



**POLITECNICO
MILANO 1863**

Climate Change Adaption Plan of Politecnico di Milano - Executive Summary

2025 Edition

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Presentation of the First Adaptation Plan of Politecnico di Milano (2025) – Executive Summary

An Urgent Challenge

Climate change represents an urgent and increasingly evident challenge for universities. These institutions are not only places of education and knowledge production, but also complex organizations that manage infrastructure, communities and environmental assets. Rising temperatures and increasingly intense precipitation together with related phenomena such as extreme heat/heatwaves, flooding, drought and strong winds are already affecting life on campuses. These impacts will further influence safety, spatial quality, human well-being and biodiversity in the years to come.

The University's Commitment

In this context, leading universities worldwide are adopting climate adaptation plans to protect infrastructure, natural and built ecosystems, and academic communities. These strategies include physical, managerial, behavioral and social measures. From the regeneration of open spaces to building retrofitting and from the development of new awareness to the advancement of knowledge, research, and professional skills through university education.

The Plan

The Climate Change Adaptation Plan (PdA) of Politecnico di Milano is the University's first document specifically dedicated to climate resilience. It is part of the University's sustainability strategy, consistent with the University Strategic Plan 2023–2025 and the Strategic Sustainability Plan. The Adaptation Plan complements and integrates the actions included in the CO₂ Emissions Mitigation Plan aimed at counteracting climate change effects, contributing to the commitments undertaken by the local governments hosting the University's campuses. Mitigation addresses the causes of climate change, whereas adaptation addresses its impacts. The ultimate goal is to make Politecnico di Milano a resilient institution, while also ensuring that it remains proactive, innovative, and socially responsible.

The Mandate

To consolidate sustainability initiatives launched in 2011, in 2023 the University's sustainability governance together with the Director of the Infrastructure and Services Management Area (AGIS) included, among the objectives of this Area (particularly the Environmental Sustainability Service), the initiation of the Adaptation Plan drafting process. This objective included:

- i) identifying the technical-scientific working group;
- ii) developing an initial proposal of actions, with the active involvement of all relevant stakeholders (both during the data collection phase and the proposal development phase).

This objective was reaffirmed and strengthened in 2024 and 2025, including the presentation of the first Adaptation Plan to the University's governing bodies. Moreover, within the 2024 Sustainability Workshops (Sport and Well-being Workshop; Energy Saving Workshop), the topic of climatic comfort in campus living spaces stimulated reflections and proposals both within and beyond the workshops. This process created opportunities for dialogue and collaboration among experts and professionals operating within the University in various roles and fields. The Plan was developed and managed by the Technical-Scientific Coordination Committee led by the Department of Architecture and Urban Studies (DAStU), with an interdepartmental working group, under the supervision and support of the Strategic Coordination Committee for Sustainable Development and Impact and the Technical-Administrative Coordination Committee, coordinated by the Infrastructure and Services Management Area – Environmental Sustainability Service, in collaboration with the University's various structures.

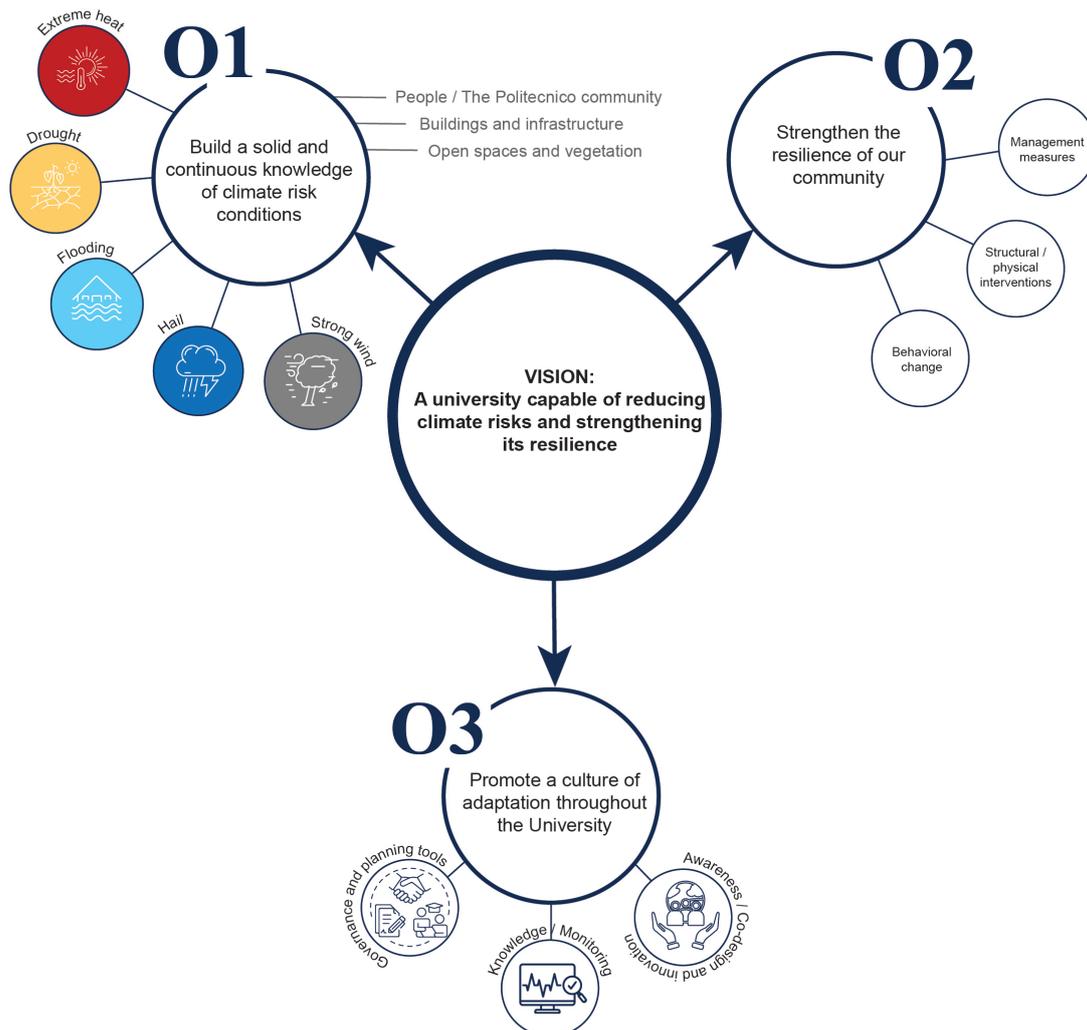
Vision and Three Strategic Objectives of the Plan

The Plan aims to transform Politecnico di Milano into a University capable of reducing and better managing climate risks while strengthening its resilience, leveraging its knowledge, expertise and capacity for innovation. The Plan is structured around three complementary strategic objectives:

O1 – Building Solid and Continuous Knowledge of Climate Risks: The first objective is to build a solid and continuous knowledge base on climate risks and their effects on people, buildings, infrastructure and environmental ecosystems present on campus. Scientifically understanding and continuously updating knowledge on how the climate is changing and what impacts it produces on university life is a necessary condition for defining effective strategies.

O2 – Strengthening Community and Spatial Resilience: The second objective is to strengthen the resilience of the academic community and university spaces through adaptive solutions that integrate managerial measures, physical interventions and changes in everyday behaviors. Adaptation requires not only material transformations but also new practices of use, management, and interaction with university environments.

O3 – Spreading a Culture of Adaptation: The third objective concerns the cultural dimension: promoting a culture of adaptation by transforming the University into a true Living Lab capable of generating knowledge, experimenting with tools, building awareness and fostering shared innovation. Campuses thus become places where, through research, education, and management, communities collaborate to address the challenges of climate change together.



A First Step: Contents of the Plan

During this first year of work, the Plan has provided a preliminary assessment aimed at establishing the knowledge and operational foundation for future actions. Specifically, the Plan outlines the reference climatic and regulatory framework; provides a preliminary assessment of climate risks on campus, with particular attention to flooding events and extreme heat/heatwaves; defines 116 possible adaptive actions, of which 16 are identified as priority actions, selected according to criteria of urgency, necessity, speed of implementation (quick win potential), and emblematic value.

| | | URGENCY | NECESSITY | IMPLEMENTATION [QUICK WIN] | EMBLEMATIC |
|-------|---|------------|------------|-------------------------------|------------|
| AP 01 | WATER AWAY [BUILDING 2] | Dark Blue | | | |
| AP 02 | COOL GRADUATIONS [BUILDING 14 – NAVE + TRIFOGLIO] | Dark Blue | | | |
| AP 03 | STRONG WIND / HAIL PLAN | Dark Blue | | | |
| AP 04 | KNOWLEDGE AND MONITORING SYSTEM | Light Blue | Dark Blue | | |
| AP 05 | CLIMATE SENSOR PROJECT | Light Blue | Dark Blue | | |
| AP 06 | HEAT AUDIT | | Dark Blue | | |
| AP 07 | CLIMATE AND RISK MAPPING | | Dark Blue | | |
| AP 08 | INTEGRATED ALERT PLATFORM | | Dark Blue | | |
| AP 09 | ADAPTATION GOVERNANCE | | Dark Blue | | |
| AP 10 | RESILIENT TREES 2050 | | Dark Blue | | |
| AP 11 | CONSCIOUS COMFORT CAMPAIGN | | Light Blue | Dark Blue | Dark Blue |
| AP 12 | TACTICAL SHADING | | | Light Blue | Dark Blue |
| AP 13 | COOL OASES | | | Light Blue | Dark Blue |
| AP 14 | GREEN ROOF + GARDELLA TERRACE | | | | Dark Blue |
| AP 15 | GREEN-BLUE STREETS [VIA PASCAL/BONARDI] | | | | Dark Blue |
| AP 16 | ADAPTATION RESEARCH HUB | | Light Blue | | Dark Blue |

Outlook and Future Work

The Plan marks the beginning of a pathway that now requires targeted and shared actions:

- Production and consolidation of campus data (meteoclimatic, ecosystem, energy and GIS data), which are currently still insufficient.
- Activation of engagement, training and capacity-building initiatives for the entire academic community.
- Localization, design and feasibility studies of the proposed actions, in collaboration with governance and management structures.
- Definition of timelines and budgets, integrated into decision-making processes and economic planning.
- Progressive implementation and periodic monitoring, with public and open-source reporting.



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