

### *Presentation*

## **VEG-GAP: THE FIRST EUROPEAN PROJECT STUDYING THE RELATIONSHIP BETWEEN URBAN GREEN, TEMPERATURE AND AIR QUALITY IN AN INTEGRATED HOLISTIC WAY**

*The cities of Bologna, Madrid and Milan are under investigation during the three years LIFE Preparatory VEG-GAP project. Eight partners - between Municipalities, research institutes and companies - at work to offer public administrations useful information and tools to develop air quality plans that take into consideration the characteristics of urban vegetation ecosystems and to empower the citizens with more information on vegetation's impact on their air.*

How does urban green affect the temperature and air quality and, consequently, the well-being of citizens? Which species are best suited to plant in urban areas? How much and where should vegetation be in the city? These are some of the questions that the **European VEG-GAP project, funded by Life Programme for the Environment and Climate Action** aims to answer in depth.

By 2050 there will be 6 billion people living in city centres and today it is estimated that over 70% of harmful emissions for the planet come from the cities. Therefore, it is essential to find solutions that address the problem of pollution from the cities as well as maintaining and improving their natural ecosystems and citizens' health. The VEG-GAP project is inspired by the awareness that urban green is an extraordinary resource for the air quality of cities due to its ability to regulate thermal comfort and clean the air. However, vegetation also emits gases in atmosphere, so-called biogenic volatile organic compounds (BVOC) that contribute to the formation of secondary pollutants such as ozone (O<sub>3</sub>) and an important part of atmospheric particulate (PM10). Therefore, for the first time, the Life Preparatory project VEG-GAP will investigate the vegetation's effects on the air quality in the cities, its impact on temperatures and further changes on air pollution.

The project task is also understanding if the urban green, in some chemical and atmospheric conditions, can entail health risks for humans and vegetation ecosystems, due to its contribution through BVOC emitted by the vegetation, to the production of ozone and of secondary particulate matter.

The issues that VEG-GAP faces span a wide range of interactions such as between plant ecosystems and pollution, plant ecosystems and meteorology, pollution and human health, pollution and plant ecosystem health, etc.

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**Bologna, Madrid and Milan are the three project cities.** VEG-GAP starts from an in-depth study of the current state of the green and air quality in the three metropolitan areas, taking an integrated approach that examines the transport and formation of pollutants in the atmosphere, from continental to city scale, together with the presence of buildings and vegetation, in different weather conditions. Then, the evaluation of the impact of urban green development scenarios on air pollution and temperature will follow.

**VEG-GAP started in December 2018 and will end in December 2021. The project is coordinated by ENEA** and involves as partners the Metropolitan City of Bologna, the Municipality of Madrid, the Municipality of Milan, ARIANET, CREA, MEE0 and the University Polytechnic of Madrid. The total budget is 1,666,667 euros with an European funding contribution of 1,000,000 euros.

**The results of VEG-GAP will be made available on the website (<http://www.lifeveggap.eu>) and on a collaborative IT platform designed to be used by the competent authorities to plan their interventions on urban vegetation and pollution reduction as well as to inform citizens.** During the three-year period different documentation will be produced including a database, guidelines and a manual. Another objective the project aims at is to provide recommendations to improve existing legislation on the protection of air quality in European cities. Finally, demonstrative days will be organized in four cities, Bologna, Madrid, Milan and Rome, to explain in more detail to the local stakeholders the information platform data and the methodologies/approaches developed in the project and to encourage the replicability of the project. An important part of the meeting will be dedicated to training on project platform and to gather feedback from the audience on the specific problems in these cities. These days also aim to encouraging other interested cities to replicate the project and use the IT platform.