



CLIMATE FINANCING

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# Heat Resilience: A Gateway to Solving Urban Challenges



Illustration of the Oasis schoolyards project that aims to create healthy, green spaces for children, and simultaneously provide an accessible "cool island" area for residents during heatwaves. Image: Urban Sustainability Exchange

**In the past two decades, heatwaves have become the deadliest weather-related events across the globe and the risk of heat related deaths during extreme summer temperatures has increased rapidly. In the Nature Communications article, "Rapid Increase in the Risk of Heat-Related Mortality", the authors warned that in many regions if no adaptation takes place under a 2°C warmer climate, what used to be a 1-in-100-year heat mortality event in the year 2000 could be expected roughly every other year.**

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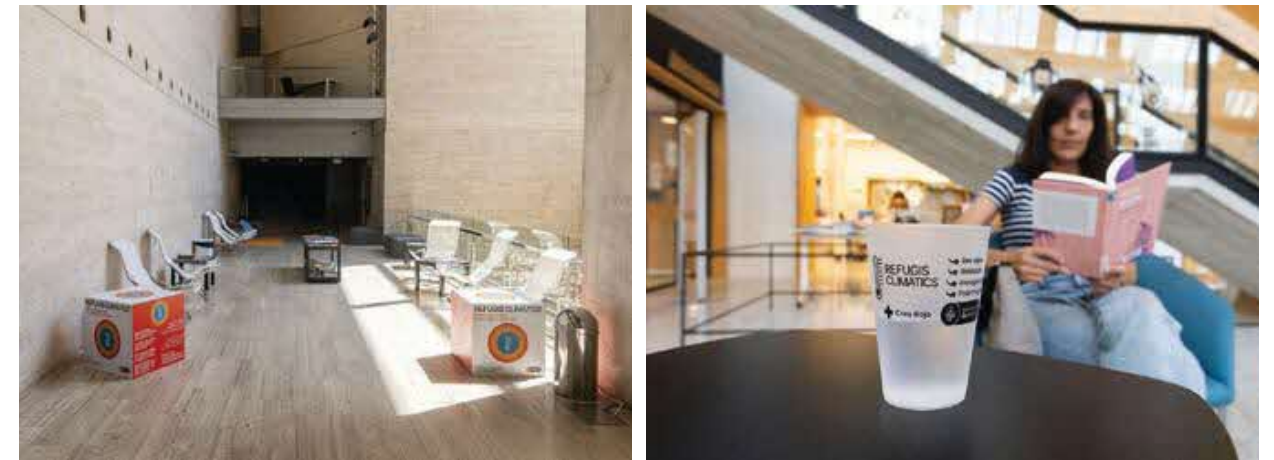
In addition to the rising temperatures driven by climate change, city populations are growing rapidly, and urban landscapes are being transformed to accommodate this growth. Herath and Bai, in their article, "Benefits and Co-Benefits of Urban Green Infrastructure for Sustainable Cities", described how these changes created distinctive urban climate conditions, including the urban heat island effect, which amplified extreme heat events, reduced thermal comfort, increased energy demand for cooling and heating, and led to greater health risks and heat-related mortality.

Many cities recognise this urgent need for adaptation measures, but often face challenges of restricted budgets and limited timeframes. We argue that city leaders do not need to choose between financing heat resilience building programmes, and other essential initiatives. By focusing on heat resilience, we see how our member cities are tackling a range of interconnected issues that achieve larger social, environmental, economic, health, and governance objectives.





Beyond its role as a climate shelter, the Centre of Contemporary Culture of Barcelona (CCCB) takes part in various programmes to integrate sustainability into all facets of its work.  
Image: Barcelona City Council



The Museu Frederic Marès (left), and Biblioteca Montserrat Abelló (right) are part of Barcelona's network of climate shelters.  
Image: Barcelona City Council

### Strengthening Urban Resilience with Low-Cost Preparedness Measures

Cities looking for low-cost, high-impact actions can begin by improving citizens' awareness and preparedness through non-structural interventions. These types of interventions are often less expensive than structural actions and can quickly improve disaster response and save lives.

According to "The 2024 Europe Report of the Lancet Countdown on Health and Climate Change" report in *Lancet Countdown Europe*: during extreme weather events, children and the elderly are among the most at-risk populations. In particular, elderly groups are often hard to reach due to lower technological knowledge and social isolation.

The city of Athens is addressing this problem through the reuse of two existing programmes. The Help at Home programme, which was started during the COVID-19 pandemic to offer isolated people

counselling, medical care, as well as the delivery of basic goods such as medicines and groceries, has been extended through partnership with the Hellenic Red Cross volunteer groups. In addition, the programme now also helps to prevent and treat symptoms of extreme heat for residents in their homes.

Athens has also repurposed its Friendship Clubs—public spaces for elderly people to gather and participate in activities. During extreme heat events, these air-conditioned spaces are open from 9:00 a.m. to 9:00 p.m. to all residents.

In a similar vein, the city of Barcelona has opened an extensive network of 350 Climate Shelters. Now more than 90% of the most-at-risk residents can reach a climate shelter within a 10-minute walk. These climate shelters are situated indoors, such as in libraries,

museums and civic centres, as well as outdoors, in parks and gardens. They are free of charge, accessible to people with reduced mobility, safe, and equipped with comfortable relaxation areas and free water. These spaces not only act as a refuge during heat events but are also used during intense cold events, and are generally open all year.

For Milan, their strategy involves increasing climate awareness through creative risk information campaigns. To challenge the perception of climate change being abstract and distant, the city created a climate story about heat. The narrative follows Ambrogio and his granddaughter Gaia during an extreme summer heatwave as they seek shade in a park after poor sleep due to a lack of nighttime cooling.



## Redesigning the Urban Environment

The story uses visualisations and maps to show how heat will shape Gaia's future and highlights the urgency of taking action. Green space and distance-to-cooling maps within the story clearly demonstrate the effectiveness of tree planting in protecting cities from heat. The story concludes by encouraging users to learn what Milan is doing to green the city and how residents can contribute to making it more climate resilient.

The success of this climate story extends beyond the positive feedback received from Milan's residents. Because the development of the climate story narrative involved cross-departmental collaboration within the city administration, it ended up initiating a collective effort for not only the project but also towards new resilience building activities.

Beyond immediate actions for preparedness and awareness, cities need to adapt and redesign much of their built environment. In cities that are already dense with infrastructure, this change can begin by understanding the risks and modifying the public spaces already available to residents. A truly inclusive process is essential, both for conducting a comprehensive needs assessment through citizen engagement and co-creation, and for ensuring interdisciplinary collaboration between experts to design innovative and effective solutions.

The Urban OASIS Schoolyards programme in Paris is one such innovative initiative, which came about as a response by the City of Paris to climate projections predicting more frequent and longer heatwaves. It aimed to address the high level of soil sealing and lack of access to green cool spaces, which were making schoolyards increasingly vulnerable to heatwaves.

The schoolyards in this programme are co-designed by school communities, including students, parents, and teachers, as well as design professionals in consultation with stakeholders such as government, academia, and community organisations. The transformed schoolyards offer lower temperatures and function as a space for the community outside of school hours, enhancing community cohesion and reducing social isolation.

So far, 75 schoolyards have been transformed, and the city plans to expand the programme to all of its public schoolyards. These reimagined spaces offer a dual benefit: reducing temperatures during heatwaves and creating vibrant, multipurpose spaces that promote community interaction and social inclusion in Paris

Following the success of the OASIS programme in Paris, it is now also being implemented in Quezon City in the Philippines. While set within a very different context, the Quezon City OASIS schoolyard programme is able to adapt the core principles of Paris's OASIS initiative to address its own unique challenges. This cross-continental application of the OASIS programme demonstrates its flexibility and potential for global adaptation, contributing to more resilient urban environments in diverse settings.



Oasis Schoolyards in Paris act as cool spaces of respite from heatwaves by integrating nature-based solutions for shading and storm-water management.  
Image: AIPH



## The Broad Benefits of Expanding Green Space in Cities

Cities all around the world are focusing on urban greening as a proven way to adapt to heat impacts. Increasing green space in a city not only helps to provide shade and lowers temperature through evapotranspiration but also improves soil permeability, reduces risk of flooding, lowers demand for air conditioning, and positively influences citizen's mental health. Furthermore, by leveraging Water Sensitive Urban Design, green infrastructure can also be used to help manage stormwater.

In Liu and Russo's article, "Assessing the Contribution of Urban Green Spaces in Green Infrastructure Strategy Planning for Urban Ecosystem Conditions

and Services", they found that green spaces also benefitted urban development by increasing property values, boosting tourism, and creating job opportunities.

Chennai is one example of a city that has been using urban farming to protect its most vulnerable communities from the intensifying heat while also providing essential, healthy food. Urban heat disproportionately affects residents who live in poor housing conditions. Many of these areas lack green spaces, which help mitigate heat, and are situated near heat-absorbing infrastructure like concrete and asphalt, further intensifying the heat burden. Since 2021, the Chennai Resilience Centre

has been running the Chennai Urban Farming Initiative, which creates rooftop and public gardens in daycares, schools, and homeless shelters to bring more greenery to the city and fresh food to the table. This project has resulted in cool spaces for residents and education opportunities for children, while also ensuring nutrition for youths and the greater at-risk community. These urban farms are enhancing community physical and mental health, improving food self-sufficiency, and improving social cohesion by addressing multiple urban vulnerabilities simultaneously.

West Gorton Community Park, also known as "The Sponge Park" in Greater Manchester is



First residential complex of the Smart City—drone view of the Smart Village.  
Image: Groundwork UK

By focusing on heat resilience, city leaders can protect their residents from the immediate dangers of extreme temperatures while also improving overall quality of life in the longer run.

another example of how a city has leveraged green space development to enhance flood resilience and biodiversity. Created as part of the GrowGreen Project, the park showcases Sustainable Urban Drainage Systems, including bioretention tree pits, wildflower meadows, and permeable paving. Co-designed with the local community, the park provides social, environmental, and economic benefits such as increased physical activity, improved mental health, and enhanced property values.

Based on data provided by project partner, the University of Manchester, the Sponge Park has demonstrated a significant reduction in water runoff, a 48% increase in biodiversity, and lower ground temperatures. Additionally, the park has also fostered community cohesion through its design and local events, creating a model for green infrastructure in other urban areas. The success of this project is now informing other developments in the city, including Mayfield Park, highlighting the effectiveness of nature-based solutions in urban planning.

## Addressing Multiple Urban Challenges over the Long Term

Interventions to address extreme heat can be used to address multiple urban challenges beyond just cooling. By focusing on heat resilience, city leaders can protect their residents from the immediate dangers of extreme temperatures while also improving overall quality of life in the longer run. These efforts help reduce health disparities, improve climate awareness, and promote community cohesion, creating more equitable and liveable urban environments.

Cities must therefore prioritise heat resilience as a central pillar of urban planning. From awareness campaigns to structural interventions, they can tackle the interconnected issues of urban change, ensuring their cities are prepared for future challenges while fostering resilient communities that are more inclusive, sustainable, and adaptable to a changing world.