

Climate risk and adaptation: The role of business in delivering a resilient UK

Chaired by: **Rosalyn Schofield**, Adaptation Committee

Panellists:

- **Swenja Surminski**, LSE Grantham Research Institute – technical report author
- **David Style**, Climate Change Committee
- **Doug Johnston**, EY
- **Signe Norberg**, Aldersgate Group
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Climate Change Risk Assessment 3

Chapter 6 – Business and Industry

Swenja Surminski

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‘Exam question’

‘based on the latest understanding of current, and future, climate risks/opportunities, vulnerability and adaptation, what should the priorities be for the next UK National Adaptation Programme and adaptation programmes of the Devolved Administrations?’

- Urgency scoring framework – 3-step process

Steps

1. *What is the current and future level of risk/opportunity?*
2. *Is the risk/opportunity going to be managed, taking into account government commitments and non-government adaptation?*
3. *Are there benefits to further action in the next five years, over and above what is already planned?*

Evidence review

- Calls for evidence
- Stakeholder workshops
- CCRA3 Research projects
- External review

What was new?

- Thresholds, lock-in, inequalities
- Interacting risks
- Net Zero
- Greater emphasis on country-level



CCRA3 stakeholder workshop February 2020

UK Climate Risk
Independent
Assessment (CCRA3)

Technical Report

Chapter 6: Business and Industry

Table 6.3 Summary table of all the evidence consulted

Type of evidence	Numbers of sources for CCRA3
Academic literature	105
Grey literature	261
Business surveys	15
Reports	44 (Government) 106 (Other)
Guides	17 (Government) 12 (Other)
Tools	12
Online sources (Article, blog, news, press release, podcast, letter etc.)	53
Dataset	2 (ONS, 2018;2016)
Total	366

- Physical risk – assets, people, processes at risk from direct and indirect impacts of extreme weather and changing climatic conditions
- Transition risks – adjusting business models for the transition to the low carbon / net-zero economy
- Liability risks - corporates exposed to more lawsuits, greater public scrutiny of corporate action

CCRA3: 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

1. Risks to businesses from flooding (B1)
2. Risks to businesses and infrastructure from coastal change from erosion, flooding, and extreme weather events (B2)
3. Risks to business from water scarcity (B3)
4. Risks to finance, investment, and insurance, including access to capital for businesses (B4)
5. Risks to business from reduced employee productivity due to infrastructure disruption and higher temperatures in working environments (B5)
6. Risks to business from disruption to supply chains and distribution networks (B6)
7. Opportunities for business from changes in demand for goods and services (B7)



B1. Risks to business sites from flooding.

B2. Risks to business locations and infrastructure from coastal change from erosion, flooding and extreme weather events.

B3. Risks to businesses from water scarcity.

B4. Risks to finance, investment and insurance including access to capital for businesses.

B5. Risks to business from reduced employee productivity due to infrastructure disruption and higher temperatures in working environments.

B6. Risks to business from disruption to supply chains and distribution networks.

B7. Opportunities for business from changes in demand for goods and services.

- 1. Risks to businesses from flooding (B1):** Present day expected annual damages to non residential properties across the UK average around £670 million. Damages could increase in a 2°C warming scenario by around 27% by 2050 and 40% by 2080, and in a 4°C scenario by around 44% by 2050 and 75% by 2080.
- 2. Risks to businesses and infrastructure from coastal change from erosion, flooding, and extreme weather events (B2):** Without further adaptation, damages could increase by around 30% by 2050 and 73% by 2080 under a 2°C scenario. In a 4°C scenario the damages could rise by around 82% by 2050 and 181% by 2080.
- 3. Risks to business from water scarcity (B3):** Present-day risks from water scarcity are low, but these could rise significantly over the next 30 years and beyond, in both public water supply and direct abstractions from rivers and other sources. The future magnitude of risk is considered medium across the UK.
- 4. Risks to finance, investment, and insurance, including access to capital for businesses (B4):** In a 4°C warming scenario, climate change impacts could be largely uninsurable. Currently limited evidence of physical climate risks affecting price changes, but this could change suddenly in the wake of more extreme events.


5. **Risks to business from reduced employee productivity due to infrastructure disruption and higher temperatures in working environments (B5):** negative impacts on employees' health and wellbeing and ability to commute to work expected to increase
6. **Risks to business from disruption to supply chains and distribution networks (B6):** Nearly 60% of business surveyed by the Business Continuity Institute reported productivity losses due to extreme weather in 2018. Scale of future risk unknown, more assessment needed.
7. **Opportunities for business from changes in demand for goods and services (B7):** growth of climate advisory services, businesses that anticipate changing markets may be able to gain an advantage, this opportunity has not been well quantified to date.

Risk or opportunity	England	Northern Ireland	Scotland	Wales
Risks to business sites from flooding (B1)	●	●	●	●
Risks to business locations and infrastructure from coastal change from erosion, flooding and extreme weather events (B2)	●	●	●	●
Risks to businesses from water scarcity (B3)	●	●	●	●
Risks to finance, investment and insurance including access to capital for businesses (B4)	●	●	●	●
Risks to business from reduced employee productivity due to infrastructure disruption and higher temperatures in working environments (B5)	●	●	●	●
Risks to business from disruption to supply chains and distribution networks (B6)	●	●	●	●
Opportunities for business from changes in demand for goods and services (B7)	●	●	●	●

Variations across the UK

Key

- More action needed
- Further investigation
- Sustain current action
- Maintain a watching brief



UK CLIMATE RISK

BUSINESS BRIEFING

Findings from the third UK Climate Change Risk Assessment (CCRA3) Evidence Report 2021

BUSINESS

This briefing summarises how business has been assessed in the latest UK Climate Change Risk Assessment (CCRA) Technical Report, and what types of action to adapt to climate change risks and opportunities would be beneficial in the next five years.

ukclimaterisk.org

<https://www.ukclimaterisk.org/independent-assessment-ccra3/briefings/>

A growing number of tools and methods can assist corporates in their climate risk management process...

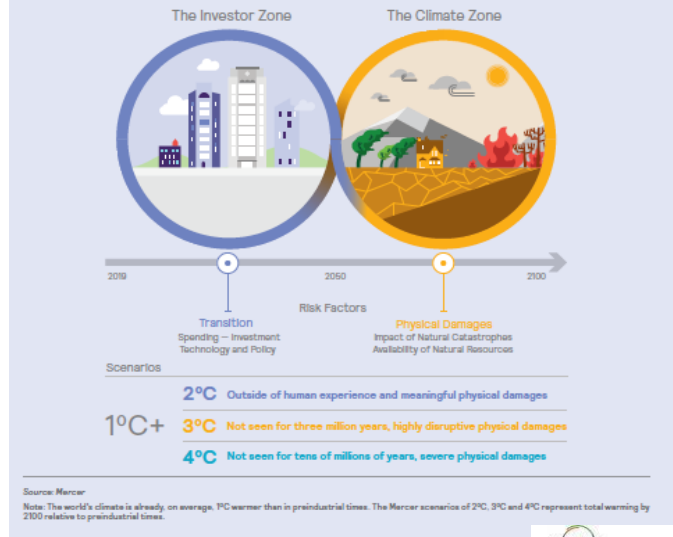
Figure 14. Relative Sensitivities – Asset Classes

Asset class	S	T2	T3	I	R
Developed market global equity					
Emerging market equity					
Developed market sovereign bonds					
Investment-grade credit					
Emerging market debt (sovereign)					
High-yield debt					
Real estate					
Private equity					
Infrastructure					
Timberland					
Agriculture					
Hedge funds					

Most negative	No sensitivity	Most positive
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Mercer (2019),
Investing in a Time
of Climate Change
The Sequel 2019,
http://www.mmc.com/content/dam/mmc/web/insights/publications/2019/apr/FINAL_Investing-in-a-Time-of-Climate-Change-2019-Full-Report.pdf

Figure 4. Climate Change Risk Factors Over Time

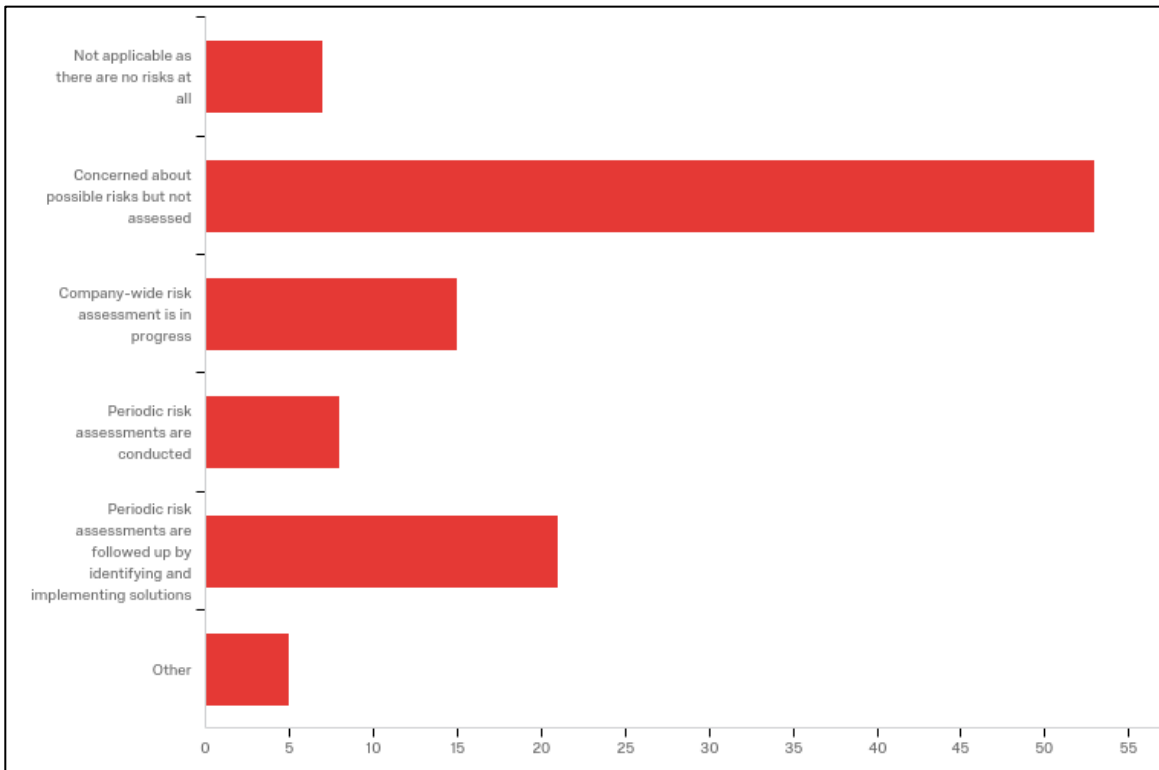


TCFD

TASK FORCE ON
CLIMATE-RELATED
FINANCIAL
DISCLOSURES



... but for many businesses it is still early days.



Q: Which of the statements best describe your company's assessment of current and future climate risks from climate change?

Source: GRI UK Climate Risk Business Survey, 2020

- Investing in technologies and selecting sites that could become stranded assets due to climate change
- Risk insensitive site locations for new assets - not taking into account long-term conditions
- Lacking information on the risks down the supply chains or supply chains that are locked to certain suppliers or countries
- Hard engineering approaches to flood protection and lack of understanding of natural solutions
- Planning on the basis of current flood protection levels for specific sites - these will change

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Disregard for physical climate risks is locking corporates into dangerous futures

Commentary on 16 June, 2021

Business decisions taken today will impact both the ability to transition to net-zero and the ability to cope with the physical risks from climate change. As the Third UK Climate Change Risk Assessment is published, Swenja Surminski, a lead author, reflects on concerns over businesses' level of preparedness.

There has been a seismic shift in corporate awareness and governance of climate risks over the last two years. More and more investors are demanding that businesses identify and mitigate their exposure to climate change, and regulators increasingly expect that firms quantify and disclose their climate-related risks. Under the reporting framework developed by the Task Force on Climate-related Financial Disclosures



Between 2008 and 2018 a total of 7.82% of new business sites in the UK were built in high-risk flood zones – and climate change is expected to shift and expand these zones even further. Photo: Fowey, Cornwall by Prawny, Pixabay

The problem of **‘lock-ins’**: many decisions today are not reflecting the risks we face tomorrow. This poses risk for financial stability and raises questions about fairness and responsibility.

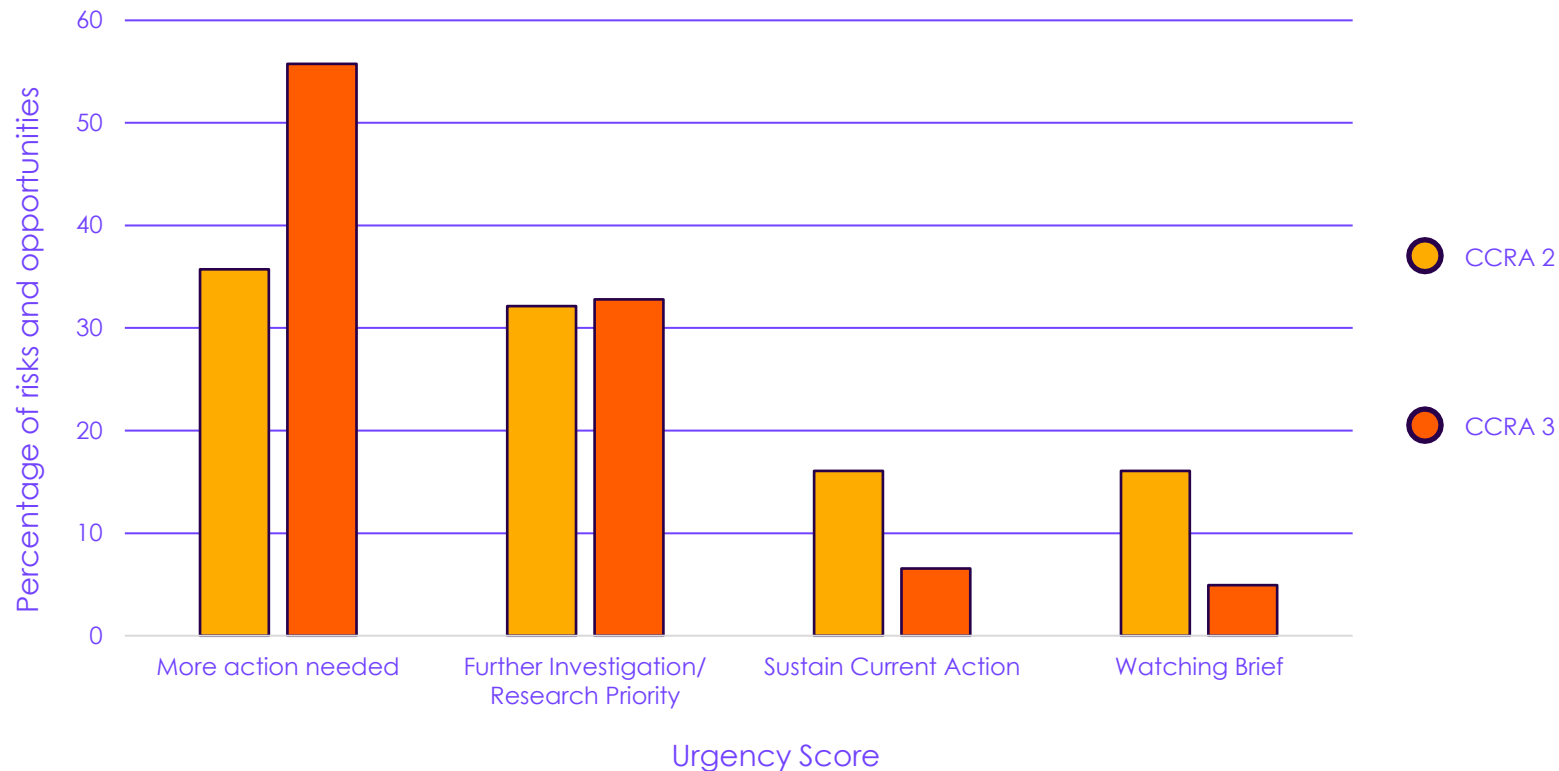
Climate risk and adaptation: The role of business in delivering a resilient UK

CCC's Independent Assessment

David Style

Climate Change Committee secretariat

The level of urgency of adaptation has increased since 2017
6 of 7 business risks require **More Action** or **Further Investigation**

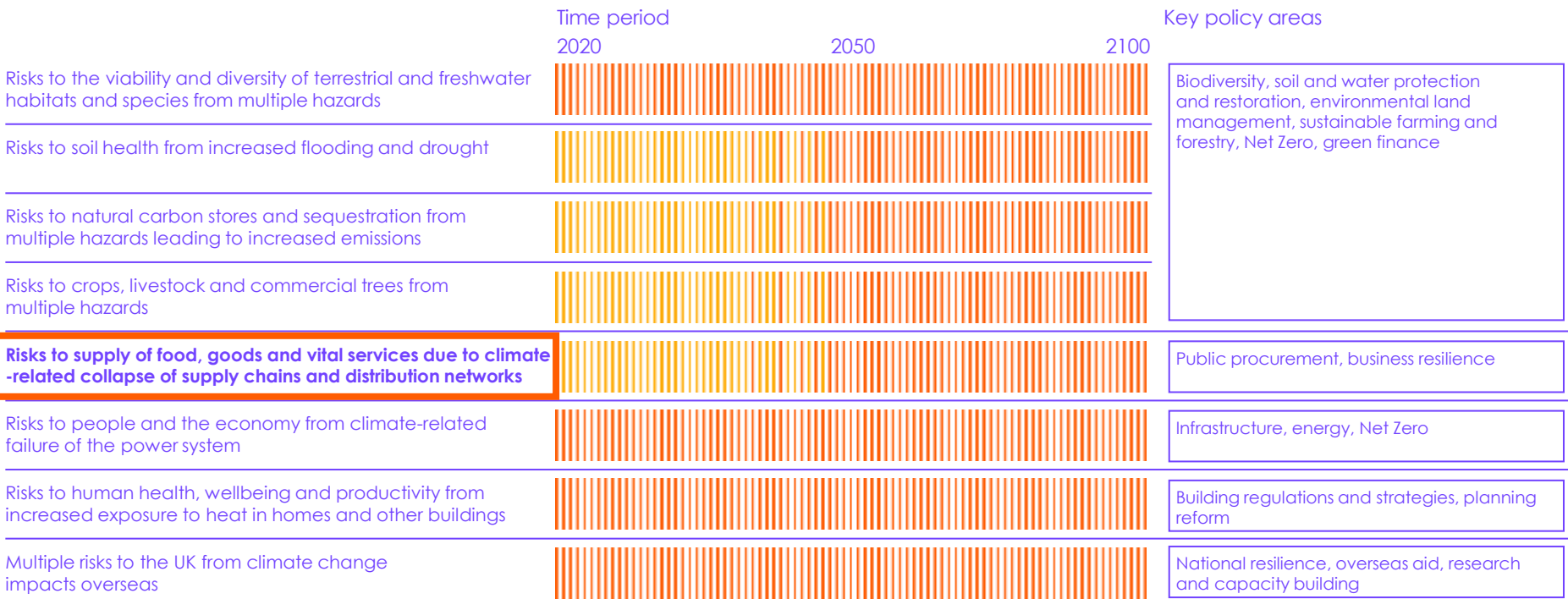


Source
CCC Analysis

Committee's highest priorities for further adaptation in next two years

Magnitude of risk

High Medium

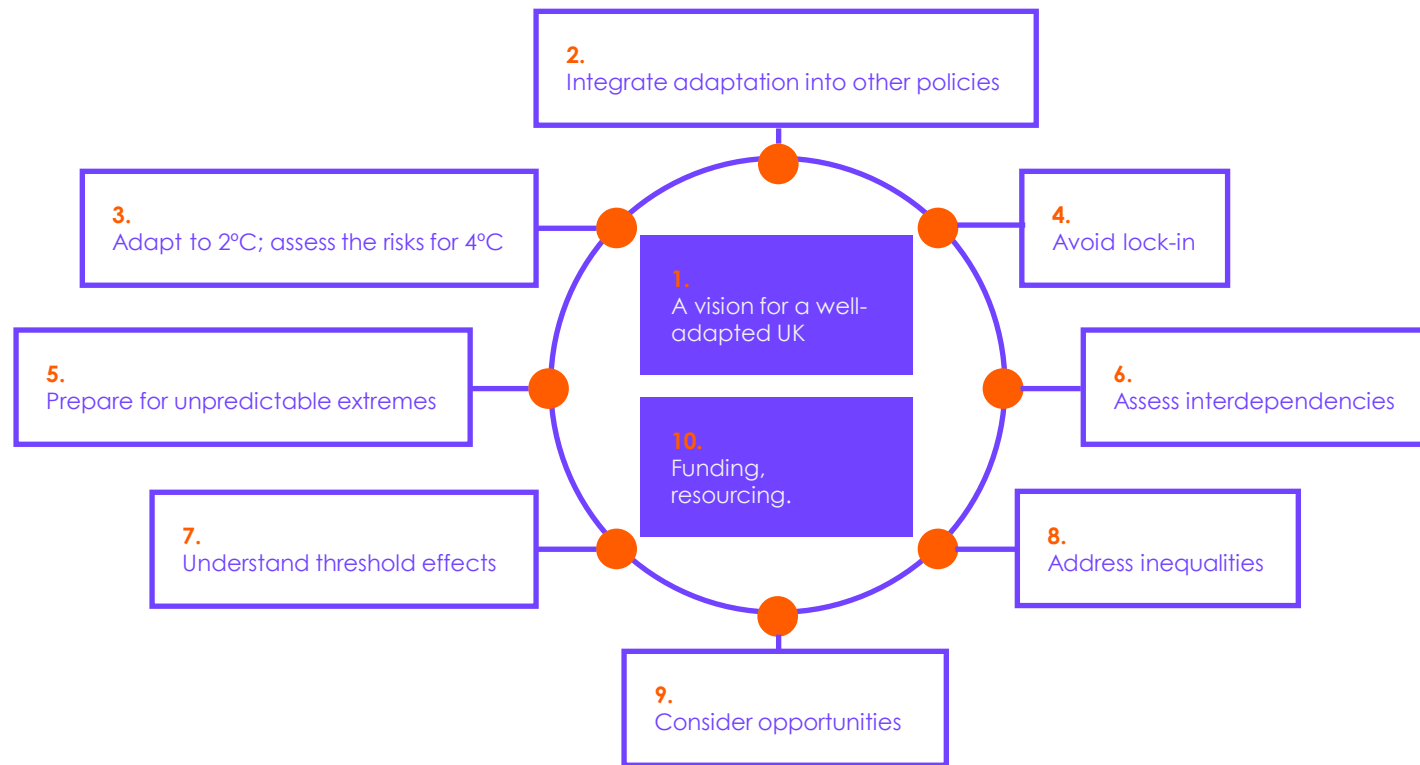


Resilient supply chains & distribution networks

- Extreme weather is already causing supply chain disruption.
- Domestic & international climate hazards will increasingly affect supplies, infrastructure & transport routes.
- Adaptation actions for Government and Business involve:
 - Providing better information and advice, especially for smaller businesses.
 - Building better capacity to manage, share and transfer risk.
 - Diversification of supply chain risks.
 - Stronger reporting requirements for businesses and infrastructure providers, including the Adaptation Reporting Power.



Principles for effective adaptation policy



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