EUROPEAN UNION

EU MISSIONS

ADAPTATION TO CLIMATE CHANGE

July 2024

EU Mission Adaptation Community

Summary of the event: Heatwave Chronicles: Strategies for Resilience in a Warming World

Wednesday 10th July 2024

1. Introduction: the event at a glance

Registration & participants

157 registrations and 71 participants, including:

- **8 from Charter Signatories**
- **10 Friends of the Mission**
- **11 Mission Projects**
- **9 Regions or Local Authorities Participating in Projects**
- **33 Others, including:**
  - 1 MIP4Adapt team member
  - 32 General Public

The event aimed to **raise awareness and empower regions and local authorities** with practical examples and strategies **for building resilience to heatwaves**. It showcased different adaptation approaches, providing **guidance and actionable insights to inspire local-level adaptation planning and implementation**.

Watch the **recording** here.

The **presentations** are available in the Library.

Key findings

- Heat waves account for 85% of climate-related fatalities and have caused significant economic losses.
- The urban heat island effect occurs when cities become hotter than surrounding areas due to factors like sealed surfaces, low ventilation, and fewer green spaces.
- Heat waves cause significant energy implications due to extreme heat, such as increased cooling demands.
- Strategic recommendations include utilizing existing data and monitoring systems, focusing on spatial data for targeted interventions, and considering different spatial scales when addressing urban heat issues.
- Balancing buildings, green spaces, and pavements in urban planning is crucial, as well as the potential use of brownfield sites for green and blue infrastructure deployment.

For further details see Section "Findings and outputs".

2. Summary of the Event

The event highlighted the intensifying challenges brought about by soaring temperatures and heatwaves impacting cities and regions throughout the continent. Attendees were able to deepen their understanding of heatwave risks and potential tools for adaptation, and heard experiences from Region Gzira, in Malta and from the Metropolitan City of Milan in Italy. Presentations gave an insight into the latest research on temperature trends and their projected impacts and highlighted the challenge of rising temperatures across Europe, raising awareness of the need to adapt.

Silvia Iodice from the JRC presented strategies, analytical approaches and best practice for tackling extreme heat across Europe. Key highlights include:

- Focus on Urban Heat Island (UHI) Effect: This is a critical concern where urban areas experience significantly higher temperatures than their rural counterparts due to aspects like surface sealing and high building density. The UHI effect is an urban planning challenge and public health issue, with cities experiencing peak temperatures of up to 10°C higher than surrounding rural areas.
- Impact of Extreme Heat: This includes a heavy human toll between 85,000 and 145,000 deaths over 40 years. Economic impacts of extreme weather are estimated at half a trillion euros over the last four decades
- Strategies for Mitigating Heat: Advocates for the adoption of diversified and place-based solutions to tackle the UHI effect and improve urban resilience. Encouraging the use of existing knowledge, tools, and measurement techniques to effectively address urban heat challenges.
- Integrating Spatial Data for Policy Support: Stresses the importance of incorporating fine-grained, spatial data to understand and response to heat phenomena within European urban landscapes more effectively.
- Equity-Oriented Policies: Calls for equity-oriented policies to ensure that interventions do not disproportionately impact marginalized communities and that solutions are accessible to all urban residents.
- Encouraging Collaborative Efforts: Highlighting mutual learning and shared strategies among cities facing similar issues to foster more robust urban resilience frameworks.
- Call for framework addressing issues through data-driven, scientifically informed, and socially equitable policies

Fabian Borg from Gzira, Malta presented a summary of their work focusing on urban heat mapping, public awareness apps, and the challenges of nature-based solutions in extreme heat conditions. Key highlights include:

- Public Engagement and Awareness: Creation of public visualisations and apps to disseminate urban heat island data to the general population. Utilisation of artificial intelligence to interact with users and recreate heat areas based on dynamic input, enhancing community understanding and engagement.
- Use of Advanced Technology for Data Analysis: Application of Landsat 8 and 9 satellite data, with arrangements for night-time captures to identify heat retention areas more accurately.

Avoiding false positives in analysis by excluding water bodies due to their unique heat retention properties.

- Development and Deployment of Apps: Introduction of a public-facing app illustrating urban heat islands, which received thousands of views, serving as an effective tool for public education on UHI. Launch of a heat severity comparison app between the summers of 2019 and 2023 using a color-coded system and a slider feature for visual comparisons, increasing public awareness and prompting action.

- Nature-Based Solutions and Challenges: It is important to note that nature-based solutions like trees were less effective in 2023 compared to 2019 due to extreme heat and evaporation challenges. The search for strategies to protect and preserve greenery as a defence against heat and carbon emissions is ongoing, underlining the challenges in maintaining such solutions.

Francesca Framba from Metropolitan City of Milan in Italy, presented her insights into heatwave studies, mitigation and adaptation strategies, and the "sponge city" concept for climate resilience. Key highlights include:

- Scope of Climate Adaptation Efforts: Framba outlined Milan's concerted efforts since 2016 to understand its territorial layout through advanced technologies and stakeholder collaboration in order to address meteorological phenomena impacts effectively. Highlights the LIFE Metro Adapt project, spanning 2018 to 2021, which focused on substantial meteorological studies and was recognized as the best climate project in 2023.

- Data-Driven Approach to Heatwave Management: Presented an evidenced increase in temperatures over the past 120 years, showing a trend towards more frequent and intense heatwaves, especially impacting urban areas like Milan's city centre. Utilisation of climate indices, such as Humidex and Tropical Nights, allows for a nuanced understanding and comparison of heat impacts.

- Strategic Climate Action and Policy Development: Emphasised the Metropolitan City's implementation of both mitigation strategies, including urban forestation and slow mobility initiatives, and adaptation through nature-based solutions focusing on water management. Introduction of the "sponge city" concept with 90 planned interventions across 32 municipalities, aimed at enhancing water absorption and reducing runoff. These projects are EU-funded, with a completion target of June 2026.

- Call for a comprehensive approach to tackling the UHI effect and adapting to climate change. Through collaboration, policy revision, and the deployment of nature-based solutions like the sponge city concept, Milan aims to create a more resilient urban environment against increasing temperatures and heatwaves.

The Q&A focused on the importance of citizen engagement, the cross-sectoral collaboration and involving various organizations to tackle heat waves effectively. It also highlighted the need for granular data and to balance urban development with green spaces to create more resilient cities.

For a full compilation of the questions asked and answers, please refer to the Annex.

3. Findings and outputs

Based on the insights gathered from the discussions, several key lessons and findings have emerged:

- The event emphasized multidisciplinary approaches to heatwave resilience, indicating collaboration across various sectors and disciplines is crucial.
- Practical solutions and regional adaptation are highlighted, with examples from Malta and Milan showcasing local actions and policies to combat heat stress.
- Future-oriented planning and policy recommendations are anticipated, with a focus on integrating scientific knowledge and public health considerations into urban planning and environmental policies.
- Further useful strategies can be viewed online at Heatwave Chronicles: Strategies for resilience in a warming world

4. Next Steps

The recording and presentations have been uploaded after the event to the online EU Mission Adaptation Community site

Find more information about upcoming events in the EU Mission Adaptation Community site.

Upcoming announced events and other key dates include:

- Drying Landscapes: Embracing Water Resilience in a Changing Climate, 17 September.
- AGORA Water webinar | Water's Sustainability: how to ensure our future? 19 September.
- Flood Resilience: Strategies and Solutions for a Safer Future, 26 September.

For any queries from members of the Community of Practice on associated activities and events, specific concerns about your climate adaptation planning process, communications and press releases, and IT technical issues with the website, contact us via the Helpdesk form.

Annex

Q&A Compilation

Questions for Silvia Iodice, Joint Research Centre, European Commission

The answers to these questions were provided during the event by Silvia Iodice, Joint Research Centre, European Commission.

How can the behaviour of urban dwellers contribute to reducing the negative effects of heatwaves and UHI?

Firstly, people can act naturally in their everyday lives, making choices to avoid as much as possible. These decisions depend on systemic changes that take place in cities. It's most important to really try to participate in all the initiatives that cities are putting in place around climate-related events, because there are many, many ways to participate. I'm particularly involved now in evaluating the climate city contracts that cities are developing as part of another mission, the 100 climate neutral cities mission, and in this case I can see that cities have many tools to really involve citizens, for example, they organise lecture series to inform the population about all the consequences of heat and also general climate issues, there are many initiatives through which cities can really be informed and really be part of the transition.

In the case of Barcelona, is it known which cooling shelters (inside and outside) are the most popular and who the users are?

As an example of Europe in the case of Barcelona, it is known which indoor and outdoor cold centres are the most popular and who uses them. Malta we don't have cold stores, like open shelters but the city should study these possibilities and should try to replicate them. However, people in Malta tend to go to shopping centres to cool down and so in a way you can be in all indoor spaces in Malta. Citizens have a higher adaptability than tourists from the north. Tourists form a particularly vulnerable group here because they unfortunately do not follow the recommendations. We try to build places with tents and shelters to protect tourists who still want to enjoy the outdoors.

Do you feel that cooling gets enough attention at a European level? What are some key measures you'd like to see to accelerate action on cooling at EU level?

Cooling is getting more and more attention at the EU level. However, more effort would be required to be prepared for the further increase in the night and daytime temperatures expected in European cities. Key measures to accelerate cooling would include the deployment of urban green and blue infrastructures, especially targeting high-exposure areas as well as vulnerable neighbourhoods through the use of spatial data. Moreover, it is fundamental to act on the built environment, especially with retrofitting and renovation of buildings and to exploit the promise of cutting-edge technology, such as a wide range of low surface temperature coatings and sophisticated materials.

Do you also look into the quality of green areas (type of vegetation and their distribution)?

It is fundamental to carefully plan how and where to implement green areas, selecting the proper vegetation typologies according to factors like the local climate and the urban configuration. Environmental stressors like drought can also affect the ability of green spaces to lower local temperatures. Some studies even reveal that an improper selection, distribution, and maintenance of green spaces may have the unintended consequence of raising local temperatures. Hence, green spaces require careful design and management to remain in a healthy condition and keep on delivering ecosystem services.

Many more details to these questions are included in the following recently published policy brief.

Question to Francesca Framba from the Metropolitan City of Milan and to Fabian Borg Research Innovation Unit (RIU) in Gżira, Malta.

The answers to these questions were provided during the event by Francesca Framba from the Metropolitan City of Milan and to Fabian Borg Research Innovation Unit (RIU) in Gżira, Malta.

What was the process of collecting all this data and having them displayed? How has this facilitated decision making and policy making in the metropolitan area?

So we were able to carry out the studies thanks to the existing projects that focused on these issues. An important effect here is to have a connection to other actors of the area who have these competences, and thus to develop a close relationship with them, and to have more effective data, which we can present today, for example. It is one thing to understand the data, how to interpret it, how to process it and thereby make it valuable for planning. This has two effects: first, on the meteorological problems and the heat to gather evidence based knowledge, second, to be able to have a solution in the area and thus influence the policy.

See useful strategies at Heatwave Chronicles: Strategies for resilience in a warming world.

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