Interreg Euro-MED

Co-funded by the European Union

ReMED

Pilot Site Data Sheet

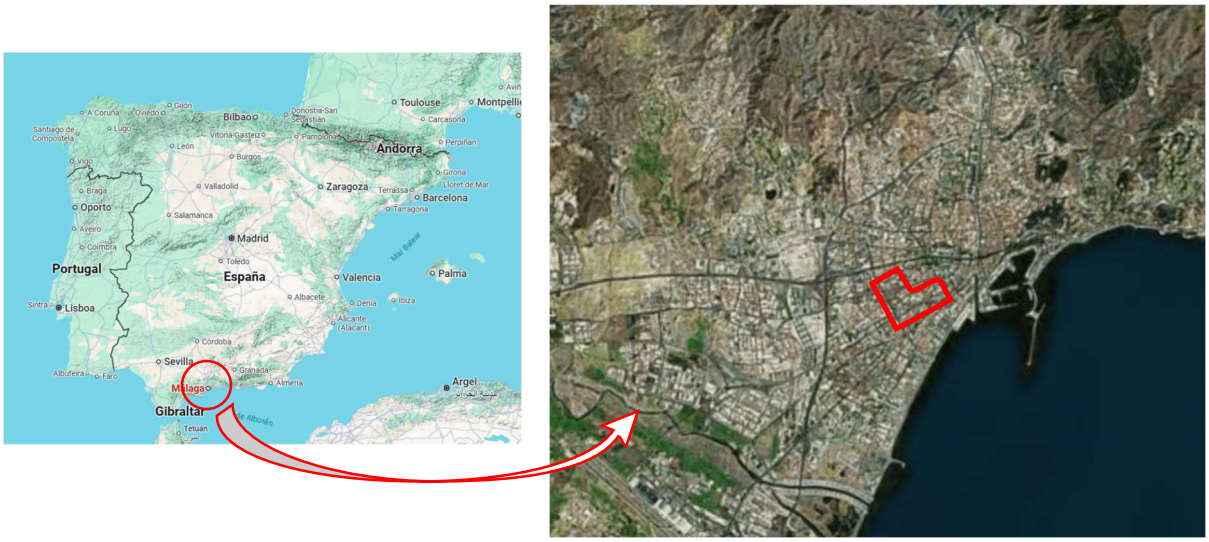
Municipality of Malaga

External expert assisting the municipality: Tecnalia

Pilot site: Cruz del Humilladero

ReMED Lead Partner: University of Malta (UM)
ReMED (Towards Climate Resilient Mediterranean Cities) | remed@interreg-euro-med.eu

Extents and areas of the test site (Google earth map):





1 Stakeholders, participants, & roles

Name	Organization	Profile / Profession
Tatiana Cardador	City Council of Malaga	Head of the Legal Service of the Department of the Environment
Pablo Briales		District Coordinator
Borja Bermejo		Consultant for the Department of the Environment
Alfonso Palacios		Technician for the Department of the Environment
J. Damián Ruiz	University of Malaga	Professor of Physical Geography
Jesús Vargas		Climate Risk Expert (extreme precipitation, drought)
Susana Gómez	Official College of Architects	Architect Dean of the Official College of Architects
Antonio J. Villatoro	UPROSAMA Association of Official Colleges of Human and Animal Health	Veterinarian
Ana Guirado	Public Company "Turismo Costa del Sol"	GIS Specialist
José Antonio Víquez	Regional Government of Andalusia	Environment Delegate of the Regional Government of Andalusia
Antonio Talón	EMASA, Municipal Water Company	Engineer, Head of Department
Miriam Fernández	CIEDES Foundation	Consultant in Environment and Climate Change
Elena Mesa	CIEDES Foundation	Head of European Projects
Carmen García	CIEDES Foundation	Managing Director

2 Urban categories most impacted

Residents and business.

3 Climate change challenges faced by site

The site faces a combination of climate risks accentuated by its urban morphology (high density, few green areas), its topographic situation and socioeconomic profile. The main challenges are extreme heat (and its concentration in the city), the deficit of green sinks, and population vulnerability.

Main climate challenges for Cruz del Humilladero:

a) Urban Heat Island (UHI)

In summer, temperatures in densely built-up areas tend to rise more than in areas with vegetation or permeable soils. Studies show that thermal comfort levels in neighborhoods with little tree cover or urban greenery are very unfavorable, reaching “very poor” levels. Nights can be especially warm, since heat accumulated in asphalt and building façades does not dissipate well. This effect increases energy demand for cooling (air conditioning) and can raise mortality and morbidity during heatwaves.

b) More frequent and intense heatwaves

With climate change, Málaga is expected to face an increase in the frequency, duration, and intensity of high-temperature episodes (heatwaves). The ADAPTA-Málaga Plan identifies this as one of the key risks. These waves affect vulnerable people the most (elderly, chronically ill, poorly insulated housing).

c) Deficit of green spaces and urban trees

The Calle La Unión area and surrounding neighborhoods show a very low density of trees per meter. According to the Bosque Urbano Málaga report, tree density in La Unión–Cruz del Humilladero is only 0 to 0.25 trees per linear meter of street, a low figure compared to WHO recommendations. The lack of vegetation limits shade reduces evapotranspiration (which helps cooling) and causes built surfaces to absorb more heat.

d) Loss of bioclimatic comfort

Bioclimatic studies of Málaga indicate that in dense neighborhoods it is harder to achieve favorable climatic performance (cross-ventilation, night cooling) during both heat and relative cold periods, affecting thermal comfort year-round. The urban morphology (continuous buildings, narrow streets) may hinder efficient wind circulation.

e) Flooding, runoff, and insufficient drainage

Being an area with extensive impermeable surfaces (asphalt, buildings), intense rainfall can generate rapid runoff, overload urban drainage systems, and cause localized flooding. Urban drainage infrastructure will need to adapt to more extreme precipitation events.

f) Socioeconomic vulnerability to extreme climate

The Calle La Unión area has high demographic and territorial vulnerability indices in studies of Málaga's vulnerable neighborhoods. Many homes may have deficiencies in thermal insulation, ventilation, or passive design, which increases exposure to heat or cold. People with fewer resources face greater difficulties in coping with energy costs (air conditioning, fans) or rehabilitating their homes. Population density can also aggravate urban stress (more heat, more demand for public services, etc.).

g) Local greenhouse gas emissions and associated pollution

Although not exclusive to this neighborhood but city-wide, emissions from transport, heating/air conditioning, energy consumption, etc., contribute to climate change and also worsen local air quality. Málaga City Council is already promoting an air quality monitoring network and implementing a low-emission zone. In the urban context, air pollutants can interact with heat to aggravate health impacts.

4 Challenges faced as a pilot/test site

Cruz del Humilladero was selected as a representative site as it offers an ideal context as a pilot site to test urban adaptation measures to climate change. The main challenge could be data acquisition for some of the indicators.

5 Pilot/test site final goal

5.1 Municipality contribution to the project

The final goal is to increase the climate resilience of this urban area.

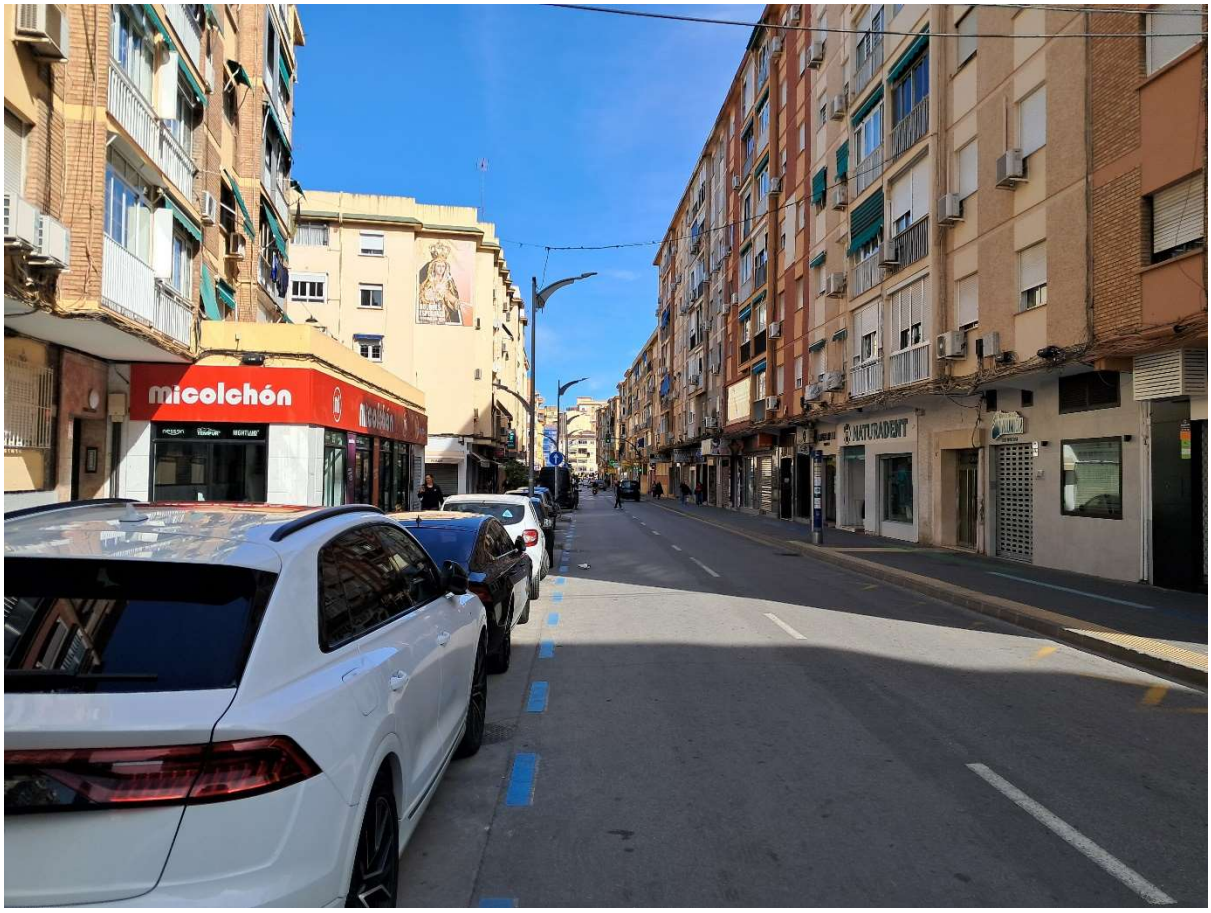
5.2 Expected achievements by end of project

Future strategy: towards a more resilient neighborhood

Some key points to take into account:

- Increasing and strategically distributing urban trees and green spaces (cooling corridors, pocket gardens, urban allotments).
- Improving urban design to favor natural ventilation and reduce heat accumulation (street orientation, use of more reflective or permeable materials).
- Energy rehabilitation of housing: better insulation, passive ventilation, appropriate shading.
- Investment in drainage infrastructure capable of handling intense rainfall (robust collectors, permeable pavements, rain gardens).
- Reducing local emissions: promoting public transport, reducing private car use, boosting local renewable energy.
- Neighborhood-specific adaptation plans, with community participation, to prioritize the most vulnerable areas or groups.




micolchón
MATURADENT


0827 KVB