



Project Gaia

Green Areas Inner-city Agreement "GAIA"

adaptation

climate change

carbon emissions

greenhouse gas

mitigation

PROJECT DESCRIPTION

"Who pollutes ... must plant trees". This could be the slogan of the basic idea behind the **GAIA** project which was aimed at involving the local enterprises in a public-private partnership in order to offset part of their greenhouse gas emissions through **planting new trees** in the municipality of Bologna. The urban greenery can indeed bring great benefits in terms of **mitigation** of **and adaptation** to the greenhouse gas emissions thanks to the biological functions of the plants allowing the CO₂ absorption and the air purification from the pollutants, thus contrasting the "heat islands" effect typical of the cities. The **urban forestation** activities can encourage the requalification of urban spaces and also improve the quality of life in the cities with social benefits.

The need to expand the green spaces in order to improve the quality of life in the city goes hand in hand with the growing interest of companies to undertake a voluntary path towards environmental sustainability.

The project was aimed at creating a synergy between local stakeholders (especially public authorities and enterprises) that have committed themselves to combine their expertise and resources to achieve a common goal, by developing innovative tools and operating procedures for the use of urban forestation as a means of environmental governance.



OBJECTIVES

The project had the following main objectives:

- providing the companies with tools and competences to reduce their carbon footprint through compensatory actions which generate environmental and social benefits in the territory;
- promoting co-responsibility on the territory thanks to an innovative management model that fosters tree planting in urban areas;
- define a common and replicable methodology for calculating the air pollutants sequestration potential of the new plantations so as to quantify the environmental benefits; raising stakeholders' awareness of environmental benefits resulting from policies for fighting climate change also at local level.

The governance structure of the partnership included: a **Steering Committee** composed of the Municipality of Bologna, the non-profit association *Impronta Etica*, the Association of Manufacturers and enterprises of Rome, Frosinone, Latina, Rieti, Viterbo (*Unindustria*), the Institute of Biometeorology of the National Research Council (*CNR- Ibimet*) and the *Cittalia Foundation*; a **Gaia Promoting Group (GPG)** constituted by some companies which were the first to become available to realize a pilot project and spread the GAIA initiative to other companies (*Hera, Manutencoop, ENEL, G. Marconi Airport, Unipol, La Perla, M. Casale Bauer, Coop Adriatica*); and an Ethics Committee (composed of the 9 Presidents of the districts of the city) to ensure the fairness and transparency of the process.



PROJECT PHASES

The main project activities concerned:

- **the collection of best practices and the development of the partnership model.** The search of virtuous experiences focused, particularly, on the forestry sector and led to the analysis of 60 case studies. The most interesting ones (39 best practices and 5 methodologies) were collected in a report. The model of the public-private partnership was also developed, identifying the actors to be involved, the common objectives, the targets and the benefits for each category;
- the definition of the **technical tools** needed to support the public-private partnership and to make it replicable. The scientific partner CNR-Ibimet selected the 24 tree species used for the GAIA project taking guidance from the Green Areas Regulation of the Municipality of Bologna and evaluating important factors such as the pollutant (CO₂ and PM₁₀) absorption potential, the release of volatile substances and the specific "allergenic" parameter. The identified tree species were collected in a database and a *Green Urban Areas Management Protocol*, a *Green Urban Areas Monitoring Protocol*, as well as a *Visibility and Communication Protocol* were developed;
- the development of a **map** of companies to get potentially involved in the project on the basis of specific criteria, the establishment of the **Gaia Promoting Group (GPG)** and the signature of a **pre-agreement** by 19 companies (including the GPG members);
- **the selection of the areas where to plant the trees.** The interested companies voluntarily pledged to contribute to creating green areas, thus balancing the emissions resulting from some of their activities or selected products. GPG played a very important role contributing actively to the definition of the technical annexes of the GAIA project and to the implementation of the first three pilot interventions (*Villa Angeletti* park, courtyard of *Palazzo d'Accursio* and part of the industrial area "*Le Roveri*");
- the development of the carbon footprint calculation toolkit;
- in the last phase of the project, the setting up of a group of international experts (**EDRG- European Dissemination Referee Group**) for the assessment of the obtained results and their transferability;
- the elaboration of Guidelines for cities and companies.

PROJECT RESULTS

The project created knowledge, innovative tools and ways of using the urban forestation. Through the public-private partnerships, GAIA managed to create a partnership between different actors of the territory (24 [companies](#), [craft associations](#), institutions) and allowed to talk about environmental sustainability (in particular CO₂ and carbon management) to a wide and varied audience.

Thanks to the results achieved within the GAIA initiative, in 2013 the Municipality of Bologna approved an Executive Committee act (Delibera di Giunta PG.147297/2013) expecting the GAIA project to become a fully-fledged and permanent instrument of the administration to reduce CO₂ emissions.

Among the main project results there are:

- **1.321 trees planted and 3.963 tons of CO₂ absorbed** (data updated at March 2015);
- **24 areas** (among public urban parks, hillside parks and heritage areas) selected for planting the trees. Among the selection criteria of these areas there are the environmental and social valence, as well as the requalification level and the visibility of the areas;
- Creation of an [online database of the identified 24 tree species](#). The selection of the species to be planted was carried out by analyzing the eco-physiological characteristics of the plants such as CO₂ absorption, potential capacity to capture particulates, removal of gaseous pollutants, VOC (Volatile Organic Compounds) emissions and ozone forming potential;
- development the **carbon footprint calculation toolkit** (certified by DNV - Det Norske Veritas). It is an easy-to-use tool that allows companies to measure autonomously the amount of CO₂ emissions deriving from their products/services and to decide what to neutralize in line with the contribution they decide to provide;
- elaboration of a [Partnership Agreement Protocol between the Municipality of Bologna and the local enterprises and associations for the implementation of project's objectives, with 4 Annexes](#): Annex 1. "*Instructions for the signature of the Protocol*"; Annex 2. "*Selection of the areas*" (it describes the process adopted by the Municipality of Bologna for selecting the areas where to plant the trees); Annex 3. "*Selection of the trees and monitoring of the environmental mitigation*" (it identifies and defines an urban greenery impact analysis model, as well as criteria and data for assessing and monitoring the CO₂ absorption and the mitigation potential of the planted trees); Annex 4. "*Partnership model and visibility opportunities for the companies*";
- publication of the [Guideline "A wonderful enterprise"](#), with all the elements to join the project, as well as the benefits



- and the opportunities of visibility for the companies;
- development of two separated **Guidelines** that can be downloaded from the project website ([Path for the cities step by step](#) and [Path for the companies step by step](#)), aimed at allowing other municipalities (or other equivalent local authorities) or companies to replicate the GAIA project;
- the Municipality of Bologna has received **several requests from young couples willing to buy a tree** on the occasion of their marriage. Standardized administrative procedures to regulate the donation of money for the purchase of trees by individuals or groups of citizens are in preparation.



Acronym
GAIA

Number of reference
LIFE09 ENV IT 00074

Reference Programme
LIFE

Beneficiary Coordinator
Comune di Bologna

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EU contribution
600.000,00

Call Year
2009

Start Year
2010

End Year
2013

Beneficiary headquarters

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Region
Emilia-Romagna

Description

Bologna