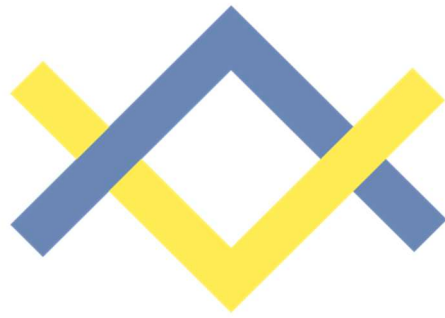




The HuT

Rewriting Valencia in green and blue – between drought,
heat and returning water

‘The HuT for Me and You’
Narrative

DEMONSTRATOR 1
Valencia
(Spain)

AUTHORS

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Intro

Valencia, located on Spain's Mediterranean coast, is renowned for its Turia River Garden, a green artery that winds through the city, as well as its traditional Huerta and the Albufera Natural Park. Today, the city faces growing challenges from intensifying heatwaves, prolonged droughts, and sudden flash floods.

As part of the Horizon Europe project The Human-Tech Nexus: Building a Safe Haven to Cope with Climate Extremes (The HuT), researchers from the Universitat Politècnica de València (UPV) and its Research Institute of Water and Environmental Engineering (IIAMA) are working to understand how to prepare both the city and its citizens to become more resilient to these climate extremes.

Their goals are clear: to communicate early warnings to the public, promote nature-based solutions (NbS) that help cool the urban environment, and support sustainable urban planning that prioritizes water, shade, and public well-being. In this context, Valencia's beaches, rivers, and green spaces are not just recreational amenities; they are vital infrastructures for climate adaptation.

Location

Valencia, the third largest city in Spain in terms of both population and economic activity, is located on the Mediterranean coast and stands as a major urban hub in the country. The city is facing growing climate pressures that challenge its long-term sustainability. With hot summers and low annual rainfall as defining features, Valencia is already experiencing the amplified impacts of climate change: rising average temperatures, prolonged droughts, and extreme weather events such as heatwaves and intense torrential rains.

Rapid urbanization has intensified the Urban Heat Island (UHI) effect, driving up energy demand for cooling and contributing to higher greenhouse gas emissions. Simultaneously, traditional water management systems, designed for rapid drainage, have proven inadequate, leading to recurrent issues like flooding, pollution, and water loss.

As a demonstrator city in the HuT project, Valencia serves as a living laboratory for testing and implementing climate adaptation strategies focused on heat resilience. Its experience offers valuable insights into other Mediterranean cities facing similar climate-related risks.

Characters

Environmental Innovation Manager

Cofounder and CIO Innovation Manager at Green Urban Data, focuses on developing urban environmental indicators with a strong emphasis on green infrastructure and its benefits. For him, data must be transformed into practical tools for strategic climate action. "The key is to turn environmental big data into products cities can implement," he explains. Green Urban Data is an innovative platform that supports local governments in increasing their climate resilience by identifying vulnerable areas and enabling sustainable urban planning. The mission is clear: to bridge science, technology, and innovation to improve urban quality of life and foster a scalable market for climate solutions.



Urban planning researcher

Associate Professor at the Universitat Politècnica de València at the Department of Urban Planning, focuses on heatwaves, urban heat islands, and spatial planning. His work combines GIS and spatial analysis to assess territorial aptitude and urban sprawl. In his view, one of Valencia's main climate adaptation challenges lies in the insufficient implementation of green infrastructure. He emphasizes the lack of urban trees and shade, the underutilized potential of Sustainable Drainage Systems (SUDS), and the strategic value of temporary retention basins. "Usually, flooding in Valencia is not caused by river overflow," he explains. "It happens because urban areas lack permeability. Neighborhoods can't absorb intense rainfall, and the drainage pipes have a limited capacity." He advocates for a planning approach that prioritizes permeability and nature-based solutions to improve resilience to both heat and heavy rainfall.

Environmental Project Officer at "Las Naves"

An Agricultural Engineer specialized in Natural Resources and the Environment, has extensive experience in climate change adaptation, environmental conservation, and sustainable land management. He has been involved in various EU-funded projects such as ARCH, GrowGreen, and AELCLIC, focusing on strengthening the resilience of Valencia's natural heritage; including La Huerta and La Albufera. His approach emphasizes the integration of ecological criteria into urban and territorial planning, especially through nature-based solutions. "Urban and peri-urban green spaces like La Huerta must be recognized as essential climate buffers," he argues. He sees multifunctional landscapes as key to reducing vulnerability to extreme heat and flooding while also enhancing biodiversity, and community well-being. He believes cross-sectoral collaboration and long-term vision are fundamental to mainstreaming adaptation into city strategies.

Smart City Strategist

Head of the Smart City and Data Management Department at the Valencia City Council, brings a wealth of experience in digital infrastructure, GIS, and city innovation. With a background in Computer Science and extensive public sector leadership, he has played a key role in projects like MAtchUP, CitCom.ai, and the European initiative EDIC on Local Digital Twins. "Digital twins and integrated data platforms are essential for forecasting urban risks and improving decision-making," he says. He sees smart technologies not just as tools for efficiency, but as fundamental enablers for climate adaptation and citizen well-being. He highlights the potential of AI and interoperable platforms to better manage extreme events such as heatwaves and flooding. "We are moving toward a more proactive, data-driven city model, where digital innovation meets environmental resilience," he explains.

Former Public Servant and Professor

Former public servant, currently Professor at Valencia's Polytechnical University. She played a pivotal role in shaping the Valencia Green and Biodiversity Plan, advocating for Nature-based Solutions (NbS). With decades of experience navigating political and administrative landscapes, she emphasized the critical role of political will in driving green infrastructure. "The European Green Capital title was the result of a determined government that prioritized this kind of planning," she notes. She highlights how regulatory gaps and fragmented governance hinder climate change adaptation and NbS implementation, often due to missing standardized guidelines for professionals. She champions local initiatives stressing that "investing in green infrastructure generates healthier environments—citizens don't invest in NbS, they invest in health." Despite challenges like funding shortages, bureaucratic rigidity, and shifts in political priorities, she remains optimistic, believing that local stakeholder networks and initiatives supported by European funding can drive progress.



Long-term goal: València Resilient – Adapting the city for a hotter future

The long-term vision for Valencia within The HuT project is to plan a city that is not only resilient but also adaptive to the challenges of a warming climate.

This involves continuing to reshape the urban landscape through a connected network of green spaces and ecological corridors that help mitigate heat and support biodiversity. Nature-based solutions (NbS) will play a central role; not only in reducing urban temperatures, but also in managing water more sustainably, addressing both heavy rainfall and the need for efficient urban drainage systems.

At the same time, the project seeks to identify the most vulnerable areas and populations in order to establish climate shelters: safe, accessible spaces where people can find relief during extreme events, particularly heatwaves. This vision brings together early warning systems, inclusive planning, and innovative urban design to build a more climate-resilient Valencia.

Needs: From awareness to action

One urgent need is the widespread dissemination of early warning systems, ensuring that alerts reach the entire population in an accessible and timely manner. These systems must be supported by communication strategies that inform people not only when a risk is coming, but also how to respond to it.

Equally pressing is the need to raise public awareness about sustainable water management, especially in a city vulnerable to both torrential rains and prolonged droughts. Empowering citizens with practical knowledge on how to reduce water consumption, reuse resources, and understand the role of green infrastructure will help foster long-term behavioral change.

Finally, Valencia needs to institutionalize urban design recommendations, particularly those based on Nature-based Solutions, as part of its planning regulations. Moving from strategic frameworks to enforceable guidelines will ensure that future developments contribute to heat mitigation, sustainable drainage, and increased urban resilience.

Our support: Translating knowledge

We focus on building a strong, trust-based dialogue with the City Council and Las Naves; a public innovation center within the municipality that plays a key role in advancing social and urban innovation. Our contribution lies in providing scientific support to make possible informed decision-making and guide targeted urban interventions. Through this collaboration, we aim to bridge the gap between research and policy by translating data into actionable strategic input.

One of our key contributions is the development of detailed spatial analyses, including maps that identify both vulnerable populations and buildings, helping to prioritize neighborhoods for intervention. These tools highlight where green spaces are insufficiently connected, and where climate shelters are most urgently needed to protect residents during extreme heat events.

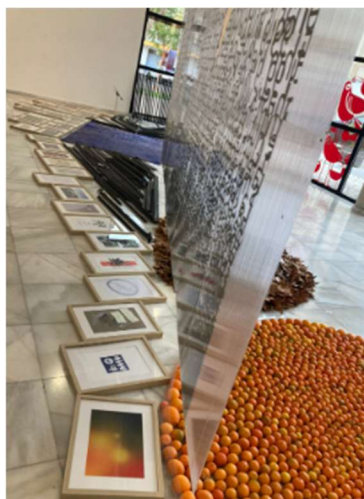


Events: Raising awareness through art and academia

To promote public dialogue around climate change and heat adaptation, two events were held on 25 October 2023 in Valencia. The first was a presentation of research findings in collaboration with Professor Chele Esteve from the Drawing Department at the Universitat Politècnica de València, highlighting the intersection between science, design, and climate-responsive urbanism. This was followed by the inauguration of "Bienvenido a 2050", an artistic installation by Salva Mascarell. Initially conceived as a closed greenhouse housing a delicate silk piece, the structure aimed to simulate the projected rise in temperature and drought conditions expected in the future. Installed in the Botanical Garden of Valencia, the exhibition offered a sensory and reflective experience.



Following the destruction of the original "Bienvenido a 2050" installation by Storm Ciarán in November 2023, the project evolved into a second iteration titled "*Bienvenido a 2050: adaptarse o sucumbir*". This new version reused materials salvaged from the original piece and embraced the themes of circularity, adaptation, and resilience in the face of extreme weather events. It was reopened on 2nd February 2024 at the Vicent Vidal Miñana exhibition hall in Beniarjó. A [video](#) was also produced to tell the story. The transformation of the exhibition not only amplified its message but also turned an environmental setback into a compelling opportunity for awareness and action.



Target audience

The target audience in Valencia includes key institutional and academic partners. Central stakeholders are the Valencia City Council and Las Naves. Additional collaborators include departments from local universities with expertise critical to addressing climate-related challenges: the Earth Physics and Thermodynamics Department at the Universitat de València, and the Drawing, Mechanical and Materials Engineering, Urban Planning, and Hydraulic Engineering and Environment Departments at the Universitat Politècnica de València.

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