



BLUE AP Project

Local Climate Change Adaptation Plan for the city of Bologna



adaptation

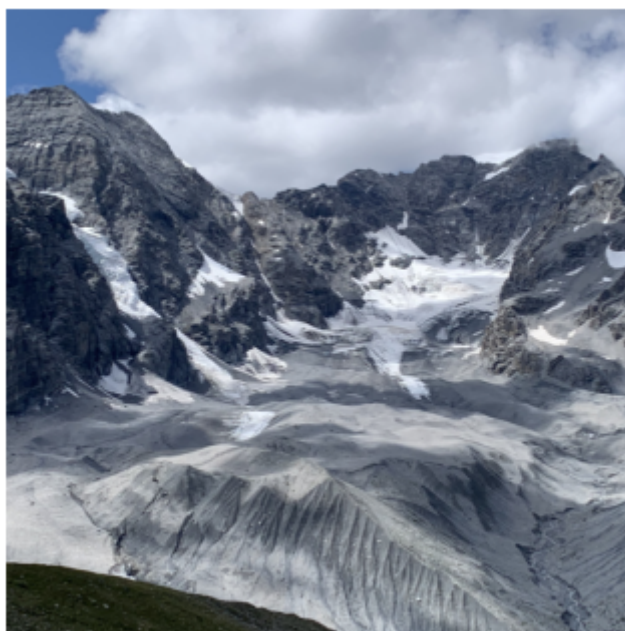
climate change

risk management

PROJECT DESCRIPTION

In recent years the **city of Bologna** has been affected in different ways by the impacts of climate change, in fact commentaries tell more and more often about damages due to heavy rains causing landslides and instabilities, floods and damages to infrastructure. To face these challenges the Municipality of Bologna in collaboration with *Ambiente Italia*, *ARPA Emilia Romagna* and *Kyoto Club*, wanted to develop, through the BLUEAP project, a **Local Adaptation Plan to climate change** together with the experimentation of some effective and tangible **pilot actions**, to be implemented on the territory of Bologna in order to make the city more resilient. The general purpose of the initiative was to prepare the governmental bodies and citizens to cope more effectively with heat waves, droughts, floods (reactive adaptation) and other effects of climate change, while reducing existing vulnerabilities on territory (anticipatory adaptation).

Bologna is therefore one of the first pilot cities in Italy to adopt the necessary measures to face the challenge of **global warming**, which is now a priority for both the public and private institutions. BLUEAP also fits inside of the framework of commitments that the city has made on issues relating to climate change, including the Sustainable Energy Action Plan (SEAP) and the project Life GAIA - urban forestation.



OBJECTIVES

The project has the following specific goals:

- to create an innovative information system integrating environmental and social data able to produce new information about environmental risks and the best strategies to adopt in order to face them;
- to raise awareness of local authorities, socio-economic players and citizens on the real risks associated with climate change in the Bologna's territory, motivating them to adopt more environmentally conscious behavior and to responsibly manage the water resources;
- to offer technical support and training to local stakeholders, with the aim of planning and enacting some actions outlined in the Adaptation Plan. BLUEAP has also played the role of a start-up by launching pilot actions in the Bologna's territory with the participation of local companies and I players;
- to monitor and evaluate the effectiveness and sustainability of the actions taken and the results obtained during the implementation of the project;
- to share and communicate the guidelines and results of the project, promoting the dissemination and exchange of the generated know-how, to allow other local communities to use the developed models.

PROJECT PHASES

The main actions of the project concerned:



- **Local Climate Profile (LCP):** the action focused on the analysis of climate variability at different levels - European, Italian, regional (Emilia Romagna) and local (Bologna) - on which future climate scenarios were built. The analysed climate variables were the minimum and maximum temperature and the amount of precipitation, both in medium and extreme fields. The second part of the action was focused on the analysis of the territory, by identifying the main vulnerabilities arising in relation to the climate projections.
- **Participatory process:** this action was aimed at developing, further refining and implementing a replicable process of bottom up participation in order to face the climate challenges with the support of the local community, involving politicians, citizens, representatives of the production sector, etc. Within the participation process the scheme for the definition of the Adaptation Plan has been developed: each vulnerability identified in the Local Climate Profile has been associated with a strategy and a selection of actions.
- **Adaptation Plan:** the aim of the action was to define the Local Climate Change Adaptation Plan for the city of Bologna which was developed with reference to three main themes, i.e.: drought and water scarcity, heat waves in urban areas, extreme rainfall events and hydrogeological risk.
- **Pilot actions:** implementation of pilot actions aimed at creating resilient communities in order to raise awareness of climate change risks.
- **Monitoring of the project actions' impacts:** [monitoring](#) was based on two main instruments: the "Monitoring protocol on climate change impact risk and vulnerability", based on the provisions of the LCP, and the "Monitoring protocol of adaptive interventions in Bologna".

The project included, moreover, an intensive **communication, networking and dissemination activity** in order to inform the public and raise its awareness about adaptation to climate change, as well as to disseminate the project results at local, national and European level through the development of communication tools (video, brochures, pictures, posters, gadgets) and the participation in national and international events.

PROJECT RESULTS

The project has contributed to provide the city of Bologna with the **necessary tools to face climate change challenges and increase the resilience of the Bologna's territory**, involving both the public and private sectors, increasing the awareness of key stakeholders, citizens and politicians about the risks and vulnerabilities related to climate change. **The planning and experimental work done by BLUEAP provides support also for the definition of similar Adaptation Plans**, which can be adopted by any of the medium size Italian cities.

Among the main results and deliverables of BLUEAP project the following can be highlighted:

- Creation of the [Local Climate Profile](#), which contains information about the territory's vulnerabilities relating the climate change, highlighting the risks and the opportunities of resilience. The document consists of two parts: the first part focuses on climate analysis observed, starting with regional scale (Emilia-Romagna region) down to local scale, on which some climate scenario models are applied with reference to the coming decades. The second part analyses the territory, by identifying the main vulnerabilities of the urban system emerging from the climate projections: **heat waves, water scarcity and hydrogeological instability**. The analysis of the territory made it possible to identify, in addition to the criticalities, also some resilience factors (outcome of some local and European projects, as well as of the urban planning) that have already achieved positive results in terms of better resource management.
- **Development of a reference map to visualise risk factors** emerging from the climate analysis and to identify policies and actions, highlighting areas characterized by greater potential for resilience and thus representing a chance for the Adaptation Plan's policies. The innovation of this cartographic elaboration concerns the combination of climate and demographic data with other specific territorial elements, such as the "floodable areas". Subsequently a **territorial database** (MOKA web-GIS platform) of the Adaptation Plan was developed.
- **Development of a replicable bottom-up participatory process.** The process included, among other initiatives: three public events in Bologna (50 participants), 18 area based district workshops, the distribution of 100 questionnaires on the financial challenges and knowledge about the climate change issues, 1 internal peer-review, 1 discussion session with other EU cities, 2 round tables with experts, 3 thematic sessions on agriculture, industry and civil society, 5 focus groups (themes: urban greening, agriculture and urban gardens, extreme weather events, projects for the permeabilization of commercial and industrial areas, economy and development of the territory), 20 restricted sessions and 1 session with the Municipality's policy makers .
- **Greater awareness about the risks associated with climate change, by stakeholders, local authorities, citizens and enterprises.**
- Preparation of a "[Adaptation best practices](#)": the document contains a review of measures, already carried out in Italy and abroad, that can improve the ability to adapt to climate change effects , mainly concerning the topics "greening" and "waters" Elaboration and approval of the "[Local climate change adaptation strategy](#)". The [document](#) has been



developed with the aim of enhancing the resilience of the Bologna's territory, through the definition of a Local Climate Change Adaptation Plan and the experimentation of pilot actions to be implemented in the Bologna's territory.

- Development of the **Local Climate Change Adaptation Plan for the city of Bologna** ([Resolution of the City Council](#)): the Plan outlines the strategies able to confront the critical situations highlighted in the Local Climate Profile and identifies a series of actions which refer to national and international best practices in the management of green spaces for the refreshment of interior and exterior environments, as well as in water management, both in terms of reducing consumption and of managing intense weather events. The Plan provides guidance on what to do and how to do it, paying particular attention to the interaction between the different levels of government in the territory and the private individuals concerned by (and later on directly involved in) the implementation of the Plan's actions, in order to integrate the policies and the tools of the district administration with those of higher government, especially regarding water supply and hydrogeological instability. The implementation of the steps outlined in the Adaptation Plan will also occur through upgrading the territory's regulation and planning tools.
- Development of the report "[Stakeholder engagement outcomes](#)" which outlines the **10 pilot actions** tested in the Bologna's territory with the involvement of the stakeholders. The actions were focused on: the new goals for water saving set out in the Urban Building Regulation; guidelines on infrastructures at risk; the launch of the "Green up Bologna" information campaign; the improvement of the drainage capacity of sealed surfaces; the creation of rainwater collection systems and the sustainable water management; the promotion of insurance mechanisms.
- Creation of the [App Play BlueAp](#): the first smart online device that actively involves the citizens in themes related to on the climate change, particularly about the Adaptation Plan of the City of Bologna. The APP is a tool able to spread scientific knowledge derived from the BLUEAP project and to gather the adaptation abilities available in the territory of Bologna. Citizens are invited to tell what they can do for the environment through their own Twitter account, and then they are awarded on the basis of an online ranking. The citizens of Bologna are in fact called upon to take practical actions for their town through a certain number of suggested activities divided online into the following categories agriculture, health, cities, resilience, biodiversity, water, extreme meteorological events - disasters.



Acronym

BLUE AP

Number of reference

LIFE11 ENV/IT/000119

Reference Programme

[LIFE](#)



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EU contribution

493.025,00

Call Year

2011

Start Year

2012

End Year

2015

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Region

Emilia-Romagna