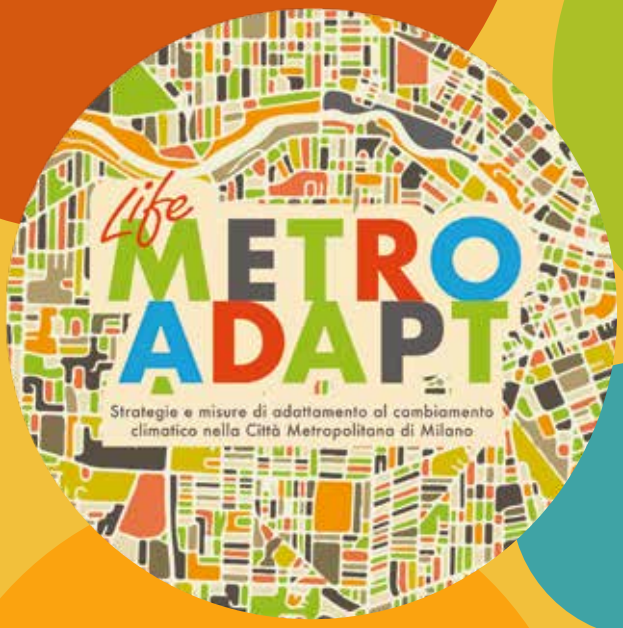
LAYMAN's REPORT



LIFE17CCA/IT/000080

Città metropolitana di Milano

GRUPPO CAP

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LEGAMBIENTE

1 THE PROJECT IN SUMMARY

Europe has been identified by the Intergovernmental Panel on Climate Change (IPCC) as one of the most affected areas by climate change (IPCC, 2014). Southern Europe, and in particular the Mediterranean basin, will be the most affected area by climate change worldwide.

Due to its geographical, territorial and socio-economic characteristics, Lombardy is very vulnerable to the effects of climate change.
The region, with mountain areas and river valleys largely urbanised is and will always be subject to extreme weather conditions. In this context the Metropolitan Area of Milan is particularly exposed to flood risk due to both the expected rise of the maximum flow of the Seveso, Lambro and Olona rivers, and to the water resistance of the urban soil.

PROJECT GOALS

The main goals of Life Metro Adapt are the integration of adaptation strategies to climate change in the metropolitan Area of Milan and the creation of a common governance, through the elaboration of tools, that would allow the local authorities to implement strategies and policies to increase urban resilience. In order to make the metropolitan area of Milan able to prevent and contrast effectively heat waves and hydrological risk, an integrated plan shall be developed to support urban planners and policy makers in establishing the priorities of adaptation activities to climate change and in implementing Nature-Based Solutions.

1 integrating adaptation strategies and measures into the process of elaborationof the Territorial Plan of the Metropolitan City of Milan and into the urban and building regulations of the 133 municipalities involved through an innovative approach identifying intermediate governance entities (the 7 MCM Homogeneous Area);

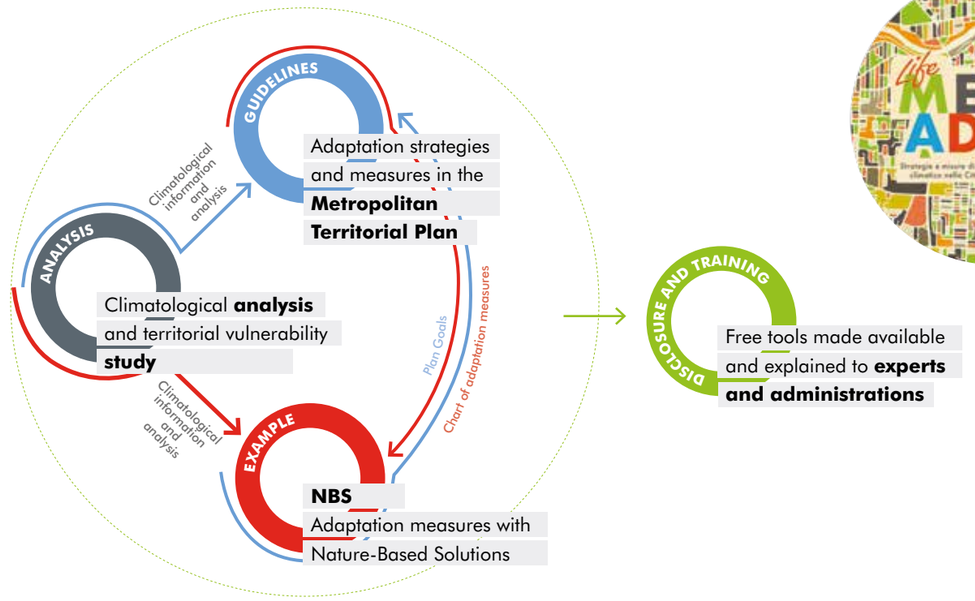
2 setting out and promoting nature-based solutions (NBS) according to a multi-goal approach (flood risk and reduction in heat islands, along with regeneration of the neglected urban space) that improve the technical knowledge necessary for their planning and realization of NBS locally;

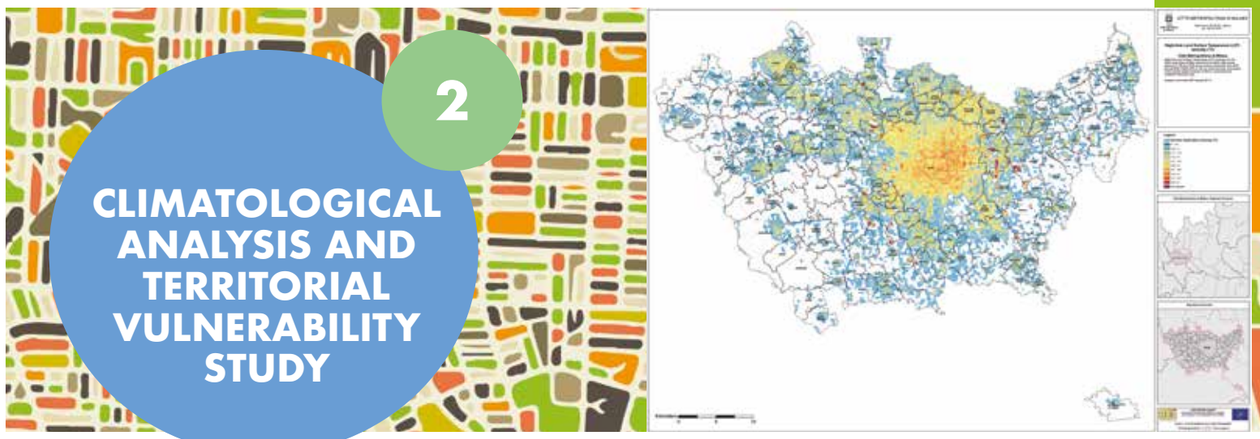
3 improving the grassroots initiatives increasing the awareness and commitment of citizens on adaptation strategies to climate change;

4 making available disaggregated data and tools for meteorological and territorial monitoring that contribute to the development of accurate vulnerability analyses of the 7 MCM Homogenous Areas;

5 Developing a network of Italian and European metropolitan areas enhancing the sharing of adaptation policies and measures and supporting the implementation of Nature-Based Solutions;

6 create and promote a knowledge network to share with local and international stakeholders the best practices, documentation and opportunities.





2 CLIMATOLOGICAL ANALYSIS AND TERRITORIAL VULNERABILITY STUDY

The first project output was the realization of maps of urban heat islands and vulnerability in socio-economic and agricultural terms, along with the detailed definition of hazard maps. Alongside, the guidelines for climate analysis and risk assessment at metropolitan scale were prepared to provide principles and useful references for the Metropolitan City of Milan, its Municipalities and other metropolitan areas. In addition, the guidelines provide a first analysis of the run-off phenomenon in the urban areas, trying to identify all the factors contributing to determine the problematic nature of this complex phenomenon.
All these studies and maps are made available for free in an easily accessible form through the Metro Adapt Platform, published in the website of Metropolitan City of Milan.

3

ADAPTATION MEASURES WITH NATURE-BASED SOLUTIONS

(nature based solutions)

One of the main strategies that a metropolitan area may implement to improve its ability to adapt to climate change, is the planning and systematic development in its territory of nature-based solutions.
Nature-Based Solutions (NBS) are nature-inspired and nature-supported interventions that deliver environmental, social and economic benefits, helping to improve urban areas' adaptive capacity to climate change and resilience. Green roofs and walls, urban woods, alternative rainwater management systems and urban agriculture are just a few examples of solutions that may be implemented in the urban and peri-urban areas. As part of the Metro Adapt project, 20 data sheets have been produced to explain the main nature-based solutions that may be implemented in the urban and peri-urban areas, These data sheets specify the measures' application scale and describe the environmental and socio-economic benefits that may arise from their application and their advantages and disadvantages and they provide examples of best practices.
In addtition to that, an in-depth research and study on the best existing NBS and on the adaptive success of said interventions in the contexts in which they have been implemented was carried out. This led to the realization, as part of the Life Metro Adapt project, of engineer works that are intended to mitigate
the hydraulic risk in heavily urbanized territories.

WATER MANAGEMENT

TECHNICAL GREEN IN BUILT ENVIRONMENT

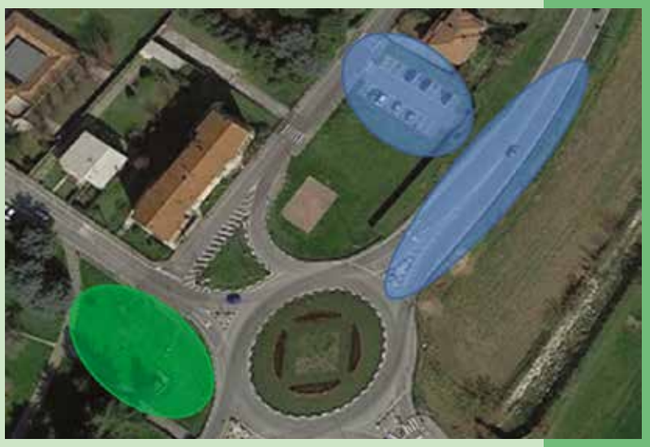
URBAN GREEN IN SOIL

ADAPTATION MEASURES

PILOT INTERVENTIONS

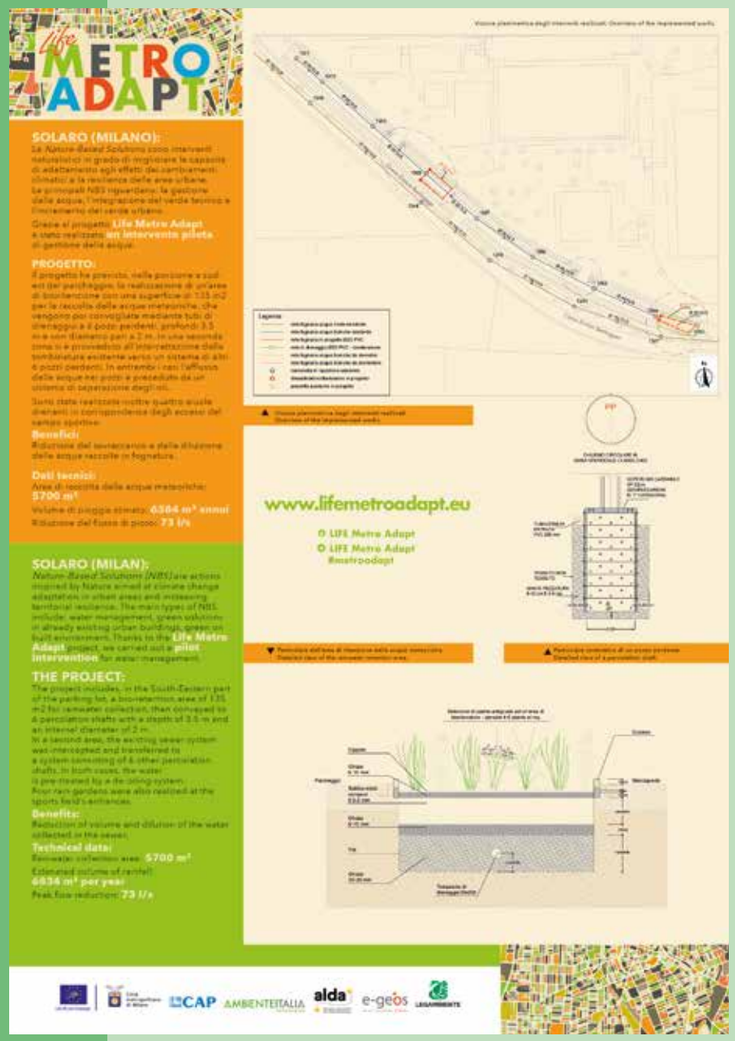
MASATE

Masate is a municipality of almost 3.5 thousand inhabitants located in the north-east part of the Metropolitan City of Milan. Over the last ten years, its population has increased by 35% from 2001.This growing trend has led to the need of new constructions; and has increased the anthropic impact on the land consumption. The interventions realized as part of the Project aim at conveying and disposing in a specific retention system of rainwater coming from a public car park and a portion of provincial road through the installation of specific culverts at a depth of about 1,5 m below the ground level. Indeed, it was calculated that the work is able to reduce the dilution of water collected in the drainage system and the subsequent impact on purification plants during events of intense rain being able to collect an estimated rain volume of 3162 cubic metres per year, with a reduction of the peak flow of 77 litres per second. The water is conveyed through PVC piping for almost 100 metres towards the retention basin having a total capacity of 110 cubic metres, finally delivered to a stream after an appropriate treatment for the separation of oils.



Environmental benefits

Socio-economic benefits



SOLARO

The project entailed the realization of a specific drainage system in a public car park, for the reduction in overload of water collected in the drainage system.
In the south-east part of the car park, a bioretention area was realized with a total surface of 135 m2. Thanks to drainage pipes, it is connected to through drainage pipes, to 6 dry wells 3.5 metres deep and with an internal diameter of 2 m. In a second area, the interception of existing culverts and conferment to a system comprising 6 dry wells more were foreseen. In both cases the inflow of water into wells is preceded by an oil removal system, to prevent the infiltration of oils and hydrocarbons.

In addition, four rain gardens have been realised in correspondence to the sports ground entrances. The system covers a total area for the collection of rainwater of almost 5700 square metres, with an estimated rain volume of 6384 cubic metres per year and will lead to a reduction in the peak flow of almost 73 litres per second.

FEASIBILITY STUDIES

PARABIAGO

The feasibility study realised for Parabiago with regard to the realisation of NBS concerns a service road at an industrial area that needs maintenance and restoration interventions. The whole area is currently paved and includes 7,300 sq. m of road surface, 2,700 sq. m of car parks on both road sides, 3,400 sq. m of sidewalks and some hundreds of green spaces.

BUCCINASCO

The feasibility study carried out for Buccinasco concerns the possible solution to an existing problem of water pollution, due to waste water discharged from an overflow sewerage system in a close stream.

4

ADAPTATION STRATEGIES AND MEASURES IN THE METROPOLITAN TERRITORIAL PLAN

One of the most important project outputs is the integration of adaptation strategies and measures in the Metropolitan Territorial Plan (MTP), whose elaboration path was performed concurrently with the development of the Metro Adapt project (2017-2021).
For the first time in Italy, a territorial plan has introduced to the regulation a section on environmental emergencies dedicated to the protection of non-renewable resources and climate change with simple and repeatable measures and rules in the 133 municipalities of the Metropolitan City of Milan. In the planning policies and territorial government for the reduction in climate change and to prevent climate mutations in the medium and long-term, the MTP has integrated mitigation and adaptation measures. The latter aim at creating a shared system, that can respond to climate change by contrasting its causes and effects, and involve a variety of stakeholders in order to diversify the sectors of intervention.

METRO ADAPT AND METROPOLITAN TERRITORIAL PLAN

How the adaptation measures to climate change were developed in the MTP (Metropolitan Territorial Plan), within the Metroadapt project

WHAT IS MTP?

IT IS THE GENERAL TERRITORIAL PLAN OF METROPOLITAN CITY OF MILAN.
The Metropolitan Territorial Plan was approved by the Metropolitan Council on the 11th of May 2021, with Resolution no. 16/2021. The MTP is a new planning tool that collects the legacy of the provincial coordination territorial plan, extending its competence, and introducing new rules and actions for its whole territory with regard to environment, landscape, infrastructures, services, settlement development, and territorial regeneration.
The MTP regulation's main objectives include the strengthening of the capacity for resilience of the territory in regards to climate change and it dedicates a specific section to environmental emergencies and adaptation policies to climate change.
The regulatory section dedicated to environmental emergencies includes guidelines and directives for municipal plans for the introduction of specific parameters and rules closely related to the topic of adaptation of the metropolitan area of Milan to the climate change. At municipal level, it will work to guarantee that the various components of the TGP (Territorial Government Plan) implement these guidelines and directives, and that the municipalities introduce in their regulations and plans / sector programmes (Green Plan, Traffic Urban Plan, Mobility Urban Plan, Regulations, etc.) criteria and rules that are geared towards a proactive town planning regarding climate change. This is due to the fact that the Municipality is the local entity mainly responsible for the intervention in the planning matter for its competence and scale of intervention. For projects of supramunicipal importance, the MTP intends to proceed with specific agreements, and help the Municipalities join their resources to this end (such as a portion of urbanisation taxes for metropolitan and supramunicipal interventions of use of the soil; rights on municipal lands, etc.), also in search for further funding sources from other entities (regional, national and European co-finance).

HOW DOES IT WORK?

The regulatory provisions of the MTP have effectiveness of orientation, direction, coordination and limitation. The provisions are articulated in:

GUIDELINES • They establish the general lines for the development of planning contents of the metropolitan City and represent a reference, also for municipal and sector plans, in relation to the supramunicipal and metropolitan territorial aspects.

DIRECTIONS • They define the purposes with respect to which the municipal planning and sector makes its action consistent, with the right to deviate in the articulation to the local scale in accordance with the specific characteristics of the different parts of the territory.

DIRECTIVES • They are Coordination provisions that will be implemented and developed at the scale of more municipal detail, which must be observed by the recipient entity in elaboration and implementation of the planning and programming tools, within its competence.

LIMITATIONS • They are provisions that, as a result of superordinate rules, prevail over the municipal and sector planning tools where they are subject to prompt implementation.

METROPOLITAN GREEN AREA

The MPT has developed the Metropolitan Green Network (MGN) as an overall strategy of adaptation to climate change, with particular attention to rainwater management and mitigation of heat islands and as a supporting element for the qualification of the non-urbanized territory.
For the definition of the MGN project the whole metropolitan territory was divided into individual Environmental Landscape Units (ELU) on the basis of specific characteristic of different landscapes, their structure and function. For each UPA, specific project planning priorities were identified. These were then articulated in actions to be implemented preferably through Nature based solutions (NBS) selected according to the different territorial characteristics.

5 DISCLOSURE, TRAINING AND TRANSFERABILITY

THEMATIC SEMINARS
7 thematic seminarson the topic of climate emergency, climate adaptation and NBS, were realised for a general audience. The first seminars were held in presence, while from March 2020, we opted for the webinar mode, due to the Covid 2020 situation. More than 300 people took part in the events.

PHOTOGRAPHIC CONTEST
The goals of the “PhotoAdapt - The impacts of climate change to the Metropolitan City of Milan” were both to promote the knowledge of impacts of climate change to the territory of the Metropolitan City of Milan and to raise awareness that urgent actions are necessary. The pictures had to document and disclose the effects of climate change on our environment and our society. There were 14 competitors with 26 photos awarded at the closing event on the 28th of September 2021.

TECHNICAL TRAININGS
Four training sessions on climate vulnerability and adaptation measures with NBS were organized for experts during the months of June 2020, February and March 2021. Technical and information documents are available in the public platform MetroAdapt. In addition, 2 guided tours at the worksites of the interventions of Masate and Solaro were organised. They were useful for comparison between experts of the local Administrations and exemplification interventions' feasibility.

INTERNATIONAL NETWORKING
In order to create synergies between the project and the European panorama and to maximize the impact of dissemination activities, Metro Adapt took part in several international events that represented important networking moments, for an exchange of high-level experiences and knowledge and the promotion of the replicability of good practices generated by the project, thanks to the participation of stakeholders coming form all over the world. In particular, the international networking happened mostly during the following initiatives: the European Week of Regions and Cities, the European Green Week with three webinars on the adaptation of cities to the climate change and NBS the initiative All4Climate-Italia 2021 in view of the Pre-Cop26 hosted in Milan. Finally, during the “Nature of Cities Festival” the project had visibility worldwide thanks to the organisation of thematic workshops and a virtual tour of pilot pilot interventions realised for the project in the Metropolitan City of Milan.

GUIDELINES
The project drafted some simple guidelines, that are useful in the implementation of sustainable Drainage Systems through Nature Based Solutions. A first set of guidelines provides a support to the opportunities and financing methods of NBS using different local, supralocal and national tools.

A second set of guidelines, on the other hand, concerns the reference technical standards for the realisation of works using NBS.

INVOLVEMENT OF RIVER CONTRACTS OF LOMBARDY REGION

The LIFE Metro Adapt project, through Metropolitan City and Legambiente Lombardia, has officially got involved with the coordination of River Contracts of the Lombardy Region. In this context, the project shared elaborated and pilot projects realised that were later sent to the signers of each Contract.

THEATRE PERFORMANCES

Climate change is in the public eye and represents an urgent need to reflect and act on, even through art. The theatre show “Pale Blu Dot” was performed live eight times in six theatres of the metropolitan area of Milan (Cormano, Parabiago, Paullo, Cesano Boscone, Gorgonzola and Milan) and it was once streamed remotely using the Youtube live streaming. The performance “Gli Alberi Ballano” [The Trees Dance] was streamed online for schools on the 3rd of June 2021 during the World Environment Day and has seen the participation of almost 700 students.

COMPARISON AND SHARING WITH LEGAMBIENTE CLUBS NATIONWIDE AND AT INTER-REGIONAL LEVEL

Legambiente has organised 2 working moments with the circles of the metropolitan cities of Bologna and Firenze that were held remotely and involved about fifty people. The LIFE Metro Adapt project was also presented within the thematic team work “Lotta alla crisi climatica” [Fighting the climate crisis] during the national Assembly of Legambiente circles that was held online on the 26th of October 2020, with over 200 members connected from all over Italy.

LEGAMBIENTE CLUBS ADAPTATION MANIFESTO

The Manifesto is the result of the work that Legambiente has been carrying out for years in various areas, including the Metropolitan City of Milan.

It also collects, though, the concerns of citizens and other associations that are asking a stronger commitment from local institutions which, even if working on climate issues for some time, need to take more decisive steps. The manifesto represents the commitment, of the territorial circles of Legambiente, to spread more and more the topic in the territory and to maintain a vigilant and constant commitment towards the institutions. The manifesto was sent to the 26 circles, 10 of which have already signed the commitment.

COMMUNICATION

The effects of the climate change can be contrasted by municipalities and citizens with a set of rules on “resilience” measures directed to the largest number of targets, and by using all the necessary communication tools, not only traditional media, but also social networks.

SOCIAL NETWORK & NEWSLETTER

Alternative channels, such as social media and a project newsletter were developed in order to keep the stakeholders and audience in general public updated on the project development and significant news concerning the climate change and urban resilience.

- **More than 700 followers in various social media**
- **Online website from:** 2018
- **Number of users/visitors from 2018:** 217,285
- **Number of single visits from 2018:** 28.432
- **Newsletter subscribers:** 1000
- **Newsletters sent:** 8

During the project, 8 information videos were recorded, both in english and italian, and included diagrams, interviews, case studies and project actions. Moreover one educational video was recorded for students and school activities.

DISSEMINATION ON MEDIA	
Dissemination on institutional media	10 press releases 18 articles
Radio Televisions	1 passage 1 web service

PARTNERSHIP

Città metropolitana di Milano

The Metropolitan City of Milan was established by the Law 56/2014 and replaces, as of 1st January 2015, the pre-existing Province of Milan. The entity rules the largest Italian metropolitan area, it extends over a surface of 1,574.37 km2, includes 134 municipalities including the city of Milan and has a population of more than 3 million inhabitants.

alda European Association for Local Democracy

The European Association for Local Democracy is a non-profit organisation, established in 1999 at the initiative of the Congress of Local and Regional Powers of the Council of Europe to coordinate the Local Democracy Agencies (LDAs). Its mission is the promotion of the good local governance, sustainable development and dialogue between local authorities and civil society. ALDA gathers together more than 350 members from more than 45 Countries.

AMBIENTEITALIA we know green

Ambiente Italia is one of the main Italian environmental consulting companies, active for over twenty years in Italy and Europe, with an interdisciplinary team of experts. The technical support in planning processes for local administrations has always represented the heart of its activities, with important projects in the field of territorial planning, resilience, and adaptation to climate change.

CAP Gruppo

CAP Group is the 100% publicly owned company managing the integrated water service in the territory of the Metropolitan City of Milan according to the in-house providing model, ensuring the public control of institutional members in compliance with the principles of transparency, responsibility and participation, ensuring the integrated water service to more than 2 and a half million inhabitants.

e-geos AN ASI / TELESPAZIO COMPANY

e-GEOS is international leader in the sector of Earth observation and “Geo-Spatial Information”. Also thanks to great capacity for monitoring offered by the Italian constellation COSMO-SkyMed and the role in the European programme Copernicus, e-Geos offers a unique portfolio of application services, such as monitoring for environmental protection, rapid provision of maps to support the management of natural disasters, products specialised for defence and intelligence, interferometric measurements in landsliding territories and the analysis of soil subsidence, production of thematic cartography for agriculture and silviculture and many others.

LEGAMBIENTE

Legambiente Lombardia is an association born in 1980, whose distinctive trait is the scientific environmentalism, which has allowed to accompany every battle with the indication of concrete, realistic, feasible alternatives. With 85 local clubs, it performs its actions in the whole regional territory, promoting particular initiatives in favour of the quality of natural resources, sustainable mobility, circular economy.

Life

LIFE PROGRAMME

LIFE is a financial instrument of the EU established in 1992 to support projects carried out in the EU, focused on the conservation of the environment and nature.

More information available in:
http://ec.europa.eu/environment/life

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