HEAT IN THE CITY

Regina Vetter,
C40 Cool Cities Network Manager
C40 CONTEXT
C40 connects 96 cities worldwide to tackle the climate crisis together
Cities are engines of growth and innovation

More than half of the world population lives in cities.

BUT

Cities are also huge CO2 emitters and are vulnerable to the effects of climate change.

Cities represent 70% of global CO2 emissions.

98% of C40 cities are already experiencing the impacts of climate change.
C40 is a city-led organization

17 members of the Steering Committee, representing the 7 regions, make strategic decisions and meet 3 times a year.
### C40 Context

#### 16 C40 Networks: Driving policy change in high impact sectors

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How Networks work

C40 networks help replicate, improve and accelerate climate actions

Support group of 25-40 city experts, sharing information, experiences, challenges and advising each other through all stages of policy development process.

70% of C40 cities have implemented new climate actions, better or faster as a result of their participation in C40 networks.
03.

HEAT RISK MAPPING
CITY CASE STUDY
Surface temperature maps
2. HEAT RISK MAPPING

CITY CASE STUDY

Air temperature sensors
2. HEAT RISK MAPPING

CITY CASE STUDY
Heat vulnerability Index - visualisation

Toronto Public Health - Heat Vulnerability

Search by Name, Address, or Intersection

Legend
- Heat Vulnerability
  - Vulnerability Index for General Public
  - Vulnerability Index for Seniors
    - High (0.381675 - 0.603380)
    - Medium - High (0.321234 - 0.381674)
    - Medium (0.276757 - 0.321233)
    - Low - Medium (0.224318 - 0.276756)
    - Low (0.085596 - 0.224317)
- How to Get Cool
- Statistics

Search Results
- Measure
HEAT ADAPTATION ACTIONS

1. Heat emergency management
2. Long-term cooling actions
3. HEAT ACTIONS

Heatwave emergency management

HEATWAVE PROTOCOL
Outlining the arrangements for the management of heatwaves across preparedness, response and recovery.

COMMUNICATION CAMPAIGN
Strategies and for communication of heat risk to vulnerable populations

COOLING CENTRES
= public or private spaces within a city, which are set up by local authorities to temporarily protect citizens from the health effects of a heat wave.
3. HEAT ACTIONS

Communications campaign

- Identification of vulnerable groups

- Targeted outreach campaigns, examples:
  - Social media
  - Flyers in strategic locations (doctors, pharmacies, ..)
  - Posters (buses, stations, schools,..)
  - Neighbourhood check-ins for elderly (collaborating with community groups)
3. HEAT ACTIONS

Long-term cooling actions

- Cool roofs and pavements
- Green spaces
- Shading
- Water
3. HEAT ACTIONS

**Cool roofs & pavements**

**Reducing surface temperatures**

Comparison of a black and a white flat roof on a summer afternoon with an air temperature of 37 degrees Celsius.

*Source: Adapted from data from LBNL Heat Island Group.*
3. HEAT ACTIONS

THE VALUE OF NATURE IN URBAN LIFE

Photo credit: Iclei
3. HEAT ACTIONS

**Green roofs and walls**

**SINGAPORE**

“LUSH policy” that regulates and incentivises private building greenery

**DURBAN**

“Green Roof Guidance” that provides support for green roofs on residential buildings

Source: City of Melbourne

Photo credit: Ecobusiness
3. HEAT ACTIONS

Urban forests - parks and tree canopy

SEUL

The City of Seoul has the goal of creating 1000 forests and 1000 gardens. For example, the City turned a former overpass into a lush public park with over 24,000 plants.

ATHENS

Athens has developed a web-based tree inventory, that helps to know the exact costs of maintenance and help to allocate resources appropriately.

MEDELLIN

‘Green Corridors’ - a network of greenery across the city with the aim of reducing UHI effect, and also improving biodiversity and air quality. Trees, shrubs and ground cover have been planted along the main transport axes, riverside as well as marginalised neighbourhoods of Medellín.
3. HEAT ACTIONS

Shading

**DIFFERENT TYPES OF SHADING STRUCTURES**

- Structures oriented in different angles to provide shading in different areas throughout the day.
- Pergolas covered with vegetation.
- Integrated shading lanes guiding pedestrian traffic.
- Light-colored shading blocks with transparent rains to reduce surface temperatures.
- Translucent PV panels integrated into shading structures to provide shade protection, increase light penetration and produce energy.
- Sheds with power generated by solar energy.


**TEL AVIV**

Shading Planning Guidelines & innovation competition

Photo credit: City of Tel Aviv
3. HEAT ACTIONS

Water

INTEGRATING HEAT IN OTHER SECTORS
Mitigation & Adaptation

MITIGATION:
ACTIONS TO REDUCE GREENHOUSE GAS EMISSIONS (GHG)

ADAPTATION:
ACTIONS TO REDUCE THE IMPACTS OF EXTREME WEATHER EVENTS
Types of interactions

**Piggybacking:** Actions that are complimentary when designed and/or implemented together.

**Mal-investment:** Actions that can be undone or rendered less effective by the effects of climate change if they are not sufficiently resilient.

**Synergies:** Actions that reduce both carbon emissions and climate risk.

**Trade-offs:** Actions with contrary effects on mitigation and adaptation.
C40 Resources:

...available on C40 Knowledge Hub
www.c40knowledgehub.org

For example:

• “Understanding Infrastructure Interdependencies in Cities” (2019)
• “The Future We Don’t Want” Report (2018)
• Heat Communications Toolkit (2020)
Thank you!

Contact
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