and other infrastructure.

    - In early 2021, there was severe flooding in the village of Skewen, following Storm Christoph, from a mine shaft which filled up with water and burst

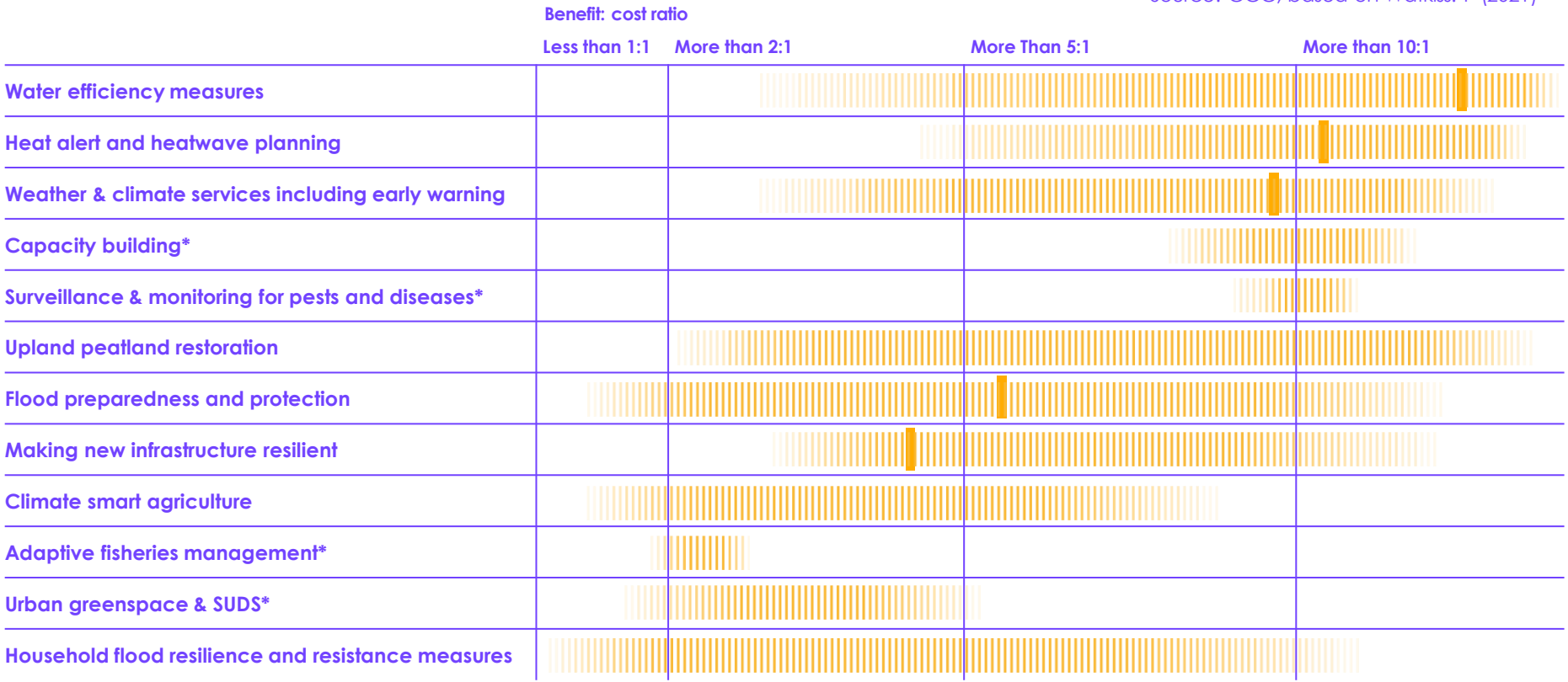
Acting on adaptation
What can be done?

Independent Assessment of UK Climate Risk (CCRA3)	Examples
Engineered solutions	Building design and retrofit, road resurfacing, flood defence investment, drainage
Nature-based solutions	Increasing plant diversity, habitat creation, soil conservation, increased blue carbon (coastal and marine vegetation), green sustainable urban drainage, urban greening, and peatland restoration
New technologies	Precision farming, using new crop and livestock varieties, remote sensing, new designs for infrastructure assets, use of sensing, digitisation and big data for monitoring, evaluation and management
Behavioural	Changing timing of agricultural practices, information sharing, public engagement, skills development in adaptation actions
Institutional	Adaptation standards, supply chain diversification, regulation, advisory services
Financial	Insurance, risk disclosure, adaptation finance
Data, R&D	Monitoring and surveillance, inspections, forecasting, research, decision support tools

Acting on adaptation
What can be done?

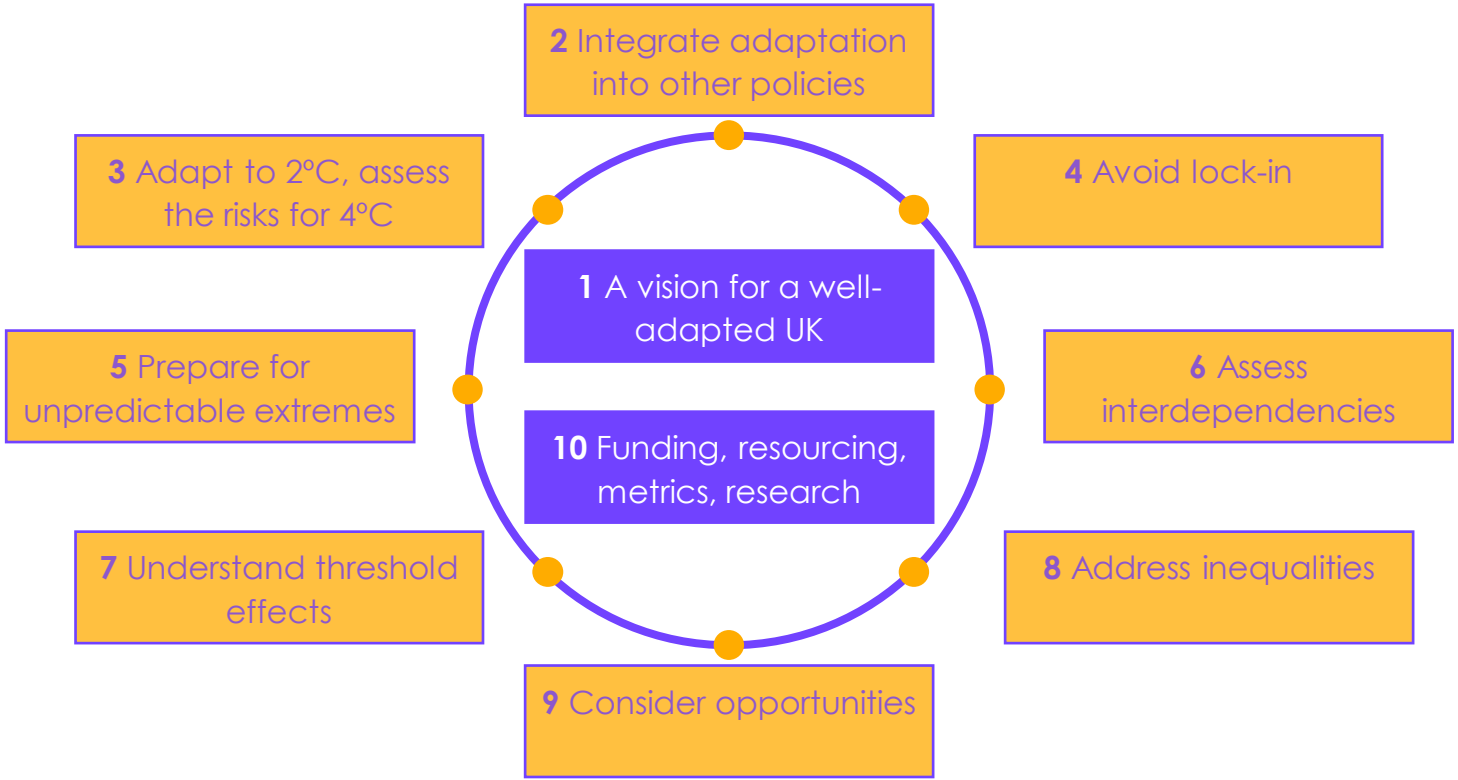
*Based on single, limited or indicative studies

Source: CCC, based on Watkiss. P (2021)



Ten principles for effective adaptation

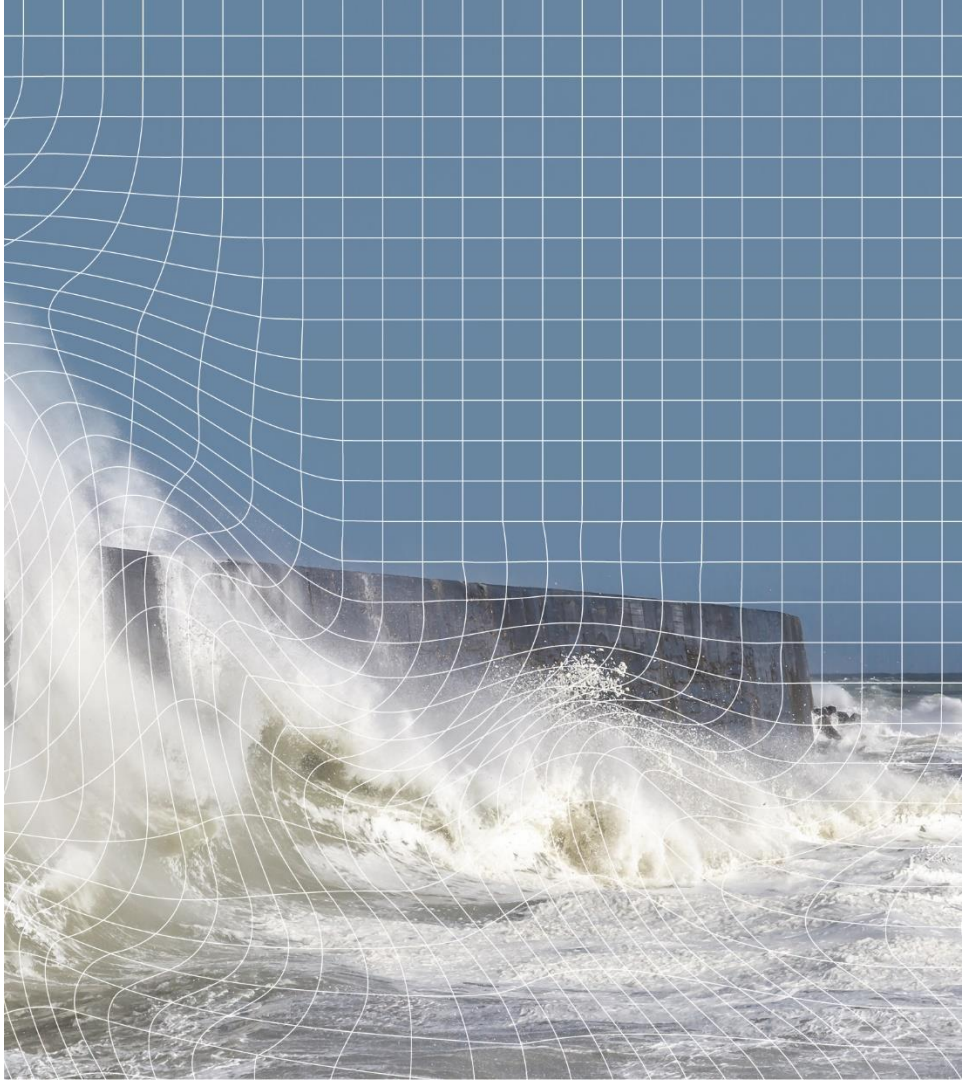
Still largely missing from UK adaptation policy



Source CCC Analysis

Call to action on adaptation

- Climate change has arrived
- The gap between risk and adaptation action has widened
- Without adaptation action key Government and societal goals, such as Net Zero, will not be met
- Bold leadership is needed
  - to prepare for future climate change
  - to protect the most vulnerable from its impacts



Climate Change Committee

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