TITLE: **NATUR-W: NATURE-BASED URBAN REGENERATION THROUGH WATER**

Integrating the water cycle into urban renaturalization

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INSTITUTION/BUSINESS: **City of Lorca, SingularGreen, Indresmat, NBSclima, Aristotle University of Thessaloniki, UNESCO Centre for Integrated and Multidisciplinary Water Resources Management.**

PROJECT SUMMARY :

Location: Lorca, Spain
Project duration: 01/03/2024 - 31/07/2027
Budget: 4.779.752,00 € (EU-funded project)
Transfer Partners: City of Mantua, Italy, City of Fylis, Greece, and City of Sligo, Ireland.

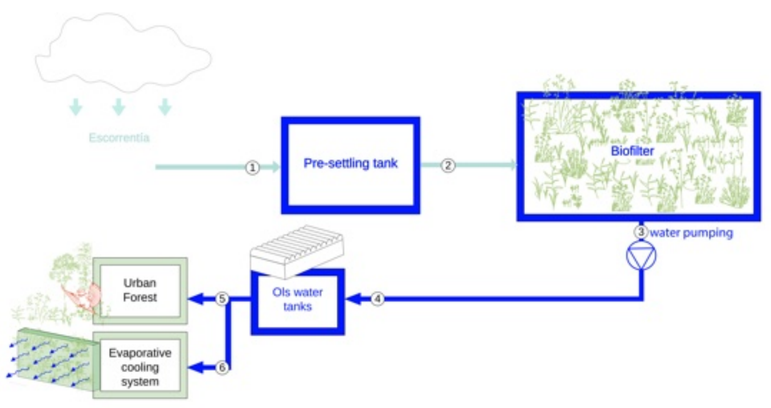
INTRODUCTION AND OBJECTIVES: Lorca was one of 14 municipalities in Europe awarded the first European Urban Initiative: Innovative Actions Dedicated to the New European Bauhaus (EUI-IA).

The core focus of NatUR-W is nature-based solutions (NBS). By leveraging green infrastructure and ecosystem services, the project addresses **several key challenges**: energy poverty, water scarcity, urban decay, and the risk of social fragmentation.

MATERIALS Y METHODS: Through three integrated interventions:

A- Creation of a resilient urban forest on prepared land.
B- Conversion of the old prison into a sustainable cultural center.
C- Recovery of three homes for energy rehabilitation.

Integrated water management—including rainwater harvesting, storage, and reuse—underpins all actions, improving resilience to droughts and floods.



Rainwater harvesting and reuse cycle for irrigation and other urban cooling systems.

RESULTS AND DISCUSSION: The NatUR-W project is expected to produce the following benefits:

Sustainable water management: Reusing rainwater and reducing water consumption, enhancing resilience to floods and droughts.

Climate adaptation: Mitigation of heatwaves effects through green walls and urban forests.

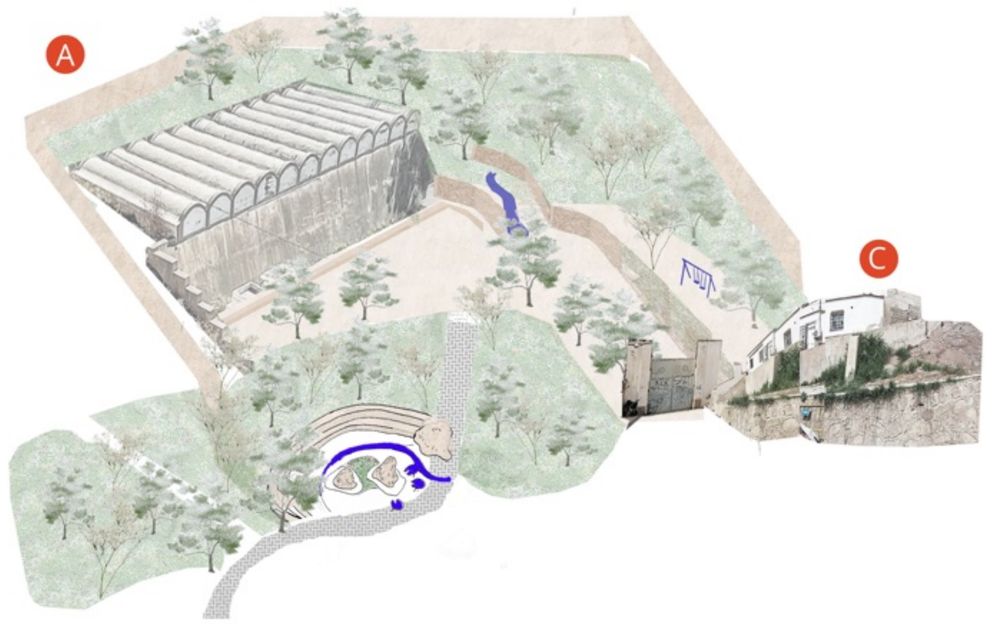
Social impact: Improved cohesion and revitalization of public spaces, offering new educational and cultural opportunities.

Energy efficiency: Reduced heating and cooling demand in homes and cultural centers.

CONCLUSIONS: The NatUR-W strategy, focused on water management and nature-based solutions, provides a replicable model for cities seeking sustainability, inclusion, and innovation in green urban environments.

REFERENCES:

https://www.singulargreen.com/natur-w/
https://www.urban-initiative.eu/ia-cities/lorca/home



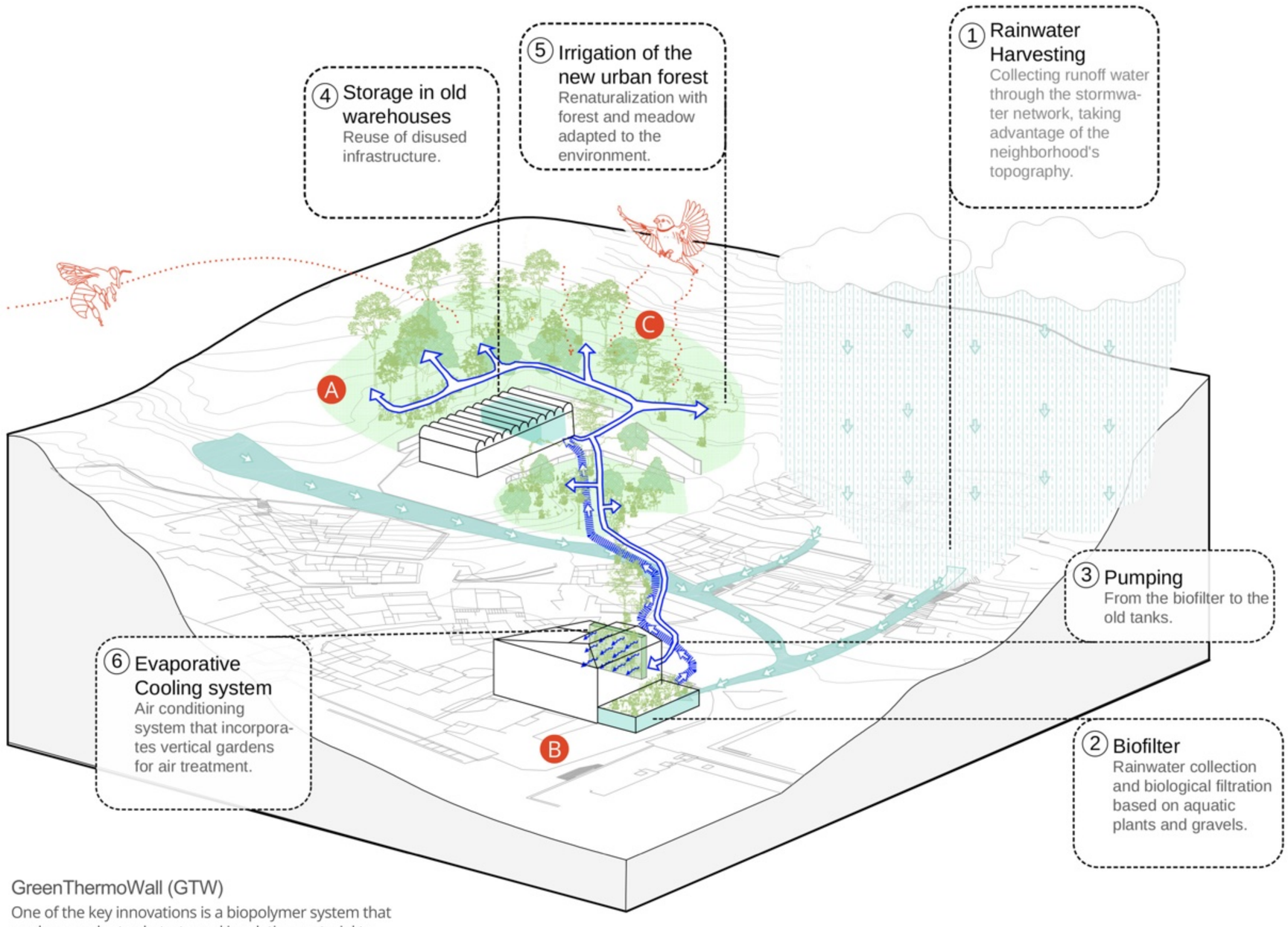
Site analysis

Located in Los Barrios Altos, Lorca, the project's water collection area covers 25,000 m², including buildings and roads. The area is mostly paved, except for the irrigators' plot, where a large old water reservoir is located. The project proposes restoring this large space as a public park and rehabilitating the water reservoir for storage and reuse in irrigation and evaporative cooling.

Thanks to the steep slope, runoff is evacuated to the surface by gravity, collecting at the lowest point of the project, next to the prison building, where a natural purification system with biofilters followed by pumping to the park's reservoir is proposed.

Participatory process

At the project's launch in 2024, a stakeholder council was established, bringing together 100 local stakeholders to ensure the **co-creation and participatory planning** of all nature-based solutions (NBS), with a holistic approach that aims to go beyond energy efficiency. The goal is to promote social cohesion, as well as the revitalization of a currently degraded area by restoring and regenerating Lorca's historic city center.



GreenThermoWall (GTW)

One of the key innovations is a biopolymer system that works as a plant substrate and insulating material to improve the thermal comfort of homes and public buildings.

C Energy rehabilitation of dwellings

GreenThermoWall (GTW) implementation improves the thermal insulation of three social housing units and enhancing biodiversity and the benefits of vertical gardens.

Vertical Garden

Conversion of the old prison into a cultural center

Repurposing of the heritage building into a "Citizen University" with bioclimatic courtyards and GreenThermoWall (GTW) walls.

Creating sustainable and accessible spaces that promote community engagement.

Biofilter

A Urban park

Conceived as a resilient forest, this urban park integrates all the elements to adapt to climate change and improve Lorca's citizen life's quality.

GreenThermoWall (GTW) in the interior courtyard to cool the space