

## Climate change, health and wellbeing

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*During the Critical Decade for Climate Action Conference, hosted by the Tyndall Centre for Climate Change Research at the University of East Anglia (UEA), leading climate researchers examined the evidence, opportunities and constraints shaping climate action in the coming decade. This briefing note summarises Session 8c on Tuesday 9 September.*

Climate change exacerbates existing health inequalities and disproportionately affects vulnerable populations. Higher temperatures and air pollution exacerbate respiratory conditions such as asthma and chronic obstructive pulmonary disease and increase the risk of others. Rising global temperatures lead to more frequent and intense heatwaves, increasing the risk of heat exhaustion, heatstroke, and dehydration. Malnutrition and hunger increase when food supplies are disrupted. We explore specific impacts of climate change on health and wellbeing to identify and address primary research questions in each area.

### How is climate change exacerbating health issues & inequalities?

Climate change is arguably the biggest public health threat of this generation. The effects of climate change will exacerbate a number of health issues and increase inequalities; the session entitled 'Climate Change, Health and Wellbeing' at the Critical Decade for Climate Action Conference in 2025, led by Prof. Mary Barker and Prof. Craig Hutton, covered heat stress, air quality, food insecurity and the issues affecting coastal communities. Here, we will briefly cover the issues that were presented before moving on to the adaptations, mitigations and potential research questions that were discussed by attendees.

Prof. Matt Loxham spoke about how *air pollution and health* exacerbates and contributes to the development of many diseases. The past 70 years have seen great strides in our understanding of how air pollution affects health, but we have much more to learn about how climate change, health and air quality interact.

Dr Katie Jenkins and Dr Davide Filingeri presented how heat stress is adversely affecting workforce health. 65-70% of the

global workforce is exposed to heat stress, and there are 22 million heat-related occupational injuries per year. Furthermore, worker productivity decreases by 2-3% for every degree increase beyond 20°C. The UK lags behind recommendations from the World Health Organisation/World Meteorological Organisation 2025 regarding working in the heat, whereas Sicily has a good case study of what to do for its workforce. Future work should look into how to address this social issue.

Prof. Mark Chapman and Prof. Nitya Rao took us through how climate change will impact our relationship with *food* and subsequent health issues. Approximately 2.3 billion people could not afford a healthy diet in 2024, with 42 countries having serious or alarming levels of hunger (this has a big link to conflict). Many diets are not suitable as we overeat red meat and starchy foods and undereat fruit and nuts. Crop diversification and planting novel crops would help to solve these problems; however, this needs to be financially viable for farmers. Prof Chapman is creating a novel and underutilised crops network (NUCNet) – need to talk to the consumers of the future about what they think and what they want to eat. Intersecting with these issues: Gender justice is the cornerstone to climate resilience, food

security and health, so we need a better rights-based approach in policy to tackle this issue.

To conclude the session, Dr Sien van der Plank and Ruth Taylor explained how coastal communities are at risk of the effects of climate change, and how we can strive to better protect them. The coastal zone is experiencing the blue acceleration – industrial shifts, fishing intensification, ecosystem collapse, socio-natural hazards, pollution, and climate change. We need to be careful about defining coastal communities as being resilient, as that can have negative implications, e.g. the Looe fisherman. How can we better identify and manage the potential trade-offs to ensure coastal communities are both **resilient and well**? sUStain Coastal is a project that provides wellbeing interventions, tearooms, creative activities and workshops to northern Norfolk coastal communities with a particular focus on Happisburgh.

A message to end on and take forward: Active Hope - staying engaged even when despairing; hope is what we do, not what we feel.

## **What adaptations and mitigations were discussed?**

The following section breaks down the adaptations and mitigations discussed, and the research questions and topics that were generated in each discussion group.

### **Air pollution**

*1. How does culture and behaviour play a role in the move to reducing air pollution exposure?*

Reducing exposure to air pollution is also down to individual behaviours and choices, influenced by their culture or usual habits. For instance, what fuel is burned in the home or what is used to cook; some households use wood because of the flavour it gives. These are often choices entrenched in culture and traditional ways of cooking. Additionally, we know how important it is to reduce reliance on and frequency of car use, favouring public or active transport instead. For some individuals, this is less of a choice due to mobility or extenuating circumstances. However, for others it is important to understand what different factors influence their choice. The way to understand these behaviours and the factors that play into them is to develop solutions with communities.

*2. How can homes be retrofitted to improve indoor air pollution?*

Indoor air pollution, especially in poor-quality or outdated housing, is also an important issue to consider. How developers/landlords can improve existing housing to prevent difficulties with mould build-up or to improve ventilation is crucial to prevent further inequalities.

*3. Shift to electric vehicles vs shift to public or active transport.*

As electric vehicles become more common, and in some countries more affordable, what does the shift look like to these vehicles? Is it still more impactful to encourage use of public or active transport? What are people more likely to make a swap to?

*4. Microplastics – Do tyres have them?*

Research at the University of Southampton has shown that brake pads emit microplastics when used. Does this mean that tyres also have the same issue? If so, what is the effect on air quality, both on the roads and the seas?

## **Heatwaves: Trade-offs in heat & health measures for at-risk workers**

*1. What can we learn on adaptive capacity and action from the informal sector?*

Focusing on the informal sector, i.e. no formal employment or workplace or protection measures. Casual work, especially in lower-income countries, is often on the streets, such as street vendors. What could we learn from monitoring/assessing how workers in the informal sector may autonomously adapt to cope with heat. The onus here is on the individual to adapt to keep working. Is this different or could it tell us anything about the options for the private sector to adapt?

*2. Who are the ‘vulnerable’ in vulnerable population to heat stress that efforts/thresholds should be targeted to?*

Can we better identify the core areas of populations that are at the highest risk of heat stress? Demographic links may vary across countries, such as women often working outdoors in fields in extreme heat or men in construction. Going further, we should be considering gender, disability, health conditions, social integration, culture. Can we develop more specific thresholds for heat risk in the workplace? The Physiological Society report highlights that a maximum temperature threshold is not that useful as it is very person and place specific. Can we develop a range of thresholds based on how people self-identify with different social groups, health dictators and work environments? No one-size-fits-all for every industry and country.

*3. How can we empower the health sector to identify and support patients’ adaptive responses?*

Often there is a link from health conditions to heat that consultants, for example, may see when they treat patients. For example, epilepsy episodes increase in certain patients during periods of extreme heat. How can we improve collaboration between practitioners and academics to

engage and work to draw out this information and intervene at this level? Can we work back from these issues to identify the root cause and intervention technologies that can be recommended to reduce the risks to health? Would people change behaviour if advice was coming from health professionals versus climate scientists or politicians, for example?

### **Food security & trade-offs**

*1. How can we move from individual to collective responsibility on dialogue for a nutritional diet?*

How can shifting from individual to collective responsibility in public dialogue and infrastructure make nutritionally-sufficient diets more accessible, affordable, and sustainable as a climate mitigation strategy? Examine how collective action can make healthy food choices easier and more equitable, and strengthen individual and food system resilience.

### **Coastal communities**

*1. How can we learn about gradual displacement from coastal communities from what is happening in Bangladesh? How do people feel about the issue?*

Coastal erosion is causing both gradual displacement and forcing households to move at short notice. Places such as Bangladesh, where two coastal regions have already been displaced, may be able to provide learnings for other places at risk (e.g. Great Yarmouth is identified as one such place).

Some households, such as those with disabilities to consider, are adversely affected by the climate and the consequences of climate change. Exploration of the potential exploitation of coastal communities who are (or will be) moving due to flood or erosion by banks/lenders/developers should be conducted, and how it can be an opportunity for businesses and exploitation in other ways.

*2. Intergenerational knowledge and experience vs youth generations – RIMA (Resilience Index Measurement & Analysis) vs wellbeing?*

Climate fears and worries affect mental health – Mind have created the first package for ‘climate distress’ to combat this. Children’s ‘resilience’ to this needs to be examined too, e.g. a study on flooding in Hull looked at child trauma from flooding and experiences of evacuation/loss. Further place-based work, and projects involving the social sciences should be conducted.

