

Population Exposure to PAH

Project background

Among persistent organic pollutants (POPs), polycyclic aromatic hydrocarbons (PAHs) are a class of complex organic chemicals of increasing concern. They are ubiquitous in ambient air and some have been identified as suspected carcinogens. PAHs and their derivatives are produced by the incomplete combustion of organic material. In highly urbanised areas domestic heating and motor vehicles are the largest contributors of PAHs. As a consequence populations living in these areas are exposed to pollutants that have potential negative health effects (e.g. lung, skin, and bladder cancer, DNA damage and increased risks of cardiopulmonary mortality).

The EU Directive 2004/107/EC sets annual average target values for particulate matter. Furthermore, this directive requires each Member State to monitor various relevant PAHs.

Italy has placed PAHs on the 2009 national annual priority list, with the aim of developing a database able to support related policy actions.

Project objectives

The project aims to address the environmental and health problems caused by the emission, dispersion and transformation of PAH compounds. Its overall goal is to identify and to quantify exposure among children and elderly people to PAH content in particulate matter in the city of Rome and to assess the impact on human health, in order to support environmental policy and regulation in this field.

An integrated approach, based on measurements and modelling techniques, will be used.

The project will build a prototype assessment method to provide basic knowledge on concentrations of PAHs in the city and their health impact. Analyses will be carried out to evaluate the effectiveness of possible reduction measures.

The work will contribute to the development, assessment, monitoring and evaluation of environmental policies at local and national levels. The obtained results will also provide a valuable support to EU legislation concerning PAHs.

LIFE09 ENV/IT/000082
EXPAH



Beneficiary:

Type of beneficiary
Research institution

Name of beneficiary
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Duration of project:
39 months (01/10/2010 - 31/12/2013)

Total budget in euro:
2,037,749.00

EC contribution in euro with %:
978,202.00 (49.98 %)

Generic theme:
Air quality management and noise abatement

Expected results

The project is expected to produce the following results:

- A full emission inventory of air pollutants with PAHs for Rome;
- Datasets of indoor-outdoor PM_{2.5} and speciated PAHs as well as elemental and organic carbon particulate matter levels in dwellings during summer and winter;
- A dataset of personal exposure to PM_{2.5} and PAHs;
- An infiltration and exposure model with software prototypes;
- Annual and seasonal exposure maps to PM_{2.5} and speciated PAHs for children and elderly people; and
- A database for health assessment with prototype software.