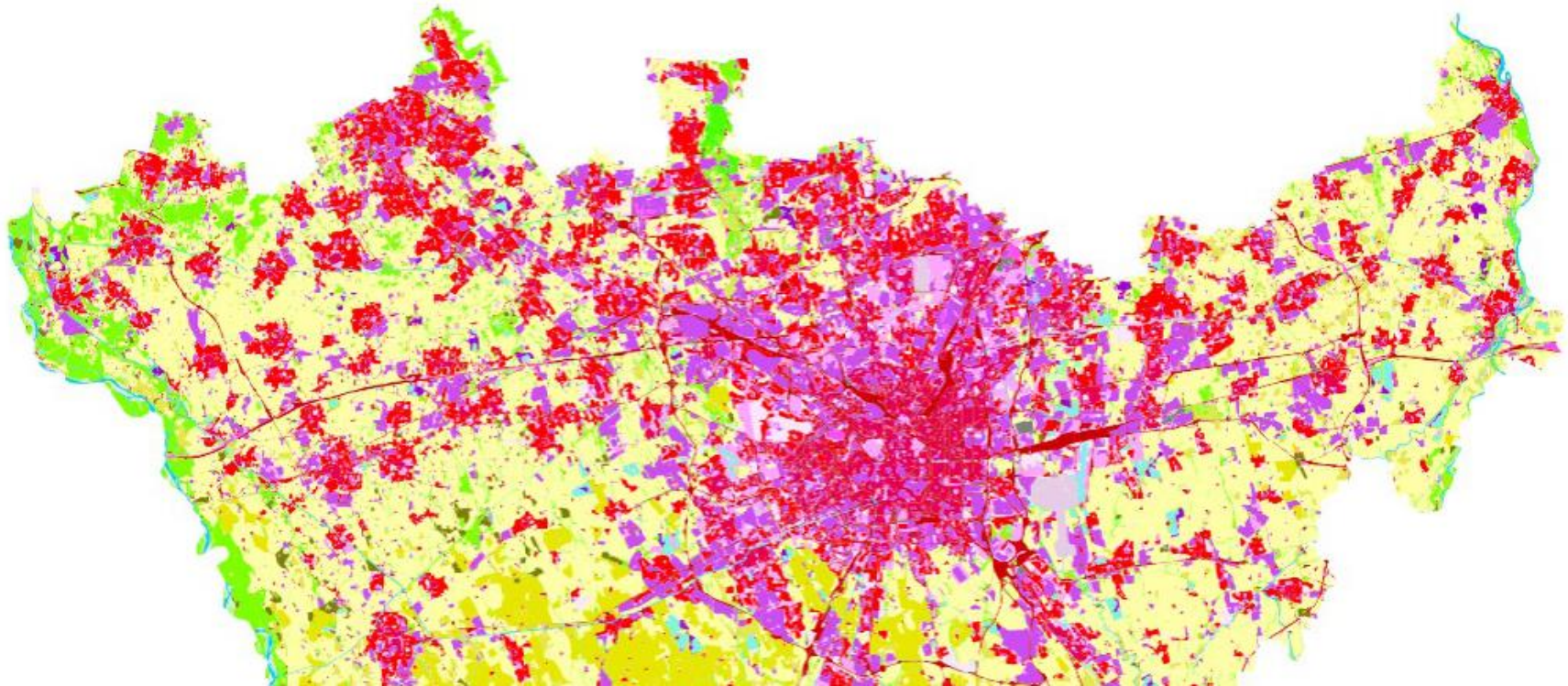
METROPOLITAN CITY OF MILAN

STRATEGY OF ADAPTATION THROUGH THE USE OF NATURE BASED SOLUTIONS



Città metropolitana di Milano

TERRITORIAL POLICY - FUNCTIONS AND STRATEGIES OF THE AUTHORITY

THE METROPOLITAN CITY OF MILAN IS A SECOND-LEVEL INSTITUTION THAT WAS ESTABLISHED IN 2015, REPLACING THE PROVINCE OF MILAN, TO BETTER MANAGE THE COMMON INTERESTS OF THE AREA AND ALLOCATE RESOURCES MORE QUICKLY AND EFFICIENTLY

MAIN TASKS

- SPATIAL AND STRATEGIC PLANNING
- MOBILITY AND ROADS
- LAND AND ENVIRONMENTAL PROTECTION
- ECONOMIC AND SOCIAL DEVELOPMENT

AGENDA METROPOLITANA URBANA PER LO SVILUPPO SOSTENIBILE

Potentially

On which goals and targets can CMM act on?

74 *on 169*

- TARGETS OF THE 2030 AGENDA
- THAT FALL WITHIN THE
- AUTHORITY'S REMIT

which

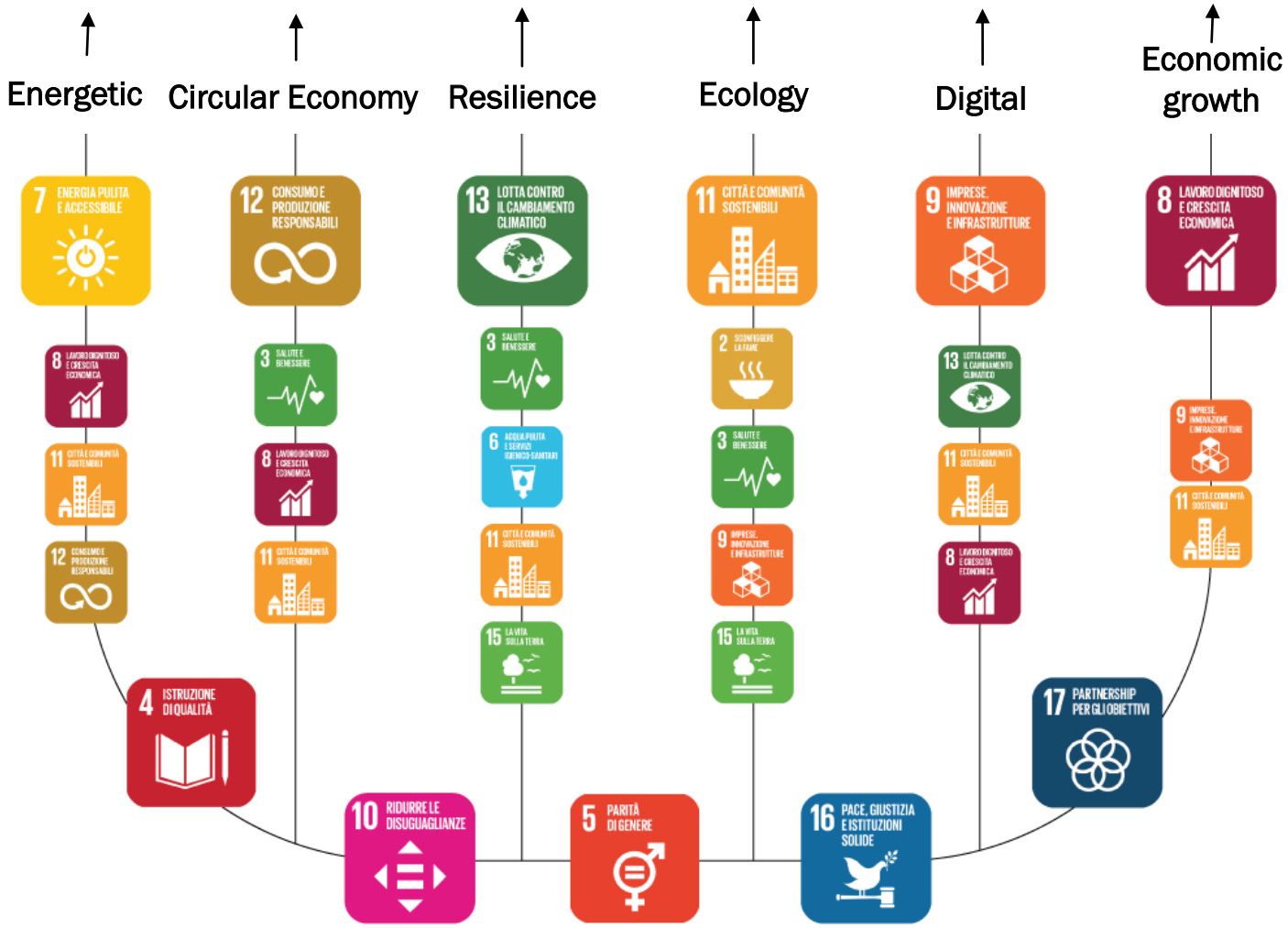
72

- RELEVANT
- FOR CMM

AGENDA METROPOLITANA URBANA PER LO SVILUPPO SOSTENIBILE

6 TRAJECTORIES

5 VALUES



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DEVELOPING SOLUTIONS TO COMPENSATE FOR THE DIFFICULTIES CAUSED BYCLIMATECHANGE:

THE RESILIENT TRAJECTORY

- Promote and implement climate change adaptation measures and concurrently develop mitigation policies in order to have a more resilient territory where there is a high quality of working and living.

- Making the metropolitan area capable of absorbing extreme weather events through the implementation of widespread and technologically advanced interventions, having attention to the impact not only of the environment but also of social vulnerability.

Objective:
limiting the impactof climatic eventsextremes

13 LOTTA CONTRO IL CAMBIAMENTO CLIMATICO

3 SALUTE E BENESSERE

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11 CITTÀ E COMUNITÀ SOSTENIBILI

15 LA VITA SULLA TERRA

Pivotal actions

Sponge City (In partnership with CAP Group)

To rehabilitate the ecosystem of urbanized land through soil permeabilization and stormwater management. This is through a series of Nature Based and sustainable urban drainage interventions.

Research and development activities

Pursue research and innovation in the area of nature-based solutions. On the ground aim to create collaboration among those involved in water resource management both in terms of administrative efficiency and in terms of new design to address issues arising from climate change.

Nature based solutions

Establish operational lines and incentivize the use of integrated nature-based solutions in urbanized contexts, bringing together multiple techniques such as green infrastructure, green-blue networks, ecosystem services, natural capital, and ecological engineering. These are characterized by the ability to adapt to external conditions, without wasting resources or energy, and will enable the restoration of natural hydrological cycle balances, as well as ecological balances.

Industrial symbiosis and redevelopment of industrial areas

To promote the urban and territorial regeneration of brownfield, industrial or underutilized areas and to encourage new projects in the field of industrial symbiosis, according to the APEA (environmentally equipped productive areas) approach. The objective is to develop a model of industrial ecology oriented to the reuse of production waste in the output of one company and its reinsertion as an input in the production mechanism of another company, thus creating real “circular” production micro-districts that integrate different production chains and synergistically adopt innovative solutions for water and energy supply. This development will have to assume energy efficiency objectives and may consider establishing Renewable Energy Communities in order to distribute any production of energy from RES over several users.

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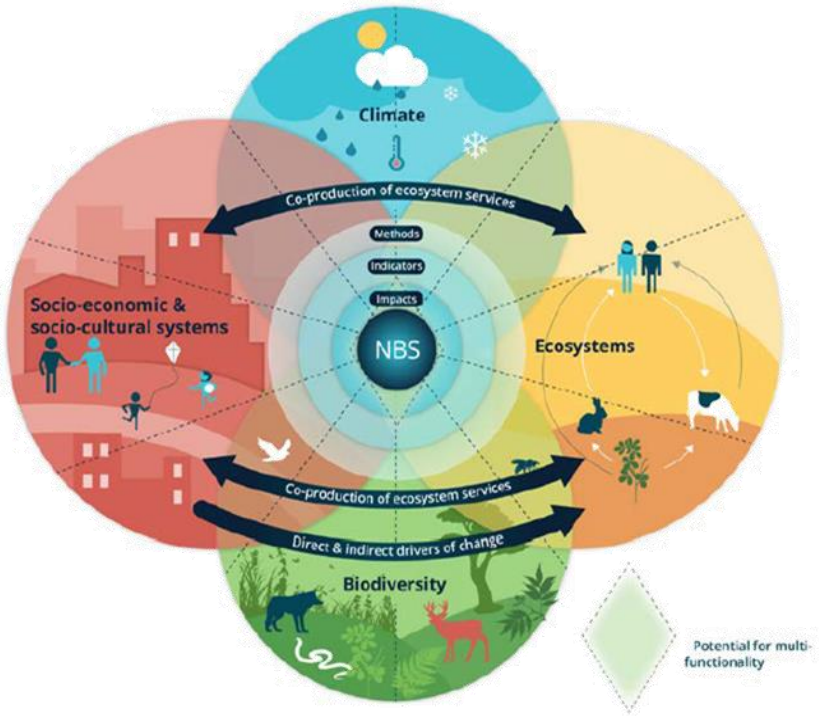
CLIMATE ADAPTATION ACTIONS - NBS

THEY ARE SOLUTIONS WITH COMPLEX ECOSYSTEM CHARACTERISTICS THAT USE OR ARE INSPIRED BY THE PROCESSES OF NATURE.

THEY HAVE THE ABILITY TO BRING THE CHARACTERISTICS AND PROCESSES OF NATURE INTO URBANISED ENVIRONMENTS.

THEY ARE POTENTIALLY MULTI-OBJECTIVE SOLUTIONS: ENVIRONMENTAL, SOCIAL, ECONOMIC.

USING NATURAL FLOWS OF MATTER AND ENERGY, THEY TEND TO BE LOW-RESOURCE SOLUTIONS THAT, IF DEVELOPED CORRECTLY, CAN BE MORE EFFICIENT THAN OTHERS.



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THE PROCESS

NATURE 4 CITIES

NBS impact studies

2016

Climate change and territory

Fondazione CARIPLO

2017

METRO ADAPT

Climate change adaptation project

2018

Adaptation to climate change and improvement of public spaces and productive areas in the peri-urban area of Milan

Fondazione CARIPLO

2019

Territori resilienti

one-stop shop for the resilient transition of territories

2020

MULTISOURCE

ModULar Tools for Integrating enhanced natural treatment SOlutions in URban water CyclEs

2021

AGENDA METROPOLITANA URBANA PER LO SVILUPPO SOSTENIBILE

Water4All Water security for the planet

Water security for the planet by supporting adaptation and resilience of natural and man-made ecosystems

Metropolitan Agenda for Sustainable Development 2030

Metropolitan Sponge City Project

2022

IndicaMi

Measuring climatological adaptation

2023

NBS ITALY HUB

AWARD Alternative Water Resources and Deliberation processes to renew water supply strategic planning

Alternative Water Resources and NBSWT advantages

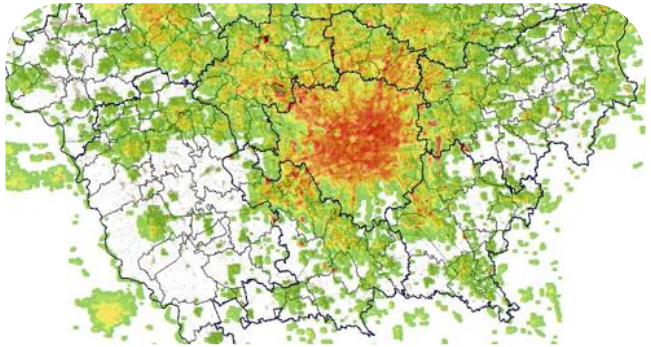
Now

KNOWLEDGE SYSTEMS

1 Territory — 2 Fenomena — 3 Effects

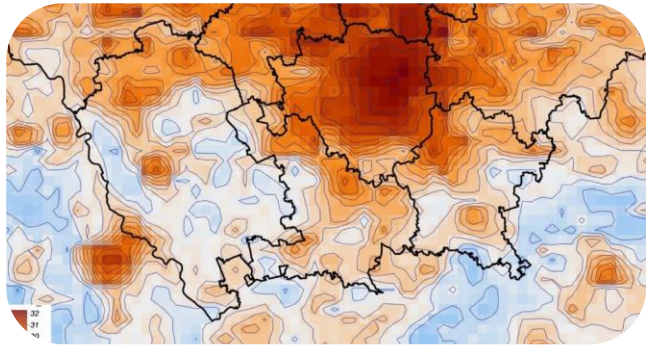
Territory

Basic cartographies
Satellite and aerophotogrammetric imagery
Land use maps
Environmental and socieoeconomic information
Development over the years frequent and coordinated



Fenomena

Maps and meteorological and climatological information (heat, precipitation, wind, air quality etc.)



Effects

Thermal anomalies/ Urban heat islands
Weather event mapping
Population Risk Mapping
Hydraulic Hazard Mapping

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UPSCALING THE POLICY - TOOLS FOR THE MUNICIPALITIES

THE METROPOLITAN CITY WEBSITE PROVIDES ACCESS TO A RANGE OF DIGITAL CONTENT AT THE SERVICE OF MUNICIPALITIES AND CITIZENS:

- TERRITORI RESILIENTI HTTPS://WWW.CITTAMETROPOLITANA.MI.IT/TERRITORI_RESILIENTI/INDEX.HTML
- METRO ADAPT PLATFORM HTTPS://WWW.CITTAMETROPOLITANA.MI.IT/LIFE_METRO_ADAPT/
- LIFE METRO ADAPT NBS HANDBOOK LIFEMETROADAPT.EU/PUBLIC/HANDBOOK-2PRINT.PDF

Città metropolitana di Milano

UPSCALING THE POLICY - TOOL FOR THE TERRITORIAL ARMONY

STABLE TERRITORIAL COMPARISON - NBSWT METROPOLITAN BOARD

ESTABLISH A STABLE DISCUSSION THAT GOES BEYOND THE PROJECT TIMEFRAME TO ADDRESS ISSUES RELATED TO THE IMPLEMENTATION OF NBSWT IN THE METROPOLITAN AREA.

IN ORDER TO DO THIS, RECONNAISSANCE TABLES HAVE BEEN IMAGINED TO BE DEVELOPED AROUND THE FOLLOWING THEMES

TECHNOLOGIES
GOVERNANCE
BUSINESS

6 CLEAN WATER AND SANITATION

Stakeholders
(as now)

ATO; CMM; CAP; MM; REGIONE LOMBARDIA; ERSAF

UPSCALING NBS – DIFFUSION AND TECNOLOGY

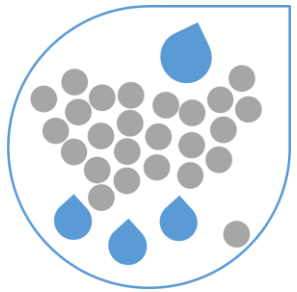
Enchancing the systems with tratement quality, reuse and social complexity
HORIZON EUROPE

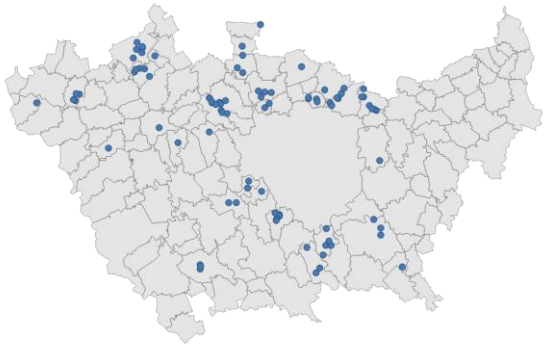
MULTISOURCE

AWARD
Alternative Water Resources and Deliberation processes to renew water supply strategic planning

Water4All
Water security for the planet

Implementation of the same type of NBS but in 32 Municipalities with 90 interventions
METROPOLITAN SPONGE CITY





EU funds

Città metropolitana di Milano

UPSCALING NBS – METROPOLIAN SPONGE CITY

THE METROPOLITAN SPONGE CITY IS A SPECIAL TYPE OF URBAN PLANNING THAT ENVISAGES THE REALISATION OF WIDESPREAD NBS INTERVENTIONS ON THE TERRITORY

IT AIMS TO REDEVELOP THE ECOSYSTEM OF THE URBANISED TERRITORY BY PERMEABILISING AND GREENING THE SOIL, THUS MANAGING STORMWATER BUT ALSO REDUCING HEAT ISLANDS AND INCREASING BIODIVERSITY.

- **90** SUSTAINABLE URBAN DRAINAGE INTERVENTIONS
- **32** MUNICIPALITIES IN THE METROPOLITAN AREA
- **529,248 M2** REGENERATED AREA
- **125,775 KW/H** SAVED ANNUALLY (11 TOE)
- **€ 50,194,049.66** FINANCING

PRIMARY OBJECTIVES

FLOODING
HEAT ISLANDS
DROUGHTS

COLLATERAL OBJECTIVES

TERRITORIAL EDUCATION

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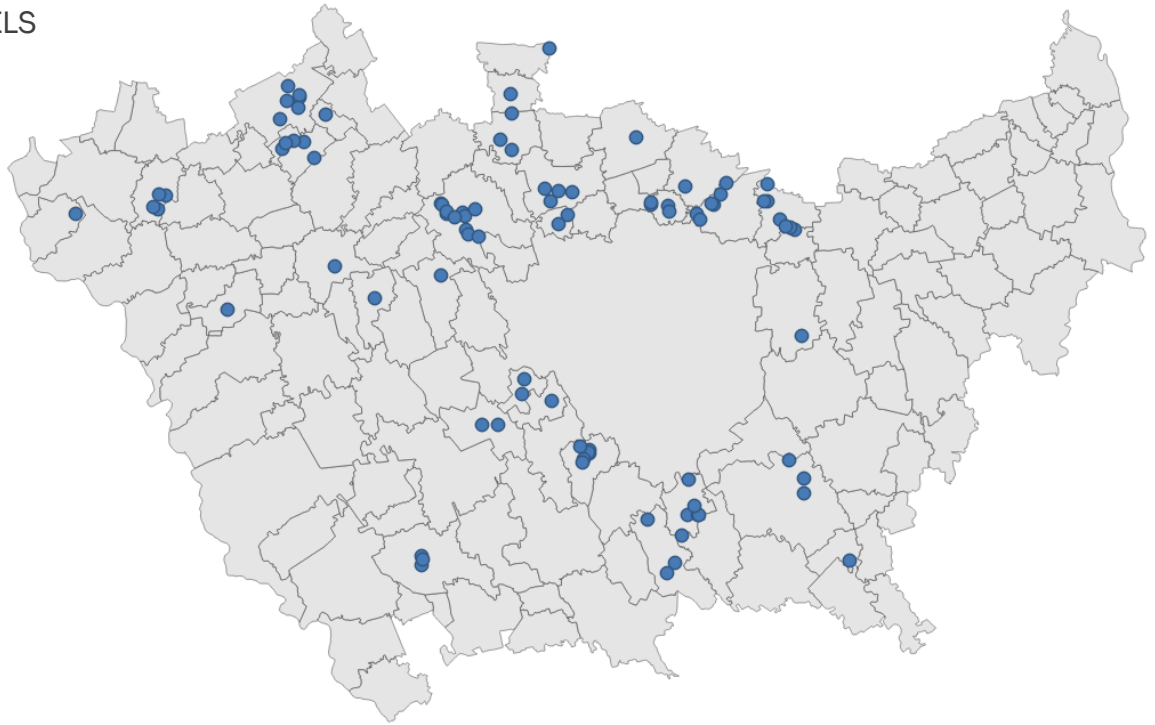
CHOOSING WHERE AND HOW TO INTERVENE

CHOOSING WHERE AND HOW TO INTERVENE

TECHNOLOGIES USED:

- DEEP INFILTRATION SYSTEMS
- SUBSURFACE ROAD RETENTION
- DRAINAGE PAVEMENTS
- STORAGE TANKS OR CISTERNS DEWATERING SURFACES
- BIO-RETENTION AREAS
- INFILTRATION TRENCHES
- TREE BOXES
- WETLANDS
- VEGETATED DRAINAGE CHANNELS

Tipologia intervento	Interventi	Importi QE
Impianto sportivo	2	1.919.944,76
Nuova area verde	5	2.327.214,85
Piazza	14	11.431.458,65
Parcheggio	34	17.663.494,10
Strada	32	12.775.463,63
Intervento polifunzionale	3	4.076.473,67
Totale	90	50194049,66



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EXAMPLE

Trezzano sul Naviglio (MI) - via Prati

- **Adaptation to climate change through the vegetated trench in an industrial street**
- **Environmental benefits: trees and green, Landscape improvement**
- **Social Benefits: Health and well-being**

WHERE WE WANT TO GO

- ENHANCED ADAPTATION

- MITIGATION EFFECTS

NATIONAL AND INTERNATIONAL PARTNERSHIPS

- **European Commission** has promoted the formation of **national Hubs** dedicated to Nature-based Solutions (NbS)
- **CMM** is part of the **governing board**
- the **mission** is to promote the conservation of natural areas and the restoration of degraded ecosystems through NbS capable of transforming Italian cities into urban environments integrated with nature and biodiversity, with the goal of promoting the well-being of humanity and the planet
- **How**: Implement nature-based solutions (NbS) in civic and administrative practices, permeating local and national legislation and identifying them as necessary to achieve a just and sustainable transformation of society, which can no longer be postponed under current climate scenarios

IMPLEMENTATION MODEL

The NbS Italy Hub envisions a future in which nature-based solutions (NbS) will not only be implemented, but seamlessly integrated into the fabric of Italian society through a collaborative, multifaceted approach that brings together the expertise and resources of the research community, private sector, local government, and the public, promoting a quadruple helix model of innovation and implementation.

THANK YOU FOR YOUR ATTENTION!

CONTACTS: SVILUPPO.SOSTENIBILE@CITTAMETROPOLITANA.MI.IT