Heat Risk in London Group
February 6, 2018 13:00-16:00
Small Auditorium 2, TfL, Stratford

Meeting notes

In attendance:
Briony Turner, UKCIP/ARCC
Anna Mavrogianni, UCL
Nicola O'Connor, Mandarin Research
Manuela Roedler, London Resilience
Anna Sexton, PHE
Kristen Guida, London Climate Change Partnership
Nick Jackson, Defra
Helen MacIntyre, PHE
Anastasia Mylona, CIBSE
Victoria Tink, MHCLG
Ting Sun, Reading University
Rochelle Schneider, UCL
Greg Jones, Islington Council

Apologies:
Annette Figueiredo, GLA
Matthew Hogan – London Resilience
Gianluca Pescaroli, UCL IRDR
Charles Snead, TFL
Tim Reeder, LCCP
Giridharan Renganathan, University of Kent
Rajat Gupta – Oxford Brookes University

Welcome and Introductions
Kristen welcomed attendees and led introductions.

Minutes of the last meeting
The group approved the minutes of the last meeting (September 19). Actions have been completed.

Climate disadvantage in London's care homes
Anna Mavrogianni presented about a project using the Climate Just web mapping to map climate disadvantage in London's care homes.

The Climate Just map tool uses a combination of flood and heat risk maps and social vulnerability indicators to locate people most socially vulnerable to climate impacts, and to raise awareness of the unequal impacts of climate change. It also provides advice about actions that can be taken to reduce vulnerability and improve resilience.

In 2016, Rajat Gupta assessed the risk of summer overheating in four case study care settings and found that there is little awareness of or preparedness for the danger.

Anna's current project aims to improve responses to climate change in care provision in urban areas, using Greater London as a case study. The project will:

- Build a database of London care homes
- Quantify the impact of the building's physical properties on its resilience to climate impacts (heat in this case)
- Analyze socio-spatial vulnerability using the Climate Just and expertise from the Centre for Advanced Spatial Analysis (CASA)
- Produce a new research proposal in collaboration with public health and planning policy makers.

Related to the fourth point, there will be a co-creation workshop in May 2018. Please let Anna know if you'd like to attend.

Discussion:
The Climate Just indicators of social vulnerability are not aligned to the Index of Multiple Deprivation, but are intended to illustrate what makes people particularly socially vulnerable to heat and floods. The selection of indicators is discussed in chapters 1 and 2 of this report.

Kristen will circulate Anna's slides.

Triple Heat Jeopardy mapping in Hounslow
Anna reported back on the Hounslow pilot of the Triple Jeopardy mapping project, which provided the borough with modelled overheating risk data at building and address level to inform emergency management.

The modelling was based on UCL's Triple Jeopardy framework, which looked at a combination of population age, building fabric, and the urban heat island. For Hounslow, a prototype tool was created to estimate historical, current, and forecast overheating risk and heat-related mortality in Hounslow and across London.

Anna shared the learning from the project (slides to be circulated): it was a good example of collaboration and establishing a working relationship between research and public policy practitioners to ensure useful application of research. However, a lack of resources and capacity within the council makes it difficult for council officers to find the head space to use the tool robustly. This is an issue across councils. There were also concerns about the communication of mortality data, and it was noted that making the tool bespoke to a council is somewhat expensive and time-consuming.

The final report from the project is available here.

Discussion:
The group agreed that the mapping is important and useful, and discussed how it might be promoted. Could be through ADEPT, Core Cities, Health Resilience Partnership, London Councils – groupings of chief executives and heads of service.

Urban heat storage under heatwaves: modelling and mitigation

Ting Sun provided a presentation about his work modelling changes in heat storage in urban areas under heatwaves. Modelling looked at heat storage given different types of land cover (urban, grassland, forest, etc.).

The research looked at possible engineered approaches, including albedo and vegetation cover. It found that wind speed has a large influence on heat storage during heatwaves. In a Beijing case study, he found that green roofs can decrease air temperature by up to 4°C, while also increasing humidity and decreasing wind speed. Found that a vegetation-based approach can reduce heat storage under heatwaves, but sufficient water supply is necessary.

The Beijing case looked at green roofs at a city scale (i.e., on all urban roofs), and showed that the modelled effects require implementation of greening over a large area.

While wind isn't necessarily so important to temperature, low wind speeds can have implications for air quality.

Links between heat and indoor air quality

At the previous meeting, Briony introduced this initiative, Working Party on the adverse effects of exposure to indoor-generated air pollution on children in homes and schools. Set up on the back of a collaboration on air quality between the medical and built environment communities led by the Royal College of Physicians, the Royal College of Pediatrics and Child Health, BRE, and ARCC, the WP is funded to do a literature review that gets the evidence and key findings in one place about economic impacts of poor air quality, the efficacy of solutions, and the relationship between indoor air pollution, exposure, and health impacts. Will also look at the relationship between climate change and heat and health impacts on children and at impacts of air quality in the workplace on fetal development. Seeking to address knowledge gaps, including not just levels of pollutants but the impacts on health, and what exposure levels matter.

A scoping meeting at the end of February will determine who is involved, and they will consult with different groups. It will be good to find out what we know about the links between ingress of poor AQ and impacts of urban heat. What questions should we be asking? There will be formal calls for evidence, but you can also email Briony if you have questions or information to share about:

- Health and/or cognitive effects – heat and learning performance
- Time scales, e.g., exposure over long periods, exposure during childhood and lasting effects
- Links with obesity, exercise
- The extent to which external AQ affects internal
- Links with behaviour of occupants and advice, e.g., children playing outside at school
- Buildings that children would be in, other than homes and schools?
- Work in other countries?
- Ventilation not working as intended
- Physiology and development of immune systems
- Physical and chemical aspects and knowledge needs

Discussion:

Also important to look out for unintended consequences, for example from the harmful chemicals in expanded foam insulation.

Anna said that there were some pertinent notes from a Passivhaus event last week. Will circulate.

MHCLG research on overheating in homes

Victoria noted first that the former Department for Communities and Local Government (DCLG) is now the Ministry of Housing, Communities, and Local Government (MHCLG), highlighting the enhanced priority government has placed on housing.

She reviewed the research being done at the request of the Climate Change Committee, on new homes only. Phase 1 looked at eight archetypes of homes in different locations, modelled indoor temperatures using CIBSE TM59.

Phase 2 looks at what can be done to mitigate overheating, applying measures including blinds, glazing, thermal mass, low CO_2 air conditioning, etc., and modelling strategies to see the impacts on indoor temperatures and to provide a cost-benefit analysis.

Benefits identified include lower mortality and sleep loss. All costs are in monetary terms, for the purposes of doing a monetary cost-benefit analysis. Costs include the costs of public health campaigns.

Mitigation strategies are being chosen using 2020s weather, looking at benefits under the 60 year life span of a house, up to 2070s weather data.

Discussion:
There is the question of how to enforce good practice with developers – ensure that they'll do what they say they will. Grenfell demonstrated the need to resource enforcement. Question of what to do with regeneration sites, and with permitted development – Islington has produced guidance for householders and SMEs.

Need evidence from planning: have planners ever turned down a plan on the basis of overheating, or checked whether measures have been implemented? Would be good to have evidence from London of London Plan policies being carried out

Other business

Nick reported that Defra is seeking advice from stakeholders for the second National Adaptation Programme. An outline has been sent to ministers, and the document is now being drafted with five key sectors/themes, including People and the Built Environment. Looks at priority risks and significant actions. Will share when able. A first draft should be circulated in March, with further consultation in April and May.

Actions

Who:	**Action:**
Kristen	Circulate presentations
Anna	Circulate Passivhaus event notes

Kristen	Check about implementation of London Plan policies re overheating