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ADAPTATION TO CLIMATE CHANGE



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Integrating climate adaptation and resilience into different sectors and local policies

Collaboration and innovation as the basis of the Urban Resilience Department's work in Milan, Italy

The integration of plans and working transversally across departments facilitates the implementation of climate change adaptation actions in cities.

Key Learnings

- **Integrated approach to resilience:** It is important to establish a common understanding of resilience and adaptation as cross-cutting topics within the city administration. Aligning objectives and agendas among departments is key to increase the coherence of policies and actions.
- **Institutional collaboration:** Collaboration with both internal and external partners (such as civil protection for climate risk) maximizes impact and influences decision-making.
- **Involvement in research & innovation projects:** Participating in research and innovation projects is pivotal to promoting data collection, tools, and solution development. By leveraging knowledge, capacities and resources, local authorities can update and inform strategic documents, guidelines, and local decision-making processes.
- **Synergies between mitigation and adaptation:** Climate mitigation and adaptation cannot be performed in an isolated manner. Nature-based solutions and greening interventions support both climate neutrality targets and improve the city's adaptive capacity.

About the region

Milan is the capital of Lombardy and located in the northern part of Italy. Milan is the second largest city in Italy and has about 1.35 million inhabitants (2023). The city covers an area of approximately 182 km². The climate is characterized by hot humid summers and cold foggy winters. During summer the temperatures can reach up to 40°C.

Climate Hazards

Flooding, Extreme Temperatures, Droughts, Storms

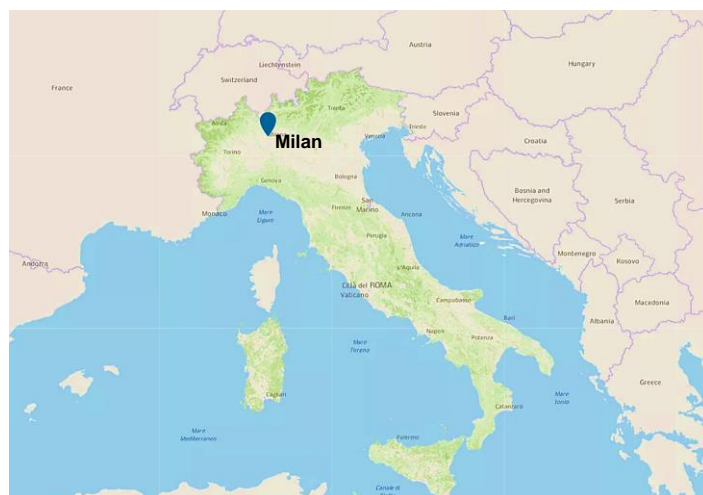
Sector

Biodiversity, Disaster Risk Reduction, Forestry, Urban

Key system

Critical Infrastructure

Ecosystem and Nature Based Solutions



Climate Threats

The city of Milan is densely populated and is mostly exposed to heat waves, pluvial flooding and severe storms. Future projections anticipate that heavy rain will occur more often and more intensely, increasing the risk of flooding. At the same time, a strong increase in average temperature will cause more heatwaves and droughts (see [REACHOUT climate story](#) about Milan's heatwaves) and exacerbate the heat-island effect, where the city experiences higher temperatures than the surrounding areas. During the summer of 2023, the city experienced both prolonged heatwaves and severe thunderstorms (in July 2023 a violent overnight storm uprooted hundreds of trees and disrupted infrastructure and public transport). More frequent and severe climate hazards are also impacting the citizens' level of comfort and quality of life.

Integrating adaptation measures and resilience into local development plans

The city of Milan has recognized the need to adapt to climate change and has introduced a **“resilience approach”** to reduce the impacts of climate change and support the transition towards climate neutrality. Resilience is a cross-cutting matter and covers many aspects of an urban community.

Milan has been working on climate adaptation for years and is currently updating the city masterplan (Piano di Governo del Territorio). In addition, the municipality is implementing the Climate Action Plan (CAP) targeting both adaptation and mitigation. The city of Milan is also part of the [Resilient Cities Network](#), which builds on the legacy of the 100 Resilient Cities initiative. This has led to the appointment of a Chief Resilience Officer and the creation of the Department of Urban Resilience to catalyse action in

urban resilience. The Chief Resilience Office works across municipal departments and is responsible for leading, coordinating and developing resilience strategies, plans and actions.

The Urban Resilience Department aims to address all aspects transversally, including social, energy and economic topics. The Urban Resilience Department has recognized the climate impacts in Milan and therefore, integrated adaptation measures and resilience into the city's development plans. This is done by establishing close collaborations with other departments and institutions, and by participating in research and innovation projects.

Collaborations are key to finding solutions

The Urban Resilience Department has worked to create internal alignment and consensus around resilience. Raising internal awareness and aligning objectives among departments requires a lot of work and resources but can trigger positive institutional changes. This process was done by assessing common needs and mapping opportunities to build a consistent narrative around resilience and deliver added value to other city departments. Currently, the Urban Resilience Department collaborates the most with the **Civil Protection** and the **Urban Regeneration** Departments.

In particular, it supports Civil Protection in developing the Municipal Protection Plan, which involves two main activities:

- 1.) Collecting valid data and processing them to develop risk scenarios required by the national law regulating the Civil Protection Code.
- 2.) Supporting the development of a Risk Communication Strategy to communicate resilience.

Together with the Urban Regeneration Department, it designs territorial interventions to reduce climate risk. Such measures include de-paving and urban forestation and are implemented while updating the city masterplan. One of its six pillars aims to combat climate change and to improve environmental quality, to strengthen the rules on resilience, forestry, and heat islands as well as to create a more sustainable city. Article 10 of the Plan of Rules provides the calculation methodology to minimize carbon emissions of buildings and the Climate Impact Reduction Index for the private sector.

Synergies between adaptation and mitigation: the case of the Air and Climate Plan

The city has always acknowledged the synergy between climate change mitigation and adaptation policies as crucial elements of sustainable development. This approach is reflected in the Air and Climate Plan (PAC), the action plan voluntarily adopted by the city and approved by the City Council in 2022. The plan was developed in a participatory process and includes 49 concrete actions to guide the city's ecological transition, achieving climate neutrality.

The Air and Climate Plan aims to:

- Integrate mitigation, adaptation, and air quality measures
- Reduce pollutant concentrations
- Reach climate neutrality

- Maintain a local temperature increase below 2°C

Moreover, the Air and Climate Plan provides a set of adaptation guidelines to improve environmental, social and economic resilience in the city, as well as to increase the adaptive capacity of Milan's urban system. The guidelines identify cross-cutting interventions and involve re-naturalising private and public spaces, especially targeting streets, squares, parks and playgrounds. Those spaces aid in adapting to the effects of the climate crisis as they improve air quality, store CO₂ and provide better urban comfort and liveability. By leveraging both positive experiences in local regeneration projects and international best practices, the municipality offers a complementary and operative guide for public and private operators, planners, as well as community groups and citizens.

Furthermore, in March 2024 the city of Milan announced the signature of the Climate City Contract, within the framework of the [NetZeroCities](#) project and the [EU Mission: Climate-Neutral and Smart Cities](#). The contract was signed by the municipality together with local stakeholders (such as universities, urban regeneration operators, building cooperatives and civil society organizations) and includes a portfolio of 157 actions. These interventions integrate adaptation strategies and include redevelopment of green areas as well as new greening and de-paving initiatives.



Figure 1: The first sustainable urban drainage system of Milan. Image Credit: Comune di Milano.

"Thanks to the final approval of the Air and Climate Plan by the City Council, the administration, economic and social stakeholders, citizens and the municipality now have a fundamental tool for planning, targeting and implementing an increasingly resilient and greener urban development model that will lead Milan to be a carbon-neutral city in 2050. [...]"

Elena Grandi, Municipality of Milan's Councillor for the City of Milan.

Research and innovation projects

The Urban Resilience Department has recognized the importance of **research and innovation** to address climate impacts. By actively participating in EU-funded research and innovation projects (e.g. [UP2030](#), [REACHOUT](#)), data is generated and local decision-making tools are developed for effectively implementing climate change adaptation. Those projects also facilitate collaboration with external experts and foster multidisciplinary innovations. Collecting and analysing new data, conducting risk assessments, and experimenting with innovative and integrated solutions enable the update of strategic documents and the formulation of new resilience guidelines. Essentially, the project outputs promote risk-informed urban planning and decision-making processes.

Summary

Recognizing the threats that climate change poses, the city of Milan and its Urban Resilience Department developed an integrated approach to adapt to climate change. This approach consists of collaborating departments and addressing climate adaptation and mitigation together. Additionally, the participation of the Urban Resilience Department in EU-funded research and innovation projects has greatly supported the city of Milan in its efforts to combat climate change (e.g. by collecting and analyzing data to incorporate climate change adaptation within local plans and policies). The core measures that work for Milan include de-sealing and re-naturalizing the city.

Further Information

- <https://eit.europa.eu/news-events/news/new-air-and-climate-plan-milan>
- <https://www.comune.milano.it/aree-tematiche/ambiente/aria-e-clima/piano-aria-clima>
- <https://netzerocities.eu/>
- https://reachout-cities.eu/post_type_city/milano/

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