

INNOVATING WITH POLICY

Learning from the Future of Cooling Programme

Radhika Khosla

Associate Professor, Smith School of Enterprise and the
Environment

Research Director, Oxford India Centre for Sustainable
Development

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How we innovate with policy:

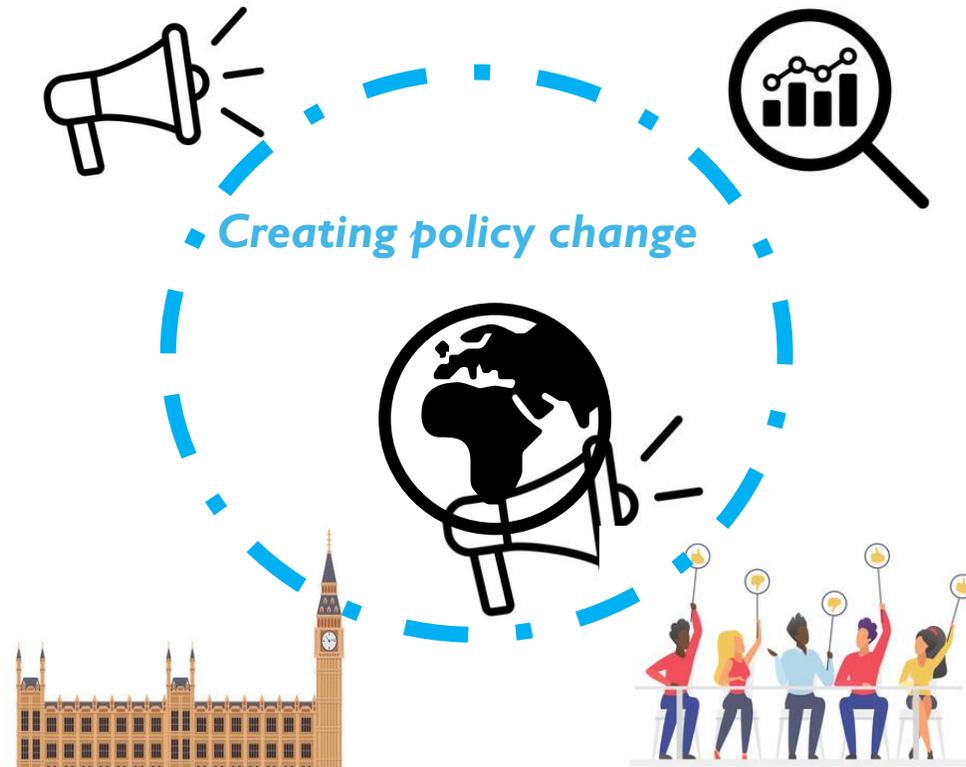
Four routes for translating research into policy impact

I. Shaping the Narrative

- Contributing to ongoing debates on policy issues
- Basing all engagement on published research
- Providing timely and targeted analysis to help decision-makers think about a problem

III. Responding to enquiries

- Responding to calls for evidence from UK Civil Service depts (e.g. DESNZ, FCDO)
- Responding to UK Parliament Select Committee Enquiries
- Putting forward proposals for new Select Committee Enquiries



II. Providing data or tools

- Collating topic-specific information and data for new researchers and/or for a non-expert audience
- Turning this into an accessible, educational format
- Publicising its availability

IV. Participating in Advisory Committees

- Acting as expert advisors to government departments and/or select committees
- Inputting into multilateral processes (e.g. UNEP, G20, IPCC).

UK Policy Context:

Why sustainable cooling matters

- Last year the UK issued first ever heat-health watch alert at 40C
- UK-ONS reported that across heat-periods of 2022 excess mortality in England was 2,803 for the most vulnerable age group (>65 years)
- *BEIS (2021)*: national peak demand for cooling during a heat wave could reach x65 times annual avg. consumption
- *Mission Zero Report (2022)*: Days where extra energy is needed for cooling, such as ACs, fans, and more refrigeration will more than double and wildfire danger can increase by 40–70%
- *CCC Report (2023)*: The next National Adaptation Programme should be much more ambitious and shift in focus towards the delivery of effective adaptation
- UK's sustainability debates overlooked extreme heat and cooling
 - e.g. *Net Zero and Heat and buildings strategy*
- Without a strategy to cope with extreme heat, UK risks lock-in to a single technology
- Risk of a vicious cycle: more ACs >> rising energy consumption >> rising CO2

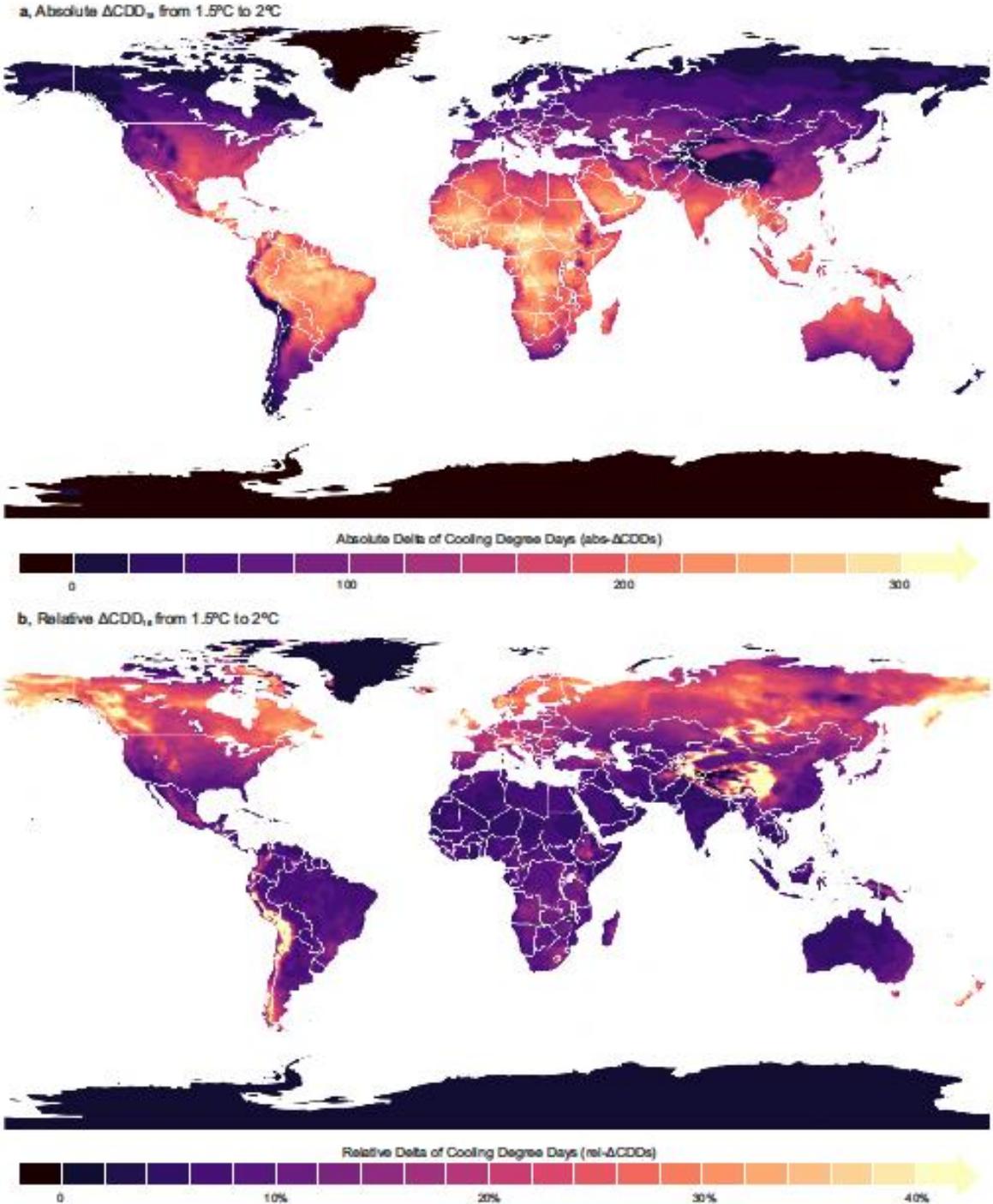


Met Office issues first ever extreme heat warning for UK

Warning for much of Wales and parts of England comes with call for caution near water after six deaths over weekend

UK Policy Context: Change in cooling degree days with global mean temperature increasing from 1.5° to 2.0°C

Top ten countries by relative change in cooling degree days	rel- ΔCDD_{18}
Switzerland	30%
United Kingdom	30%
Norway	28%
Finland	28%
Sweden	28%
Austria	24%
Canada	24%
Denmark	24%
New Zealand	24%
Belgium	21%



Cooling and SDGs: Finding the Evidence

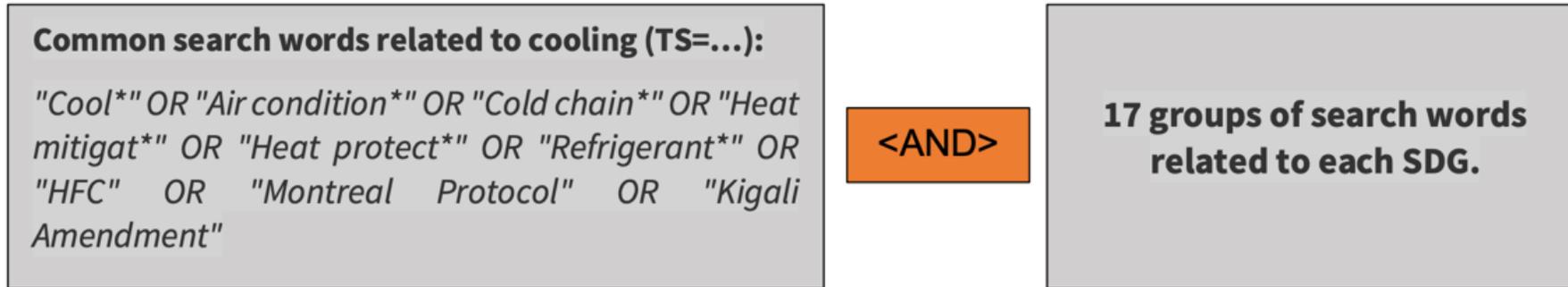


Figure A.1. Representation of the 17 searches in Web of Science.

SDG7	"Sustainable Development Goal* 7" OR "SDG 7" OR "SDG7" OR "SEforAll" OR "clean* energ* " OR "energ* access*" OR "affordab* energ*" OR "energ* affordab*" OR "renewabl* energ*"
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- Examined 12k+ Journals (Web of Science) in different disciplines
- Search of words in title, abstract & keywords
- Only one reference in UK Net-Zero Plan – annex to Heating
- No words such as cool, cooling, cold, refrigeration, freeze in 17 SDGs or 169 targets



Creating and co-designing research for policy impact:

Future of Cooling Programme addresses a blind spot in the unprecedented rise in global cooling demand

The Future of Cooling Programme shapes global cooling demand and heat resilience through delivering interdisciplinary and systems-based levers of change

Rising extreme heat affects health and well-being and increases cooling demand, driving a vicious cycle of very high energy use and GHG emissions that significantly worsen global warming. Our research generates evidence to inform policy, decision-making tools and strategies to mitigate the impact of heat and promote sustainable cooling strategies at multiple scales: world, cities, buildings, and people.

Sociotechnical systems analysis

Sociocultural determinants of thermal comfort

Technological assessments

Health impacts of extreme heat on morbidity

Sustainable cooling production network

Refrigerants (F-gases) and global temperature rise

Cities, buildings and infrastructure

Partners in academia, policy and practice

Within Oxford

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Confederazione Svizzera
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Swiss Agency for Development and Cooperation SDC

Universitat de Lleida

CENTRE FOR POLICY RESEARCH
KIGALI COOLING EFFICIENCY PROGRAM

SUSTAINABLE ENERGY FOR ALL

RACE TO ZERO Cool Coalition

UNIVERSITÄT WÜRZBURG

Cranfield University

E3G

UNIVERSITAT DE BARCELONA

Clean Cooling COLLABORATIVE

ipcc

iea

Solution landscape and levers for change – translating this for UK policy context

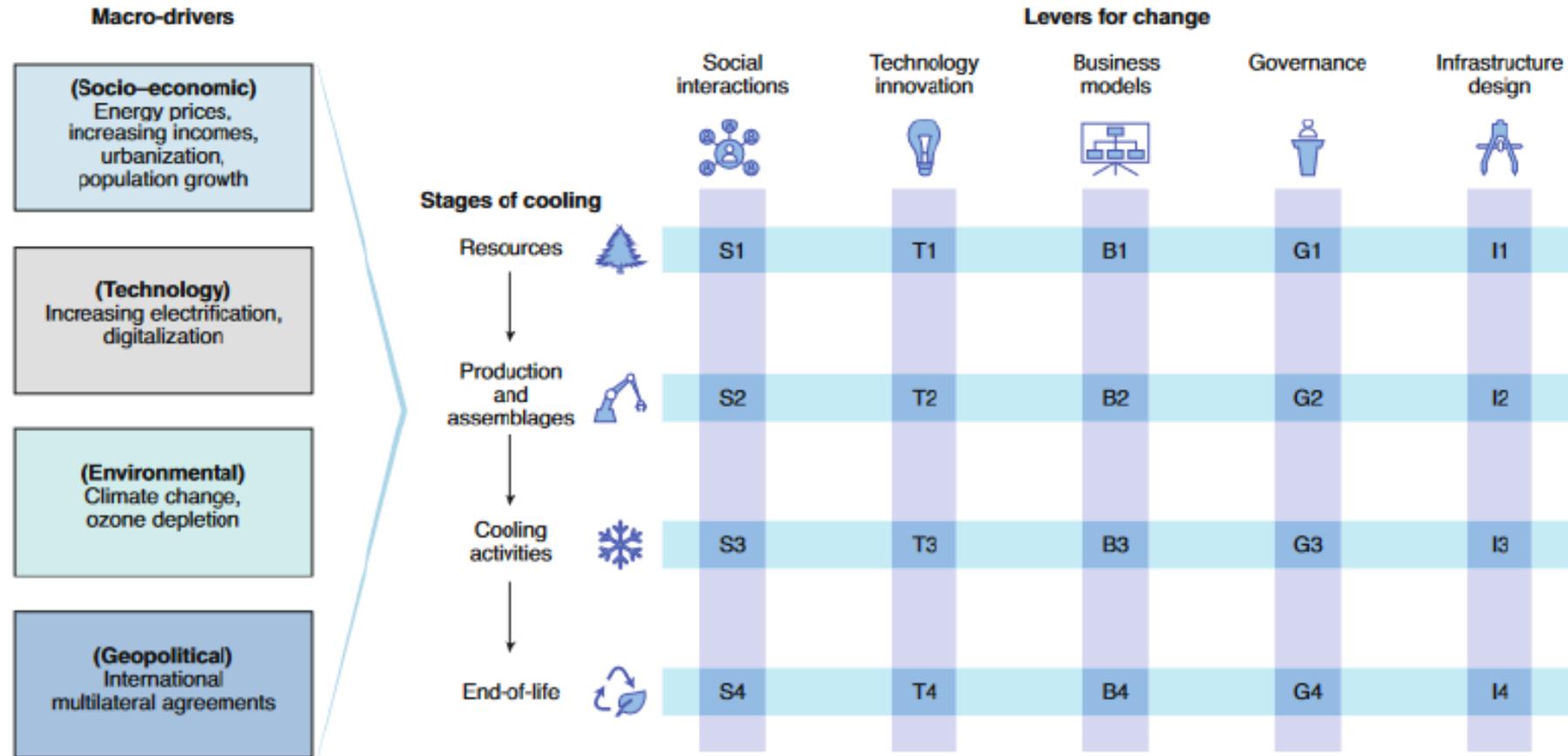


Fig. 2 | Analytical framework for transitioning towards sustainable cooling. The framework consists of macro-level drivers, the different stages of cooling delivery, and the levers which act on the cooling system to influence the trajectory of the future of cooling.

UK Policy Context: 'policy scan' shows siloed approach with gaps in planning and/or implementation

Theme	Climate Change Committee (2023)	Environmental Audit Committee (2018)
Information on heatwave threat		<ul style="list-style-type: none"> Minister-led public information campaign Diffusion on Met Office and PHE Deliver a study on economic losses during heatwaves
Protecting vulnerable people	<ul style="list-style-type: none"> Financing to install proactive adaptation for overheating for low-income or vulnerable HHs Develop a long-term cross-sector approach to address heat risks in the social care sector Monitoring overheating in care homes frequently. 	<ul style="list-style-type: none"> NHS to submit heat plans. DHSC Provide guidance on overheating risk inspection for health and social care premises.
Building sector	<ul style="list-style-type: none"> Heat risk assessment under future climate scenarios. Increase monitoring of temperature and overheating Mitigate overheating risks when increasing bldg EE Annual empirical studies of overheating 	<ul style="list-style-type: none"> Stop buildings being built if prone to overheating (using Building Regulations Act) 1983 Use dynamic thermo-modelling test as requirement for new buildings.
Cooling at city level	<ul style="list-style-type: none"> Introduce urban greenspace target. Introduce an urban greenspace target to reverse the decline and ensure towns and cities are adapted to more frequent heatwaves. 	<ul style="list-style-type: none"> Introduce an urban green infrastructure target in the 25 Year Environment Plan and the National Planning Policy Framework.
Local authorities	<ul style="list-style-type: none"> Work across Government and with local authorities to develop a long-term cross-sector approach to address adaptation and risks in the social care sector 	<ul style="list-style-type: none"> DEFRA should monitor capacity of local authorities to prioritise adaptation, require from them report on adapting to climate change. Local planning authorities with dense urban areas to demonstrate mitigation in local development plan.
Avoid AC demand		<ul style="list-style-type: none"> Local planning to include 'cooling hierarchy to avoid the exacerbating impact of air conditioning Offset increased demand for mechanical cooling through recovering and utilising waste heat.

How we can innovate with policy: four routes for translating research into policy impact

I. Shaping the Narrative

- Connecting Future of Cooling Programme's findings with ongoing public policy debate on extreme heat
- G20 [policy brief](#), COP26 [webinar series](#), WEF [articles](#)
- Coverage in online, print and TV media based on research publications



Policy change



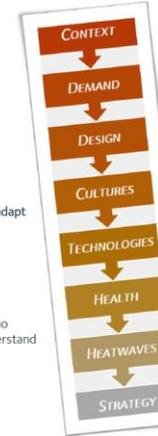
New online course:
Resilience to Extreme Heat

Billions of people worldwide will be exposed to heat stress by mid-century because they do not have the capacity to adapt

This course provides information, tools and approaches for informed planning and decision-making

For anyone in planning or decision-making roles – those who have responsibility for part of the solution but need to understand the whole system to evaluate and implement best options

Launching this summer; teaching starts October 2023



II. Providing data or tools

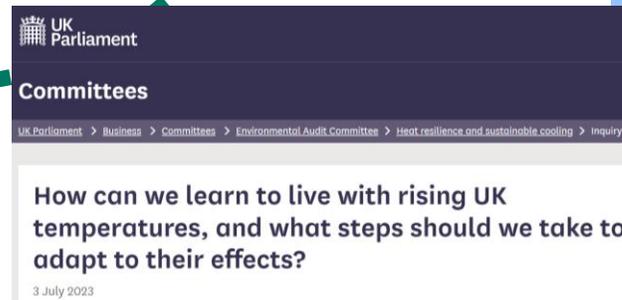
- Publishing research articles
- Developing library of Cooling solutions
- Systems mapping
- Developing online course on sustainable cooling for decision makers

III. Responding to Enquiries

- UK Parliament [briefing](#) – POST Note on cooling
- Responding to UK Parliament Environmental Audit Committee call for new topics for enquiry – proposing Heat Resilience and Sustainable Cooling



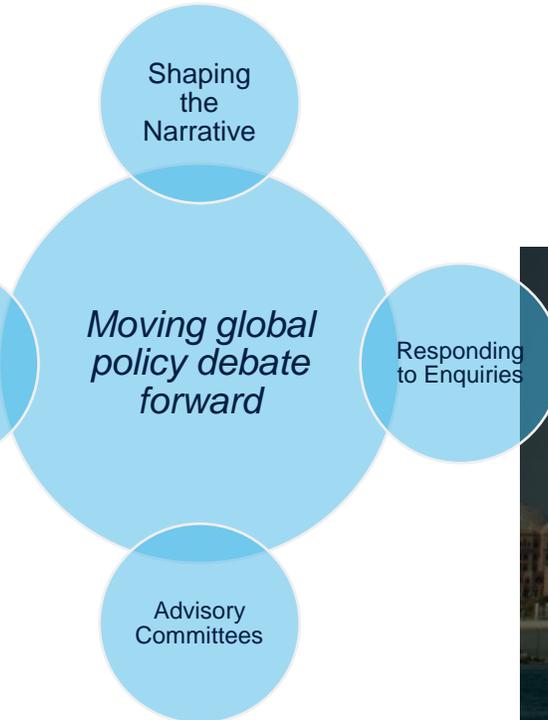
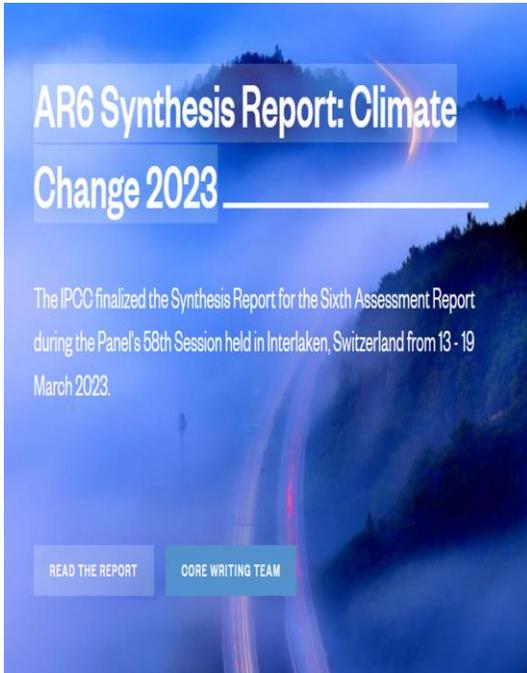
Following three fantastic pitches, the Committee are pleased to announce that we will take forward a short inquiry inspired by the presentation 'A National Strategy for #HeatResilience' from @unioxford academics. Further details will be announced in the coming months.



IV. Participating in Advisory Committees

Future of Cooling researchers appointed expert advisors to UK parliamentary enquiry on heat resilience and sustainable cooling
Shaping questions that go into the enquiry, making recommendations on witnesses, drafting outcome document for government

How we can innovate with policy: Enabling global decision-making frameworks



- Sustainable approaches to cooling critical to tackle climate change.
- Meeting cooling needs sustainably can help over 1 billion people adapt to climate change and reduce costs of the energy transition by US\$ 3.5 trillion by 2030.
- UNEP to launch Cooling Stocktake report ahead of COP28 to assess action on sustainable cooling.

Thank you

Radhika Khosla

radhika.khosla@smithschool.ox.ac.uk