



A perspective on adaptation research and evidence gaps: Informing decisions and policy

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Science from the Environment: Mapping Knowledge Needs for Future Horizons



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Presentation Outline

Background and Rationale

Identified Gaps

Identified Research and Evidence Gaps

- Assessment Process
- Scope for Adaptation and Assessing CCIAV
- Economic and Social Aspects
- Information and Data Requirements



Background and Rationale

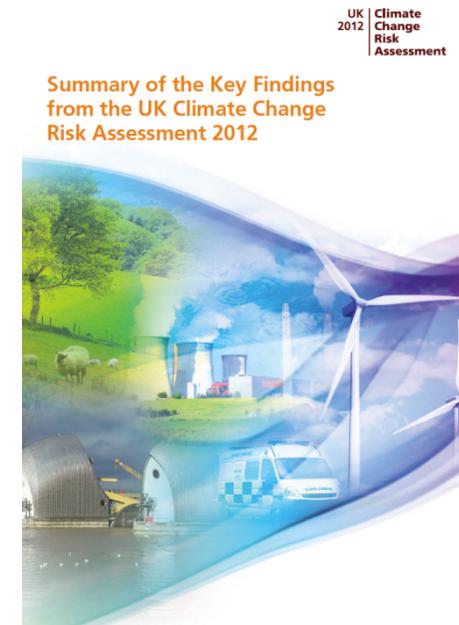
Request from Living with Environmental Change (LWEC) partners

Need to understand the evidence and research gaps required to inform the statutory requirements arising from the Climate Change Act (2008)

- Climate Change Risk Assessment (CCRA)
- National Adaptation Plan (NAP)
- Adaptation Reporting Powers reports

Inform the LWEC partners research agenda

Need to identify and understand the knowledge and evidence gaps



Sources Used

- LWEC CCRA Evidence Needs workshop 12-13 November 2012
- Commission Reviews of the UK's first CCRA
- Climate Change Risk Assessment Recommendations Report June 2012
- Gap Analysis
- Reflections following meetings and workshops related to the CCRA and NAP(s)
- Dialogues with various research and policy colleagues within the UK and internationally

	Performance			Importance	
	Method	Data	Implementation	CCRA1	CCRA2
1. Literature review & Tier 1 analysis	Good	Good	Good	High	Low
2. Identification of cross-sectoral & indirect consequences	Fair	Limited	Limited	Medium	High
3. Review of policy	Limited	Limited	Limited	Low	Medium
4. Social vulnerability	Fair	Limited	Limited	Medium	High
5. Adaptive capacity	Good	Fair	Fair	Medium	High
6. Selection of Tier 2 impacts	Good	Fair	Fair	High	Medium
7. Identify risk metrics	Good	Fair	Fair	High	High
8. Response functions	Good	Fair	Fair	High	Medium
9. Estimates of change in selected climate change scenarios	Good	Fair	Fair	High	High
10. Socio-economic change	Fair	Limited	Fair	Medium	High
11. Economic impacts	Good	Fair	Fair	Medium	High
12. Report outputs	Fair	N/A	Good	High	High



Identified Gaps

- Degree of **detail on quantification of present and future risks**, including indirect risks and interdependencies
- Consistent treatment of **future socio-economic changes and/or existing adaptations**
- Analysis of **non-climatic interactions** within the system (such as technological change in agriculture)
- Evaluation of risks of **joint occurrence of multiple extremes** or cascading impacts
- Quantification of climate **risks from abroad** (e.g., changes in global food production)
- Assessment of **risks from major discontinuities and tipping points**
- Monetization of **wider/cross-sectoral impacts**
- Assessment of **cost effectiveness** of different adaptation



IDENTIFIED RESEARCH AND EVIDENCE GAPS



Assessment Process

Appropriate assessment approaches – reflect purpose and nature of the evidence available, including evaluation processes

Taking an adaptation gap/deficit perspective

- Grounding assessment based on the adaptation deficit
- Allowing for updating based on progress in adapting

Taking a systems approach

- Systematic perspective of CCIVA, including complex vulnerabilities
- Recognising the geographic/spatial perspective
- Risk to services and security, rather than just sectors
- Exploring economic and social implications of systems responses
- Implications of focusing on interconnectiveness and critical cross-sector nodes – implications for adaptation, including synergies and trade-offs



Scope for Adaptation

Moving from coping and/or response strategies to adaptation

- Relationship between vulnerability and adaptation to climate change and our preparedness for extremes
 - Focus on trends and thresholds/sensitivities rather than just extremes
 - Transformational adaptation, including in the context of adaptive capacity
 - Exploring autonomous adaptation – role, drivers, positive and negative implications, and associated costs and benefits
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Understanding Vulnerability and Risks

Priority vulnerabilities – ‘hot spots’ spatial, temporal and governance

Relationship between spatial planning, land use and the built environment

Resilience of public health, social services and emergency services in the context of climate change and proposed adaptation responses

Emerging and cascading risks and the implications for adaptation

Acceptable levels of risks and losses



Uncertainty

- Moving from just a focus on climate change uncertainty to framing the dialogue around uncertainty of risks / opportunities and adaptation options – implications for decision and policy making
 - Understanding how framing uncertainty affects the success of implementation of an option or the 'value' of the assessment
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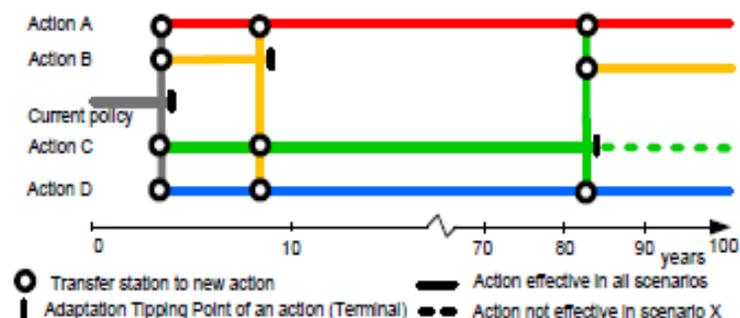


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Limits to adaptation

- Identifying and understanding tipping points, including their distributional characteristics – spatial, temporal and social
- Implications of the limits of institutions (structure, capacities, timeframes, reach, etc.) in adaptation
- Role of limits of markets, subsidies and incentives
- Limits to resilience of communities and ecosystems – linked to development of early warning system



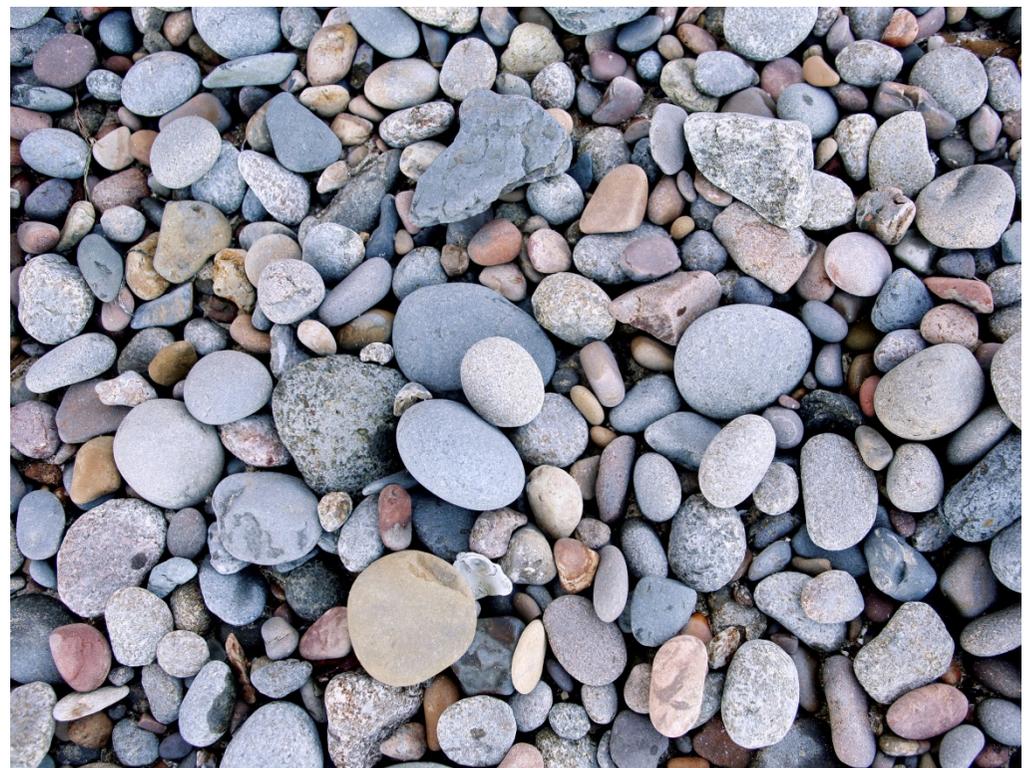
Adaptive Capacity

Role of **differentiated adaptive capacity** in identifying risks and assessment and evaluation of adaptation measures

Meaning at **different scales**

Assessment in the context of **incremental, transitional and transformational adaptation**

In the context of **interdependencies**



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Monitoring and Evaluation

Means of identifying and measuring **'success' and insufficient adaptation**

Use and limits of **qualitative and quantitative metrics**

Evaluating and communicating **'preparedness' for climate change**



Information and Data to Inform

What is decision / policy relevant information?

Need for a consistent set of socio-economic scenarios – linked to better reflecting current and future social vulnerability

- Spatial and temporal scales, including uncertainties
- Qualitative and quantitative information - integration
- Linking to growth and development goals – making them real



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Linking Adaptation to Economic Growth and Development

Building the business case for adaptation – national to local scales

Linking adaptation goals and objectives to economic growth and development – implications for assessment and delivery

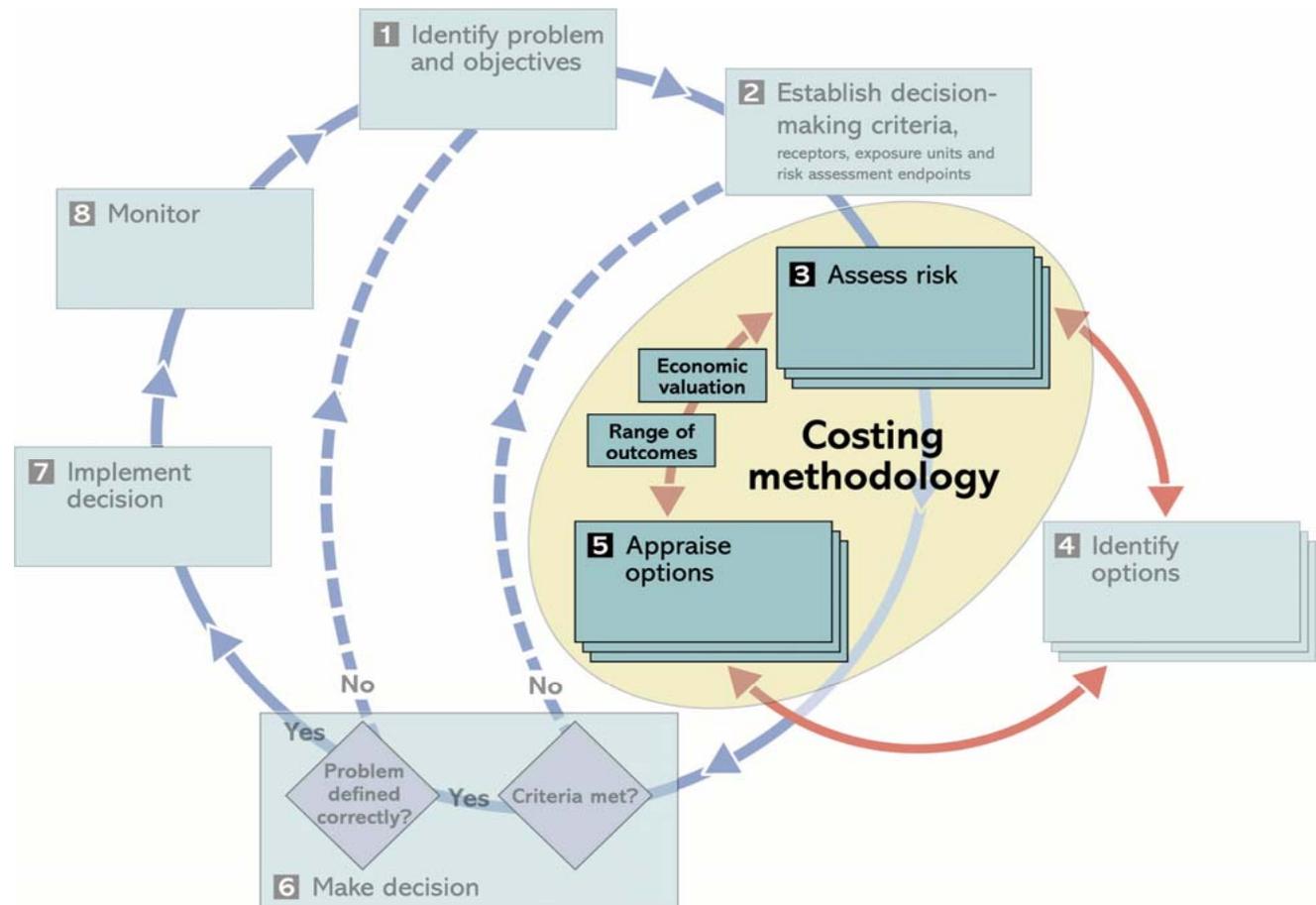


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Understanding the costs of risks and adaptation

- Costs and benefits associated with not adapting and other adaptation options – supporting the assessment
- Differentiate costs and benefits of risks / opportunities and adaptation options – granularity (credibility) to inform
- How individuals / businesses / organisations value and use services – differences and what these mean for risks and adaptation



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Social Justice and Equity

- Understanding of social justice and equity considerations in the context of risks and adaptation
- Implications of not including them when identifying risks and adaptation (and implementation)
- Barriers and enablers for their inclusion
- Benefits of including





Second UK CCRA due in 2017



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