21 May 2024

Fourth Climate Change Risk Assessment: Heat in the built environment

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1. Introduction to CCC and CCRA4

Introduction to the UK Climate Change Committee

Independent, expert-led, evidence based, reporting on a regular cycle

- An arms-length body, set up to provide impartial, evidence-based advice to Government on how to address climate change
- Government is required to consider CCC advice in setting policy but doesn't need to follow it
- Responsibilities to UK Government and Devolved Administrations of Scotland, Wales and Northern Ireland

Emissions targets and climate risks (5 yrs)
Carbon Budget Advice (for 12 years ahead)
Climate Change Risk Assessment (CCRA)
NDCs (on request)
Long term targets (on request).

Progress monitoring (1-2yrs)
Annual mitigation Progress Reports
Biennial Adaptation Progress Reports

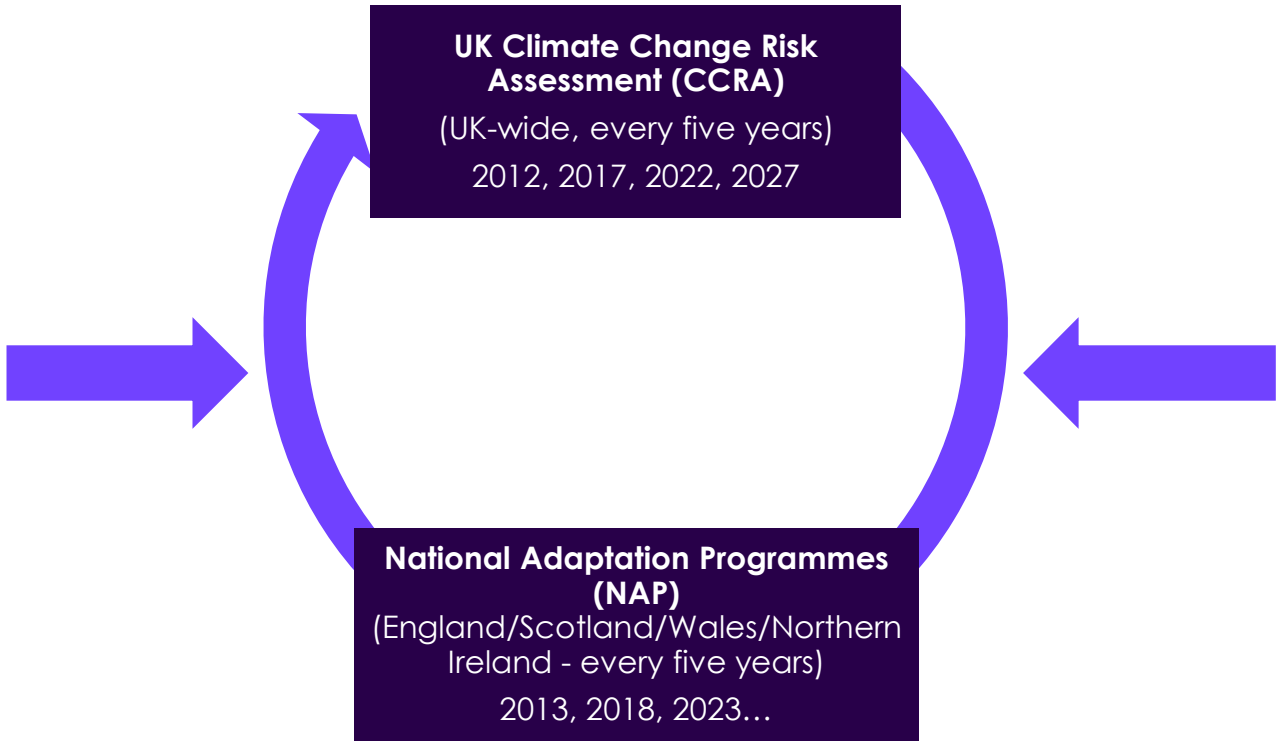
Non-statutory reports
Sectors and technologies
Policy
Issues and impacts

Advising and assessing climate risk

Evidence cycle for informing adaptation in the UK

Climate Change Committee advice on CCRA **(CCRA4 Evidence Report due in May 2026)**

Climate Change Committee progress reports (England, Scotland) **(Next England Progress Report April 2025)**



UK climate projections (Met Office)

Climate impacts and adaptation research

Adaptation Reporting Power (ARP)

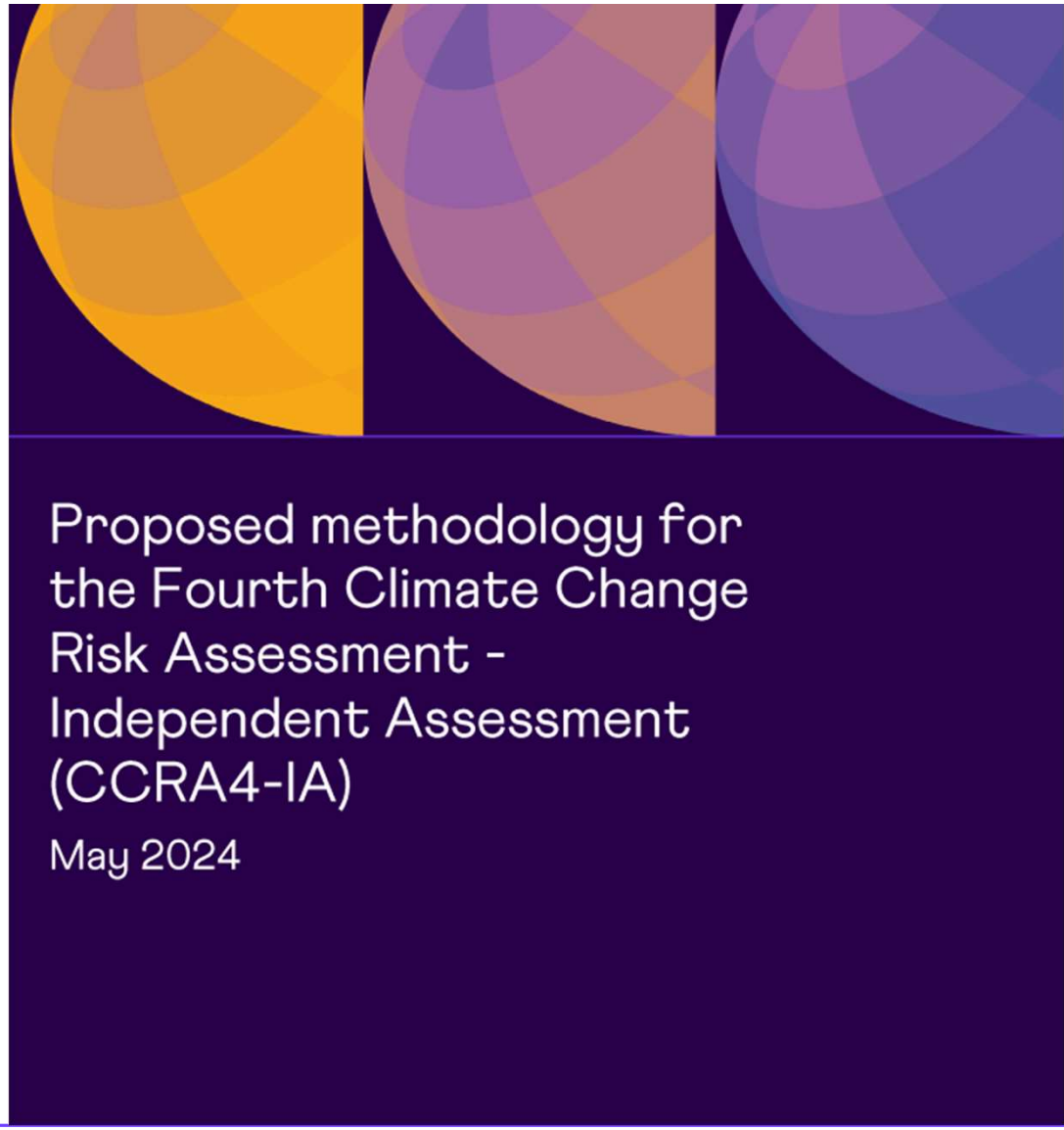
Regional and sectoral adaptation plans

Government policies

Fourth UK Climate Change Risk Assessment
Priorities for this cycle

For the CCRA4 Independent Assessment (CCRA4-IA) we are seeking to:

- **Build on previous assessments** to ensure continuity with earlier CCRAs.
- **Provide authoritative, evidence-based and up-to-date** insight to government.
- **Support adaptation action** by setting out the case for near-term adaptation action within and beyond government.
- **Ensure the assessment is useful to and usable by** decision-makers.



Fourth UK climate change risk assessment
Main outputs from CCRA4-IA

Technical Report

Review the published evidence to:

- Identify climate risks and opportunities to the UK
- Assess the urgency of taking additional action to manage each risk

Well-Adapted UK Report

Deliver innovative analysis to:

- Set out what actions are needed to address the climate risks assessed in the Technical Report
- Explore cross-cutting actions needed to deliver effective adaptation

Statutory Advice Report

Provide independent advice to:

- Recommend policy actions needed in the next set of national adaptation plans

What are the risks that need to be managed?

What actions are needed to manage these risks?

What should government do to ensure these actions are delivered?

CCC's Independent Assessment to Government
CCRA4 - IA

CCC's Statutory Advice to Government

2. Heat and the built environment

Heat and the built environment
Heat risks in CCRA3

CCRA3 risks	England	Northern Ireland	Scotland	Wales
H1: Risks to health and wellbeing from high temperatures	More action needed High confidence	More action needed Low confidence	More action needed Low confidence	More action needed High confidence
H6: Risks and opportunities from summer and winter household energy demand	More action needed High confidence	More action needed Medium confidence	More action needed Medium confidence	More action needed Medium confidence

- High temperatures increasingly affecting health and wellbeing, and the frequency and duration of extreme heat episodes is very likely to increase.
- More evidence since CCRA2 about the risks of overheating in buildings and the effectiveness and limitations of strategies for cooling.
- Energy demand for cooling in summer is likely to increase, and government intervention may be important for managing the extent and costs of this.

Heat and the built environment
2025 Adaptation Progress Report

Progress in adapting to climate change: 2025 report to Parliament - Climate Change Committee

Built environment and communities outcome scores			
Thematic area	**Outcome**	**Delivery and implementation score**	**Policies and plans score**
Towns and cities	Places are resilient to river and coastal flooding	Partial	Partial
	Places are resilient to surface water and groundwater flooding	Limited	Limited
	Sustainable coastal management in place	Limited	Partial
	Urban heat risks are managed	Unable to evaluate	Limited
	Planning system prioritises climate resilience	Unable to evaluate	Insufficient
Buildings	**Buildings do not overheat**	Unable to evaluate	Limited
	Buildings are prepared for flooding	Partial	Partial
	Buildings are resilient to other climate risks	Unable to evaluate	Unable to evaluate
Community preparedness and response	Communities are prepared for climate shocks	Partial	Partial
	Communities can respond to climate shocks	Limited	Partial
	Local cultural heritage is conserved	Limited	Limited

Slide 10

MR0 Worth adding a source to our 2025 Progress Report for this one I think
Millar, Richard, 2025-05-20T10:17:56.819

Heat and the built environment

Government must engage with heat at a cross-sector planning level

Priority recommendation from the 2025 progress report was: **Set out a long-term cross-sector plan to manage future heat risk and drive joined up action.**

- NAP3 does not do enough to address heat risk at the strategic level, despite some sector-specific plans.
- There are policy opportunities to address heat risk and cooling (planning, energy efficiency) which must not be missed.

CCRA4 risks
H1: Risks to people from heat
BE1: Risks to buildings and communities from heat
BE9: Risks and opportunities to households from changing energy demand

MR0

Slide 11

MR0 Not sure that we really want to set out provisional scores for the CCRA4 risks here - couldn't we just give the updated risk descriptors (as that is already in th domain)

Millar, Richard, 2025-05-20T10:19:18.213

3. CCRA4 urban heat deep dive project

CCRA4 urban heat deep dive project
Aims and scope

Investigate the societal cost of present-day and future extreme heat in the urban built environment.

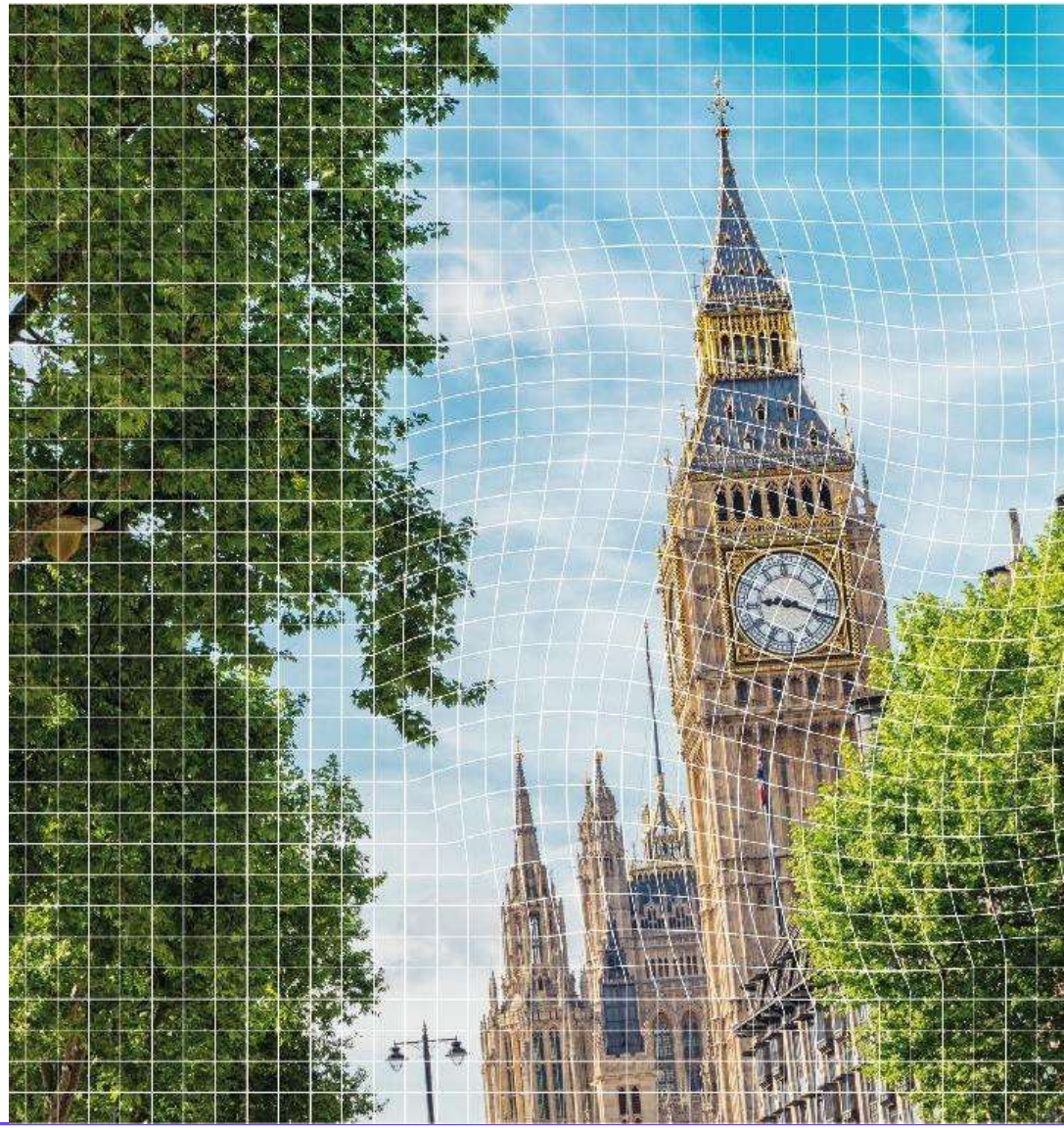
- Impacts on mortality and productivity.

Assess the options for cost-effective adaptation to present-day and future extreme heat in the urban built environment.

- Adaptation actions in the built environment to reduce the impacts of extreme heat – 'building-level' and 'street-level' actions.

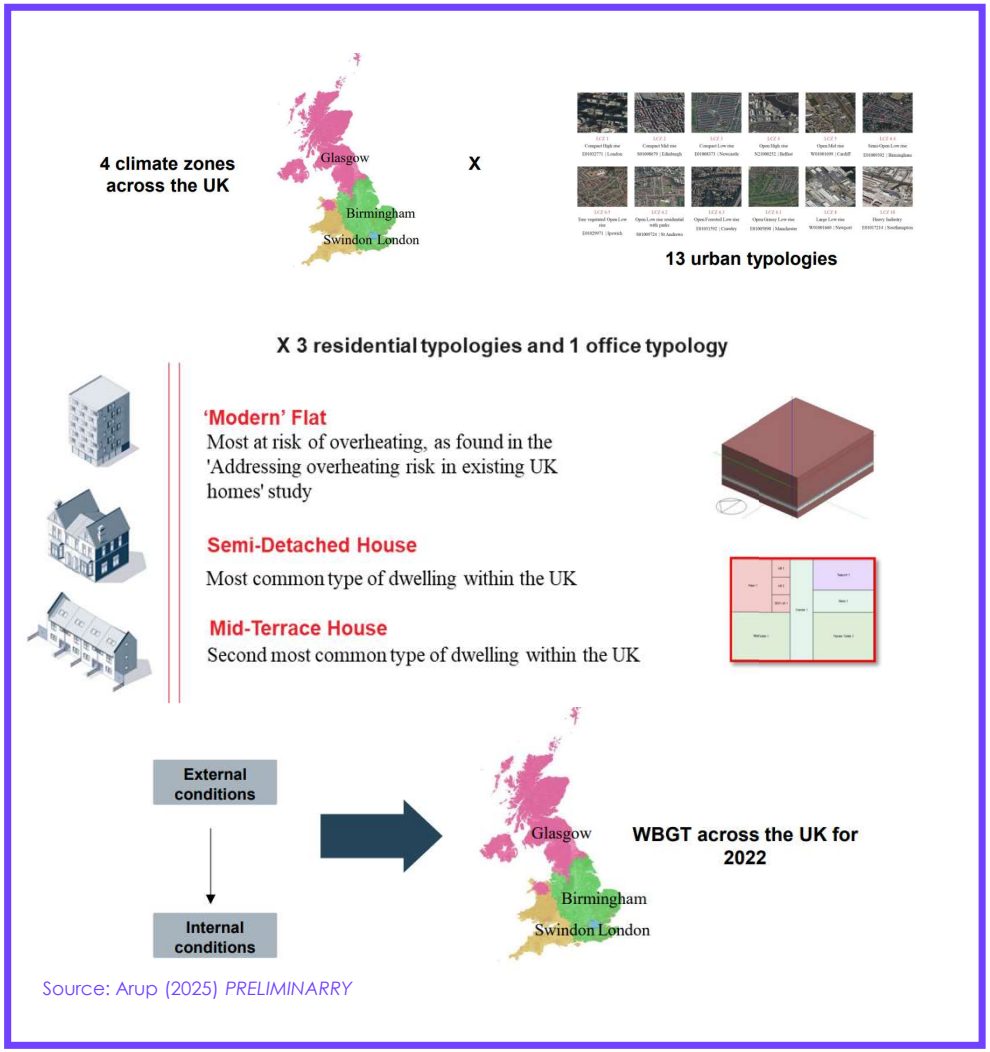
- Costs-benefits assessed via Green Book methods, covering risk reduction and co-benefits.

Parallel project on adaptation to heat in the healthcare system, looking at health system (facility and service) interventions.



CCRA4 urban heat deep dive project
Method and approach

- Calculate and cost present-day impacts, and 'baseline' (no adaptation) future impacts.
- Short-list adaptation actions to take forward into modelling from literature review and multi-criteria analysis.
- Assess future impacts and costs under three scenarios of adaptation representing different levels of ambition.
  - More measures and increased rollout of measures.
  - All packages start with the 'low regret' actions.
- Test against sensitivities (e.g. high climate change and vulnerability scenarios).
- Set out the potential adaptation requirement and costs avoided in the sector.



Source: Arup (2025) *PRELIMINARRY*

CCRA4 urban heat deep dive project
Adaptation action selections

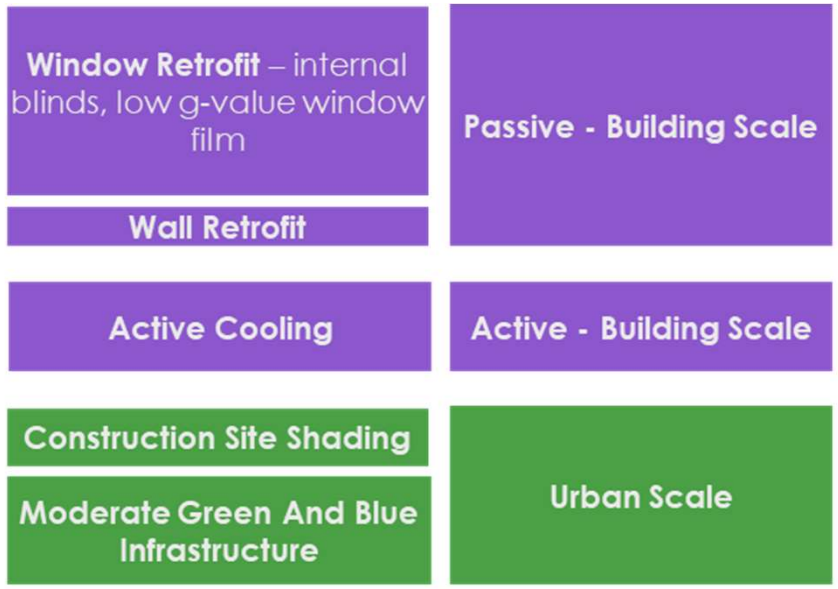
Adaptation actions at urban and building levels were shortlisted using an evidence review and a Multi-Criteria Analysis which assessed cost, impact and implementation.

- **Quick wins** with high impact and low cost were prioritised.
- **Complementary actions** were selected as a second priority.

Shortlist informs the development of adaptation packages to be modelled.

- Packages include a range of measures.
- Extent of 'roll-out' of measures may differ in different packages.

DRAFT – SAMPLE ADAPTATION PACKAGE



Source: Arup (2025) *PRELIMINARY*

4. Heat and cooling in the Well Adapted UK Report

Well-Adapted UK Report
A new product for CCRA4

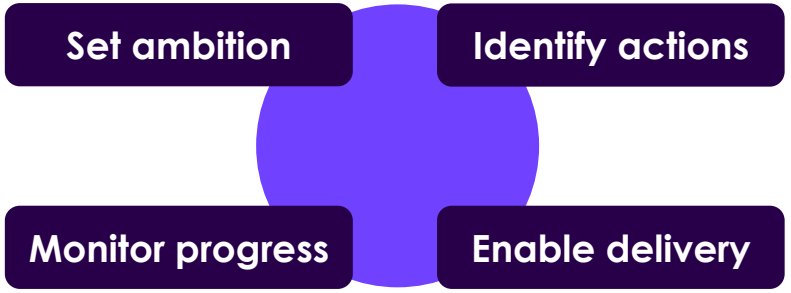
Set out actions needed to address the risks assessed in the Technical Report.

Aims to speak to decision makers in UK & national governments and set out a strategic level framework for adaptation.

Two parts:

- **Effective risk assessment and action**. Cross-cutting framework for how to deliver effective adaptation in UK government programmes.
- **Sectoral action to manage risk**. Structured around a set of policy-oriented adaptation systems, this will set out evidence-based adaptation goals, objectives, actions and enablers.

Evidence base is a combination of bespoke research projects and a synthesis of existing external research and evidence.



Infrastructure
Transport
Water and Wastewater
Digital and telecoms
Energy
Waste

Land, nature and food
Land
Sea
Food security

Health and well-being
Health

Built environment
Built environment and communities
Public services

Economy
Economy and finance

Heat and cooling in the Well-Adapted UK Report

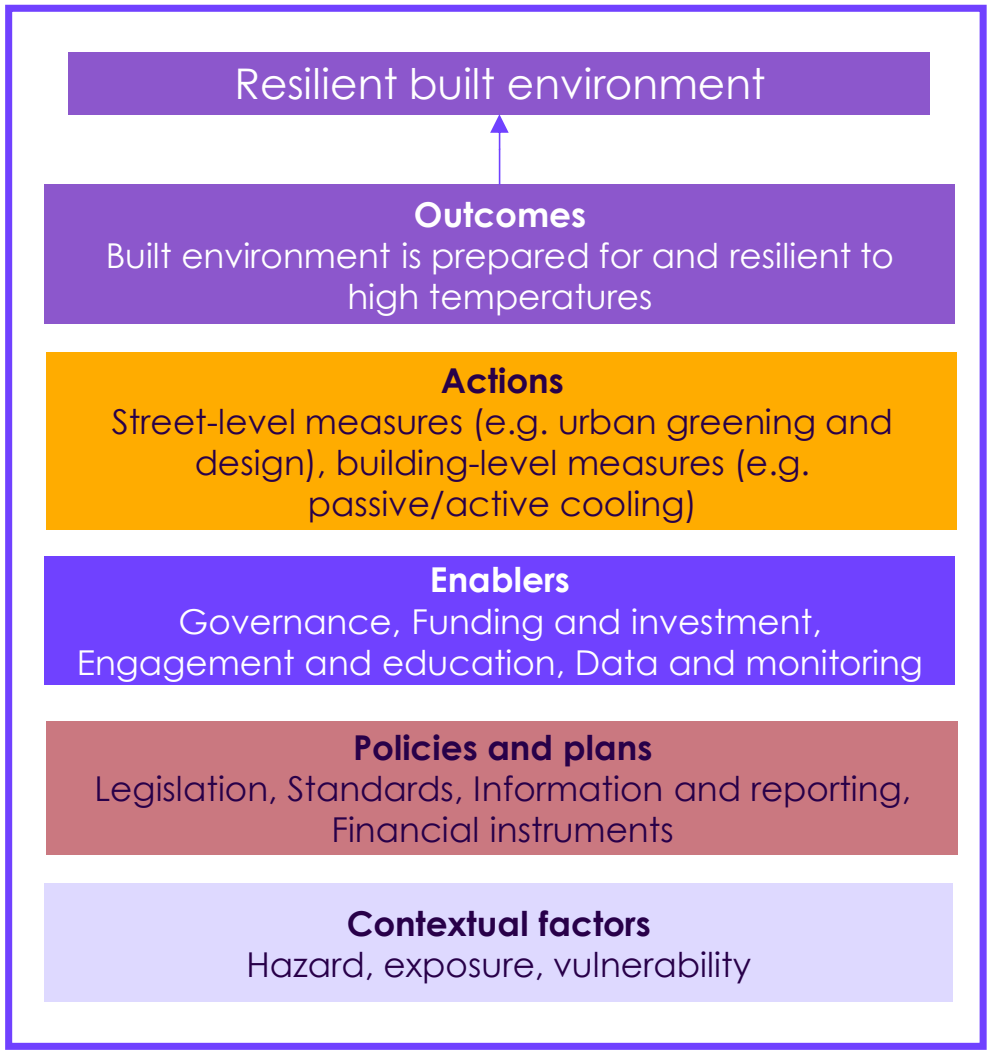
Analysis and advice

Built environment sectoral analysis

- Adaptation actions, policies and enablers for managing heat.
- Quantified objectives and targets.

Evidence and advice on mainstreaming adaptation

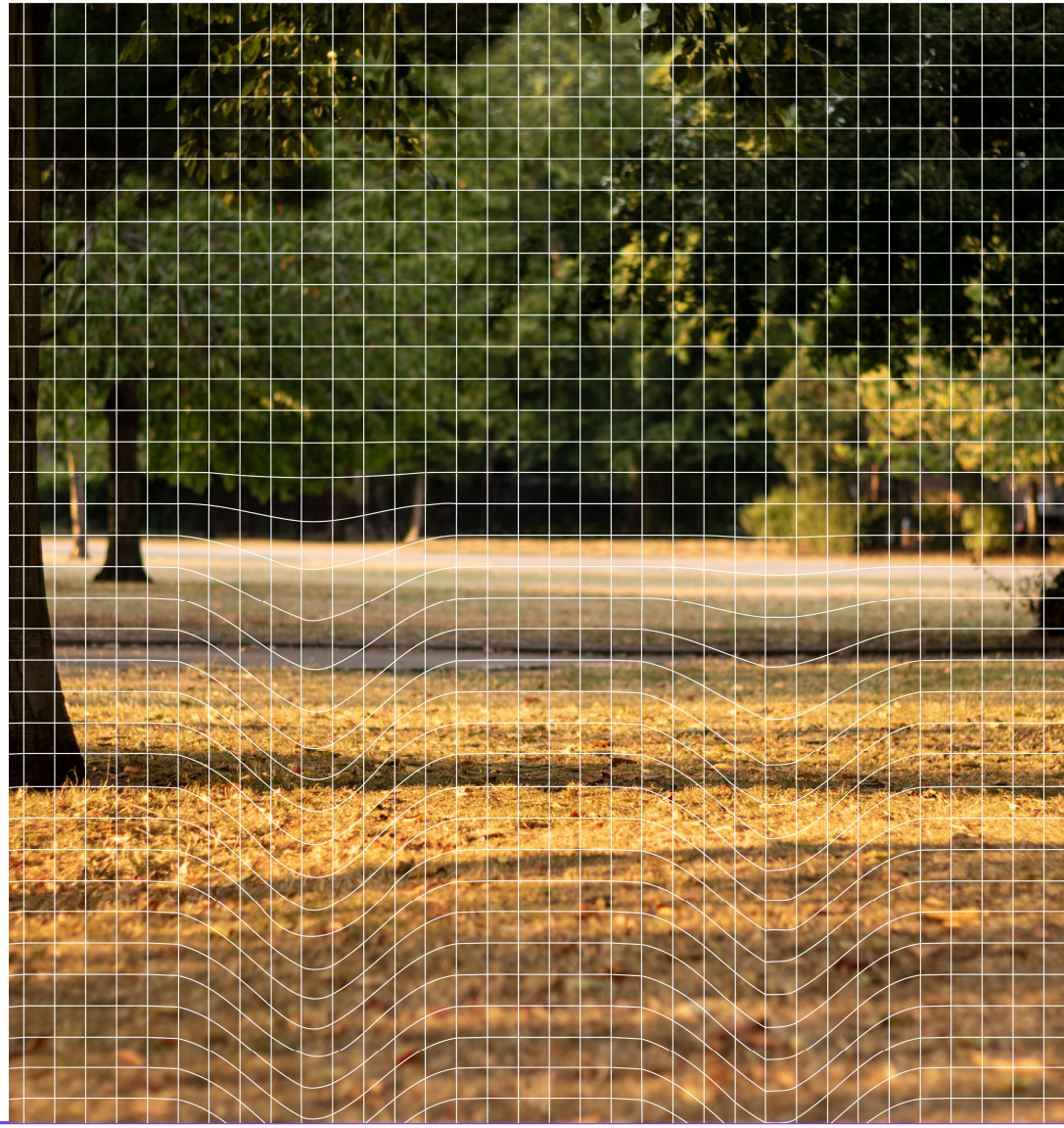
- Cross-cutting policy analysis on opportunity for retrofitting buildings for adaptation and mitigation, using CB7 buildings model analysis
- Adaptation principles of aligning with Net Zero goals.



5. Next steps and future work

Future work
Next steps

- **Technical report.** Finalise the evidence synthesis and risk urgency scoring. Community review in Autumn 2025.
- **Well-Adapted UK report.** Evidence and policy analysis. Stakeholder workshops Summer 2025.
- **Future work.**
  - Linking across CB7 and CCRA4 outcomes and analysis.
  - Assessing evidence gaps – existing buildings, cooling demand, new buildings, non-residential buildings.



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