

Project summary

LIFE COOL ZONE – Innovative Municipal Cooperation for Urban Heatwave Management

1. **Context and overall objectives**

The **LIFE COOL ZONE** project (**LIFE24-CCA-HU-101213989**) is a new European Union climate adaptation initiative under the **LIFE Programme**, designed to address the growing challenge of **heatwaves and the urban heat island effect** in cities and their functional urban areas.

Heatwaves are becoming one of the most serious climate-related challenges in cities. Dense buildings, paved surfaces and limited green areas trap heat, making urban neighbourhoods much warmer than their surroundings. This so-called **urban heat island effect** increases health risks, especially for elderly people, children and vulnerable groups, and reduces overall quality of life.

The **LIFE COOL ZONE** project was launched to help cities and their surrounding settlements better prepare for extreme heat. Instead of looking at cities in isolation, the project focuses on **Functional Urban Areas (FUAs)** – urban centres and the nearby towns and villages that are closely connected to them through daily life, transport and services.

The main goal of the project is to **understand where heat risks are the highest, who is most affected, and how cities can reduce these risks** through smart planning, cooperation and climate-friendly solutions. By combining scientific analysis with local action, the project supports cities in becoming cooler, healthier and more resilient to climate change.

In LIFE COOL ZONE, we explore whether the urban **heat island effect can be analysed and addressed at the level of a Functional Urban Area (FUA)**, rather than being treated solely as a city-level phenomenon. Using the FUAs of **Debrecen and Oradea as pilot areas**, the project investigates whether heat-related challenges can be understood and managed in a complex, integrated way across the entire urban–suburban system.

The **key question** is whether **urban heat stress can be tackled systemically at FUA level**, instead of through isolated, fragmented interventions limited to individual cities. This FUA-scale, integrated approach to managing the urban heat island effect is what makes COOL ZONE genuinely novel in the field of climate adaptation.

Why This Project Matters

Climate adaptation is crucial as heatwaves become more severe due to global warming. LIFE COOL ZONE brings municipalities together to develop practical, *science-based solutions* that are scalable and replicable across the EU. By combining green infrastructure, collaborative governance and targeted interventions, the project helps protect health, improve urban liveability, and support sustainable development in the face of climate change.

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2. Work performed and main achievements

The project starts by **mapping heat and vulnerability** in cities. Using advanced climate models, researchers analyse how temperatures change across different neighbourhoods, both now and in the future. This makes it possible to identify **urban “hotspots”** – areas where people are most exposed to extreme heat.

Based on this knowledge, the project works closely with municipalities to:

- assess local risks at neighbourhood level,
- identify the most suitable places for intervention,
- and select practical solutions that can reduce heat stress.

Two pilot Functional Urban Areas – **Debrecen and Oradea** – are at the centre of testing these approaches. Here, cities cooperate with surrounding settlements to plan and implement **integrated solutions**, such as more greenery, shaded public spaces, and climate-friendly urban surfaces. Importantly, these solutions go beyond city borders and address the wider urban region.

Another key achievement is the creation of **decision-support tools and planning guidelines**, which help local authorities make informed choices based on data. The project also establishes **local climate cooperation platforms**, bringing together municipalities, experts and stakeholders to jointly discuss challenges and solutions.

Key Objectives

- Mitigate the negative impacts of heatwaves on people, infrastructure, and the environment in functional urban areas.
- Design and pilot *nature-based solutions* and coordinated governance approaches that help cities adapt to rising temperatures.
- Strengthen **municipal cooperation** and knowledge exchange between local authorities and specialist partners, fostering integrated adaptation planning.
- Support long-term climate resilience through shared strategies, evidence-based decision support and innovative local actions.

3. Results and impacts

The LIFE COOL ZONE project delivers **real benefits for people and cities**.

So far, the project will:

- improve the understanding of heat risks in major cities and urban regions,
- support cooperation between neighbouring municipalities, including across borders,
- and demonstrate how **nature-based solutions** can effectively cool urban areas.

In the long term, the project is expected to:

- reduce health risks related to heatwaves,
- improve living conditions in the most affected neighbourhoods,
- strengthen local capacities for climate adaptation,
- and provide practical models that other cities can easily replicate.

By reaching nearly **one third of Hungary's population** through data, planning tools and shared knowledge, the project contributes to more climate-resilient cities not only locally, but across Europe. LIFE COOL ZONE shows that **working together at urban-region level** and investing in green, people-centred solutions is one of the most effective ways to adapt to a warming climate.

Partners

The consortium includes Hungarian national and local authorities, scientific institutions, and regional partners working together to co-design and implement effective urban heat adaptation strategies. The partnership involves HungaroMet, the Lechner Knowledge Center, the municipalities of Debrecen and Oradea and The Association of Climate-Friendly Municipalities. The initiative is coordinated by the Ministry of Public Administration and Regional Development.