How do we build resilient cities for future climate?

Designing for a changing climate: towards zero-carbon London
NLA conference, September 2019
What is a resilient city?

“The capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience.”

- 100RC definition
So, what’s the problem?

Shocks

“Sudden, sharp events that threaten a city”

- Earthquakes
- Floods
- Disease outbreaks
- Terrorist attacks

Stresses

“Slow moving disasters that weaken the fabric of a city”

- High unemployment
- Inefficient public transportation
- Endemic violence
- Chronic food and water shortages
Climate change reinforces impacts

Source: Half a Degree and a World Apart: The Difference in Climate Impacts Between 1.5°C and 2°C of Warming. World Resources Institute, 2018.
Impacts hit cities hard

“Climate change is already bringing more damage, stresses, and suffering to the world’s cities…

Without a determined effort to adapt to these impacts, the economic toll and human pain in cities will inevitably climb – sometimes dramatically”

- Global Commission on Adaptation

Source: Center for International Earth Science Information Network (Columbia University), CUNY Institute for Demographic Research (City University of New York), and the Institute of Development Studies. For the Coalition for Urban Transitions and the Global Commission on Adaptation, 2019.
Cities are already responding

- ‘Chalex’ register
- Heat wave kits
- Late-night swimming
- Fire hydrant adaptors
- Air conditioned halls

Photo: Vincent Laforet/UPI Photo/Newscom
City fabric reinforces impacts

Developing green infrastructure solutions


Source: The role of urban trees and greenspaces in reducing urban air temperatures. Forestry Commission, 2019.
Enabling action

London Tree Canopy Cover

Search the map to discover tree canopy cover across London.

Search for a location:
London Square

Visit an area of interest:
Select an area

Adjust transparency

Show/Hide Boroughs
Show/Hide Wards (2014)
Reset to all of London

Tree canopy cover

The data presented is a high resolution map of tree canopy cover for the Greater London area. The map was produced by Treeboard Ltd in collaboration with the Greater London Authority through Treeboard Ltd’s European Space Agency funded project, Curio Canopy.

The algorithms and the machine learning based techniques used to produce the canopy map were developed using Ensemble-based models which were also leveraged to perform the processing needed to create a London wide high resolution tree canopy map.

Find out more about the Curio-Canopy project at curio.curio canopy
For more information about how this map was developed and to download the data, visit the London Databse

MAYOR OF LONDON

ARUP
Climate resilience is complex
How should London respond?

- **Alignment** of GHG reductions with 1.5°C
- **Strong cooperation** with national government, businesses and residents
- **Leadership** on climate education and awareness
- **Rapid adoption** of tested and new technologies

- Global Covenant of Mayors

*City Resilience Framework*

*Credit: Arup*