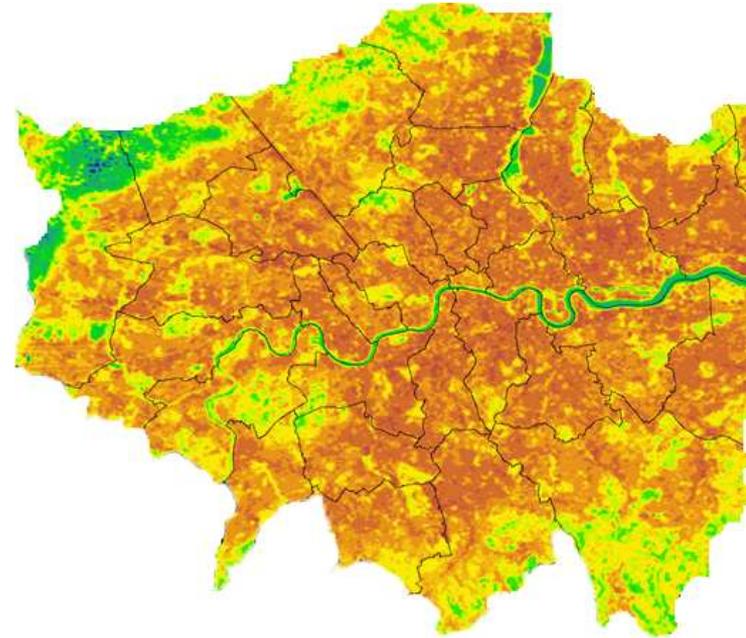


# Urban Heat Risk Mapping and Visualisation in London

Session B2  
'New methods and action plans for climate related heat and health risks'

Polly Turton + Anna Coppel | 29 May 2014



# Today's discussion

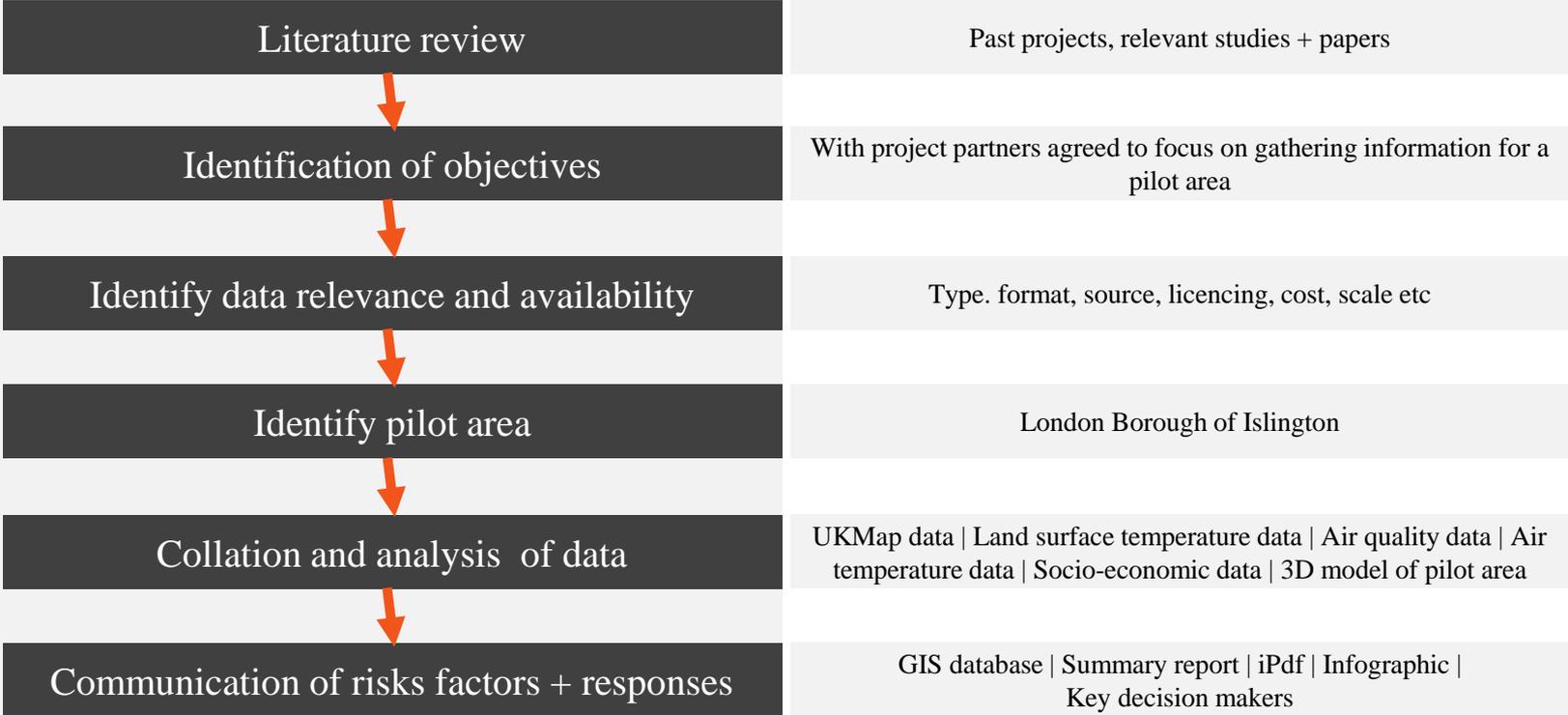
1. What is urban heat risk and why is it increasing?
2. Methodology for the project
3. Project partners
4. Outputs from the project
5. Who is most vulnerable to urban heat risk?
6. Approaches to reduce urban heat risk
7. Recommendations and future work
8. Q + A

By 2030, 60% of the world's population will be living in urban areas. For some people living in these areas, hot weather can be a real threat.

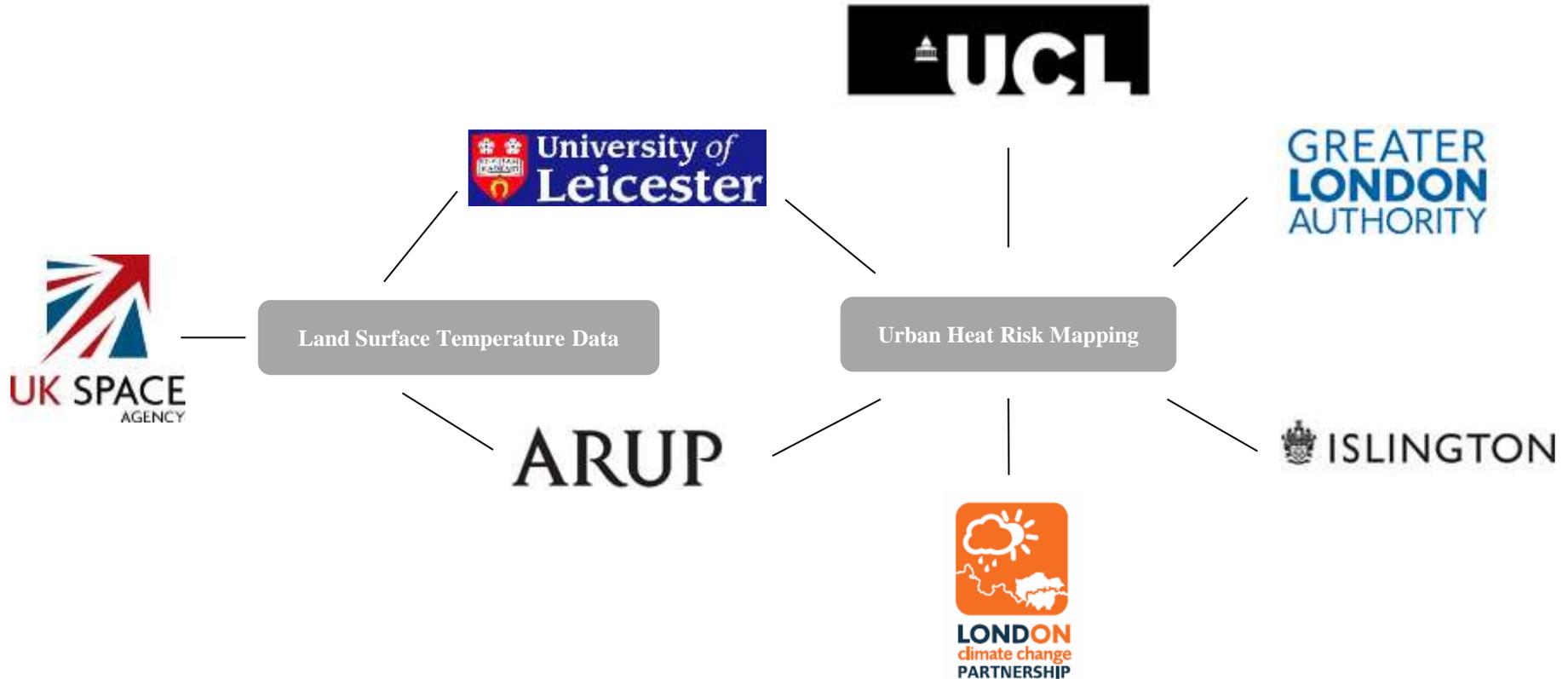
# Urban heat risk

- What is it?
- Why is it increasing?
- Contributing factors to urban heat risk:
  - Climate change
  - Urban heat island (UHI) effect
  - Demographic change - ageing population / under five year olds
  - Urbanisation and densification

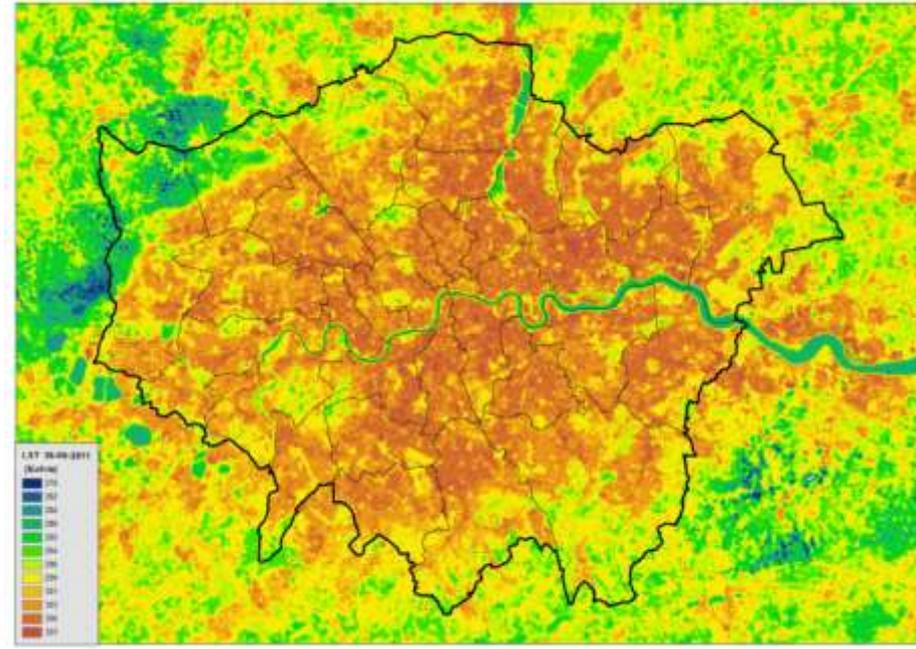
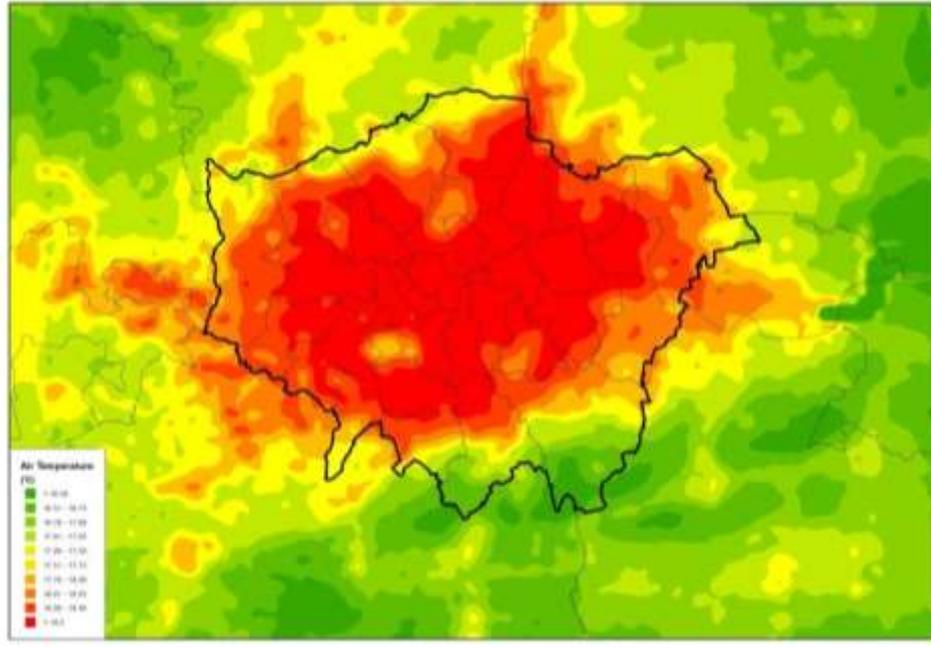
# Project methodology



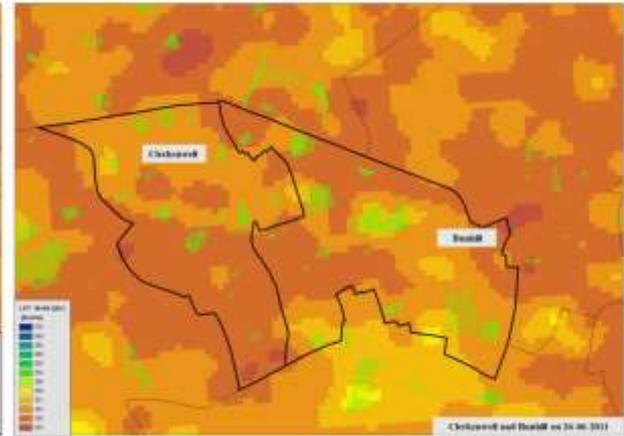
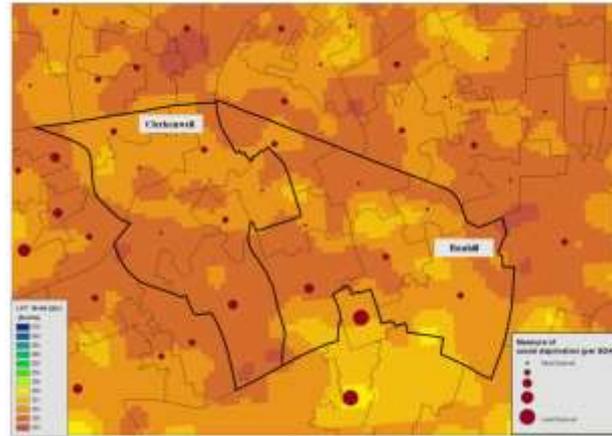
# Project partners



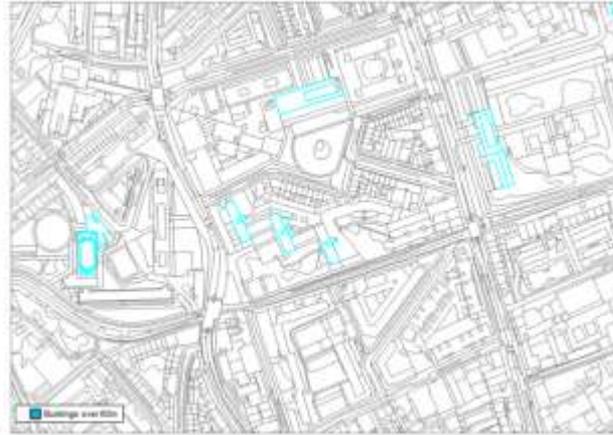
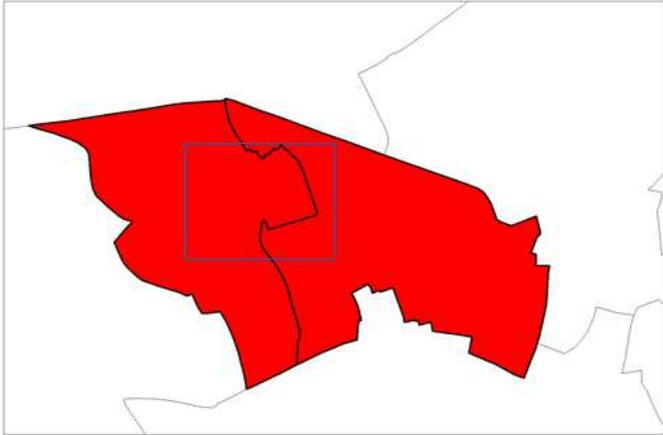
# Outputs: city scale



# Outputs: borough scale



# Outputs: neighbourhood scale



# Who might be particularly vulnerable?

We have developed and collated data for a **triple risk index** for assessing urban heat risk:

- **Location:** e.g. proximity to Urban Heat Island and green space
- **Building characteristics:** e.g. age of construction, orientation, height
- **Characteristics of people:** e.g. age, health, socio-economic status

# Who might be particularly vulnerable?

## High risk

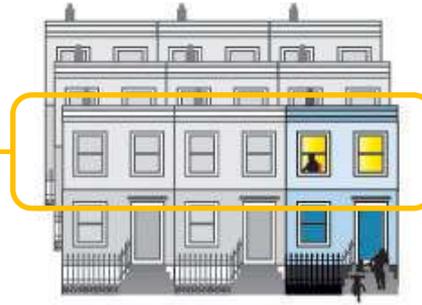
Ms X is 68 years old; she has limited mobility and suffers from a respiratory condition. Her days are spent mostly at home with occasional visitors. Her top floor flat is in a tower block with poorly insulated walls, south facing windows and balcony and no external shading. She lives within a UHI, close to a main road with no green or blue space in the area.



# Who might be particularly vulnerable?

## Medium risk

Mr and Mrs Y have two children, both under five years old. They live in a top floor flat of a converted terraced house which has poorly insulated walls and roof. Its dual aspect but with no garden, no external shading and west facing windows. The flat is close to a busy road junction, situated within a UHI with no green or blue space or mature trees in the local area.



# Who might be particularly vulnerable?

## Low risk

Mr and Mrs Z are young couple with no children who spend most of the day away from home. They live in a mid-level floor flat with well insulated walls and roof on a quiet residential estate. The flat is outside the UHI, has west facing windows with a balcony and external shading, and is located close to blue space and mature trees.



# Approaches to reduce the risk factors

## **Physical**

Involves a change, intervention or improvement to the urban environment, or a particular neighbourhood or building.

## **Social**

Involves policies and practice relating to awareness raising, communication and behaviour change.

## **Strategic**

Involve longer term, larger investments of time and resources with less immediate results.  
Implemented before hot weather.

## **Operational**

Involve shorter term reactive efforts with more immediate results. Implemented during hot weather.

# Spatial scales of approaches

## **City scale**

- Many of the physical approaches
- Social approaches involve policy and guidance

## **Borough + neighbourhood scale**

- Many strategic and physical approaches are versions of those at city scale
- Overlap with operational and social approaches

## **Building or block scale**

- Most approaches strategic and physical – including upgrades and refurbishment to make improvements
- Some overlaps with operational approaches.

## **Community + individual scale**

- Approaches linked to strategic and social approaches at borough and neighbourhood scale, and building or block scale.
- Focus on communication and awareness, and responses / actions during hot weather events.

# Key messages: general

- Urban heat risk is already an issue for London and is projected to increase.
- Areas of London which are most at risk
- Buildings within London which are most at risk
- People within London who are most at risk
- Strategic, operational, physical and operational approaches and responses to reducing urban heat risk before and during a hot weather event should focus on these areas, these buildings and these people.

# Key messages: specific

- **Mayor of London**

Ensure urban heat risk continues to be reflected within relevant plans, policies and strategy documents. Clarify and strengthen approaches to addressing urban heat risk.

- **Public health professionals**

Consider dealing with hot and cold weather events as part of a wider Seasonal Management Plan.

- **Housing professionals**

Consider physical and social measures for reducing urban heat risk for buildings and people.

- **Planners and developers**

Make the most of opportunities to incorporate urban heat risk reduction measures including urban greening.

# Key messages: specific

- **Local politicians**

Older people and parents with young children are voters. Demonstrating understanding of urban heat risk issues, and development of approaches to addressing them may engender confidence amongst constituents.

- **Members of the public**

Take note of the 'Keep Cool' information and look out for old people, under 5s, pregnant women and people with respiratory or cardio-vascular conditions.

- **Insurers**

Urban heat risk may have implications for buildings insurance and health insurance policies.

# Future work

Creation of **web-based interactive urban heat risk database** for London and its Boroughs

- Contribution to National Health Service (NHS) SHAPE database
- Greenspace Information for Greater London (GiGL)

Further development of an **Urban Heat Risk Index** for London and its Boroughs

- UCL and KCL work

Targeted **monitoring and measurement of relevant data** to feed in to the above

- London Climate Data Portal / London Datastore
- All London Green Grid (ALGG)
- i-Tree survey of Greater London

Related projects + initiatives

# Cities Alive

Rethinking green infrastructure

Cities Alive looks at how we can build nature into our urban systems at all scales through high quality landscape design, via new development or retrofitting through a green infrastructure design approach.

**Visit [arup.com](http://arup.com) for more information.**



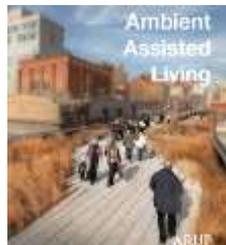
A framework, supported by The Rockefeller Foundation and developed by Arup's International Development team gives cities a tool to understand their resilience; to shape urban planning, practice and investment.

**Visit [arup.com](http://arup.com) for more information.**

A major new opportunities and baseline report which shows a clear trend of expanding climate action in cities.

**Visit [arup.com](http://arup.com) for more information.**

**C40CITIES**  
CLIMATE LEADERSHIP GROUP



A report highlighting the key challenges and opportunities for improving the wellbeing and quality of life of older people and those living with disabilities.

**Information will be available shortly on [arup.com](http://arup.com).**

Every city needs to understand both its unique risk landscape and its own inherent characteristics in order to put effective resilience plans into place.

**B2 Thursday**

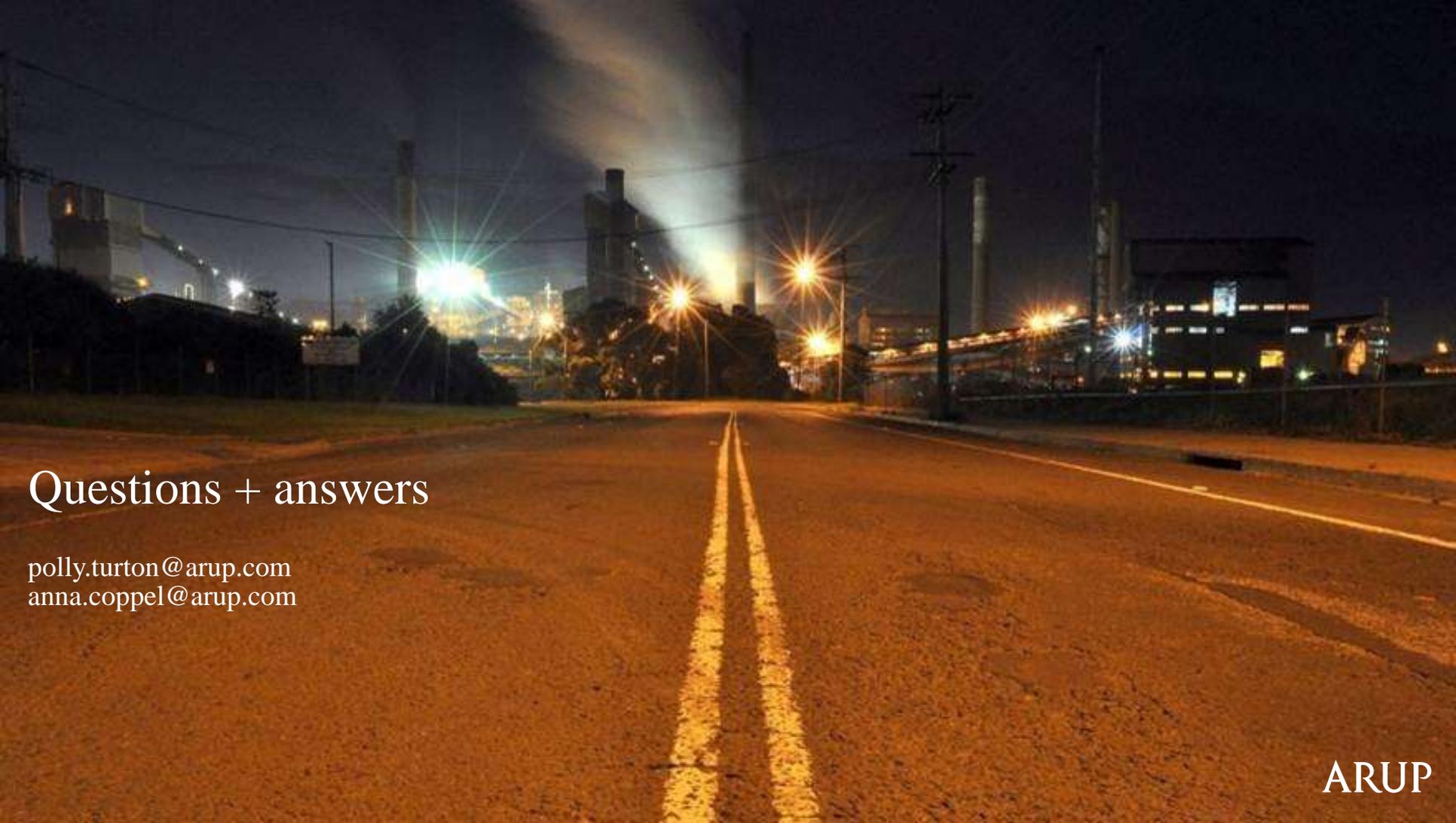
‘New methods and action plans for climate related heat and health risks’ | Polly Turton + Anna Coppel

**E1 Friday**

‘An integrated transport roadmap for Ho Chi Minh city’ | Laura Frost + Stephen Cook

**H3 Saturday**

‘Innovative indexes and frameworks for assessing urban vulnerability’ | Braulio Morera + Jo Da Silva



## Questions + answers

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