



# The LIFE Programme: over 20 years improving air quality in the EU

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# The LIFE Programme

## L'Instrument Financier pour l'Environnement

The only EU funding tool dedicated exclusively to the Environment and Climate action

- Since 1992
- 4 306 projects approved (**over 300 on air quality**)
- €3.46 billion for 2014-2020
- Two sub-programmes:
  - LIFE Environment
  - LIFE Climate Action



# LIFE & air quality (I)

## Main themes/sectors tackled:

- Sustainable urban mobility
  - Monitoring and modelling air quality
  - Capacity
- behavioural change
  - Industry, agriculture, waste, and energy

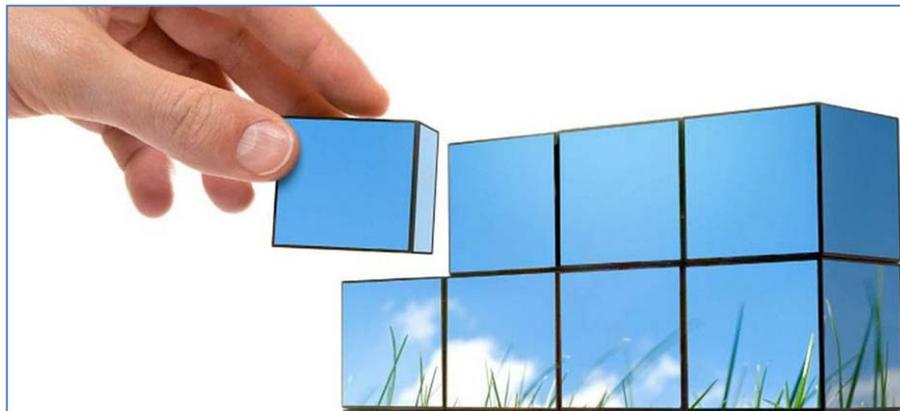


Photo: LIFE09 ENV/BE/000409

# LIFE & air quality (II)

- **Sustainable urban mobility**

→ [Hyper Bus](#) – Hybrid and plug-in bus system

→ [CMA+](#) - Application of Calcium-Magnese Acetate for reduction of PM10 (See also '[KAPA GS](#)' and '[SPAS](#)')

→ [LIFE EQUINOX](#) – Asphalt treatment for NO<sub>x</sub> removal



Photo: LIFE09 ENV/AT/000226

# LIFE & air quality (III)

- **Monitoring and modelling**  
air quality

→ EXPAH – Population exposure

to polycyclic aromatic hydrocarbons

→ ATMOSYS – Policy support system for atmospheric  
pollution hot spots

→ LIFE DIOXDETECTOR – Fast Direct Atmospheric  
Dioxin Detector



Photo: LIFE05 ENV/RO/000106

# LIFE & air quality (IV)



Photo: LIFE11 ENV/DE/000495



Photo: LIFE12 ENV/IT/000578

- **Capacity building and behavioural change**
  - [CLEAN AIR](#) – capacity building, promotion of best practices and increasing public awareness
- **Industry, agriculture, waste, and energy**
  - [ES-WAMAR](#) – Management of swine waste
  - [TANwater](#) – Reduction of Nitrogen discharge from the leather industry

# LIFE & air quality (V)

All these projects have targeted several **EU air legislations**, including:

- the Geneva Convention on Long-Range Transboundary Air pollution (Council Decision 81/462/EEC)
- the Ambient Air Quality Directive (2008/50/EC)
- the Industrial Emissions Directive (2010/75/EU)
- the NECs Directive (2001/81/EC)
- the Clean Vehicles Directive (2009/33/EC)



*Photo: European Commission*



## LIFE05 ENV/IT/000870 **CEDM** – Centre for Eco-Friendly City Freight Distribution



**Project beneficiary:** Comune di Lucca

**Main aim:** To implement innovative urban logistics models to reduce the environmental impact of goods distribution in the historical city of Lucca

**Methodology:** To develop an integrated system for centralising and optimising all good deliveries to the city centre, consisting of:

- a CEDM logistic centre
- a Web-based IT platform for the logistic base
- an Ecological vehicle fleet (electric propulsion)

**Methodology with high transferability potential!**



## RESULTS

### The project found that:

By reducing by 1/3 the number of non-ecological freight vehicles, it was possible to achieve reductions of:

- 35% in emissions of the most harmful air pollutants (CO, PM, NO<sub>x</sub> and VOC)
- 2.8 dBA in the average noise levels during the day

By reducing by 2/3 the number of non-ecological freight vehicles, it was possible to achieve reductions of:

- 75% in emissions of the most harmful air pollutants (CO, PM, NO<sub>x</sub> and VOC)
- 8.6 dBA in the average noise levels during the day





## LIFE09 ENV/GR/000289 **ACEPT-AIR**

Development of a cost-efficient policy tool  
for reduction of PM



**Project beneficiary:** Greece's National Centre for Scientific Research (NCSR)

**Main aim:** develop a user-friendly decision-support tool for the reduction of PM concentration

### **Methodology:**

- To record detailed airborne PM levels in Athens, Thessaloniki and Volos
- To develop a decision-support tool for processing information, creating scenarios and proposing solutions
- To produce guidelines for the reduction of PM concentration



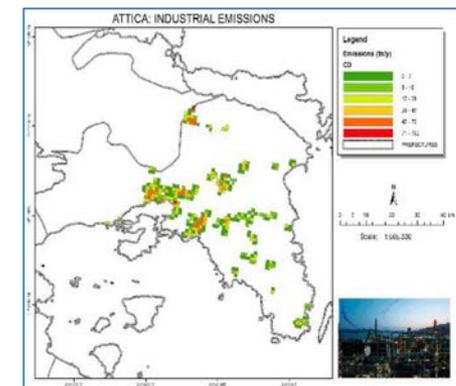
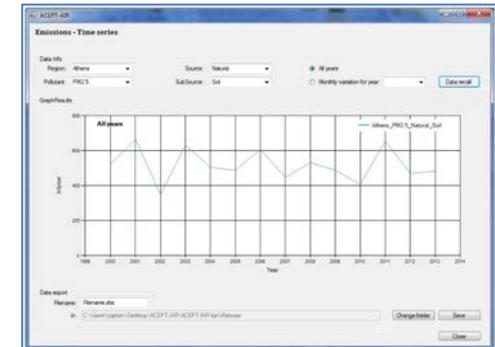
## THE ACCEPT-AIR SOFTWARE TOOL

- Pollutants covered:

CO, CO<sub>2</sub>, NMVOC, NH<sub>3</sub>, NO<sub>x</sub>, O<sub>3</sub>,  
PM (2.5, coarse, 10), sBVOC and SO<sub>2</sub>

- Represents emissions and concentrations by:

- kind of pollutant
- geographical area
- source, sub-source
- time frame (variation by year, month, day)



# THE ACCEPT-AIR SOFTWARE TOOL (II)

- Forecasts of concentrations & emissions

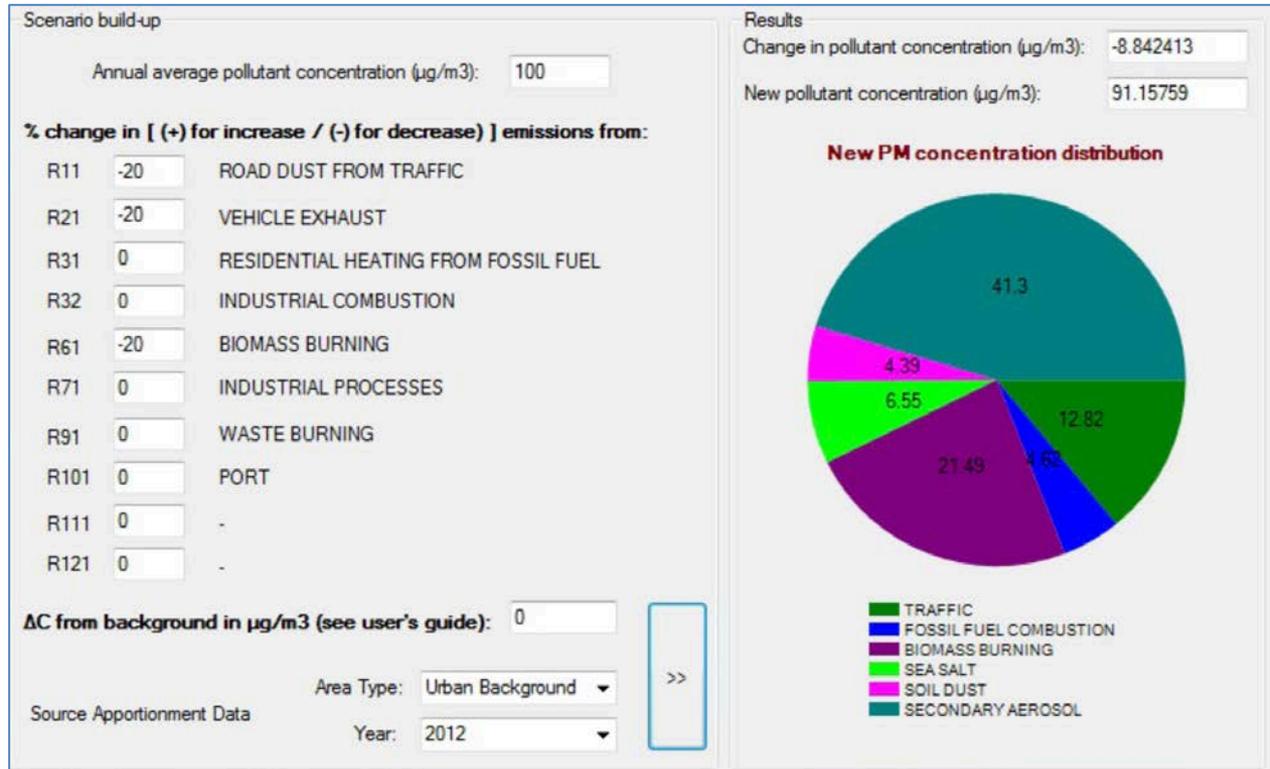


Figure 1. Forecast of PM<sub>2.5</sub> concentration change. User guide of the ACCEPT-AIR software tool

## DELIVERABLES

Project results hold **high transferability potential!**

- ***ACCEPT-AIR decision-support tool:***

- Free software: available upon request from the project beneficiary:

- Contact person: Ms Lila DIAPOULI

- Tel: +30 210 6503008

- +30 210 6503259

- Email: [ldiapouli@ipta.demokritos.gr](mailto:ldiapouli@ipta.demokritos.gr)

- Users guide: [http://www2.ipta.demokritos.gr/accept-air/D15-ACCEPT-AIR\\_Tool.pdf](http://www2.ipta.demokritos.gr/accept-air/D15-ACCEPT-AIR_Tool.pdf)

- ***Guidelines for the reduction of PM concentration:***

- <http://www2.ipta.demokritos.gr/accept-air/D20-Action%20Plan.pdf>





## LIFE10 ENV/IT/000327 **MED-PARTICLES**

Particles size and composition in Mediterranean countries:  
geographical variability and short-term health effects



**Project beneficiary:** Azienda Sanitaria Locale Roma E -  
Dipartimento di Epidemiologia

**Main aim:** Increase knowledge of PM pollution and its short-term effects on public health

**Methodology:** Evaluation of

- Geographical differences in particles size and composition in 14 Mediterranean cities
- Frequency of Saharan dust and forest fire days
- Short-term health effects of fine and coarse particulates



## FINDINGS (I)

### Fractions of PM

- Fine particles, mainly from traffic, had a higher impact on health than larger ones.
- Effects for both fractions were more important in warm weather.
- Fine particles:
  - affected mainly the elderly
  - led to severe cardiorespiratory effects and hospitalizations
- For hospitalizations, the results were similar between fine and coarse particles.

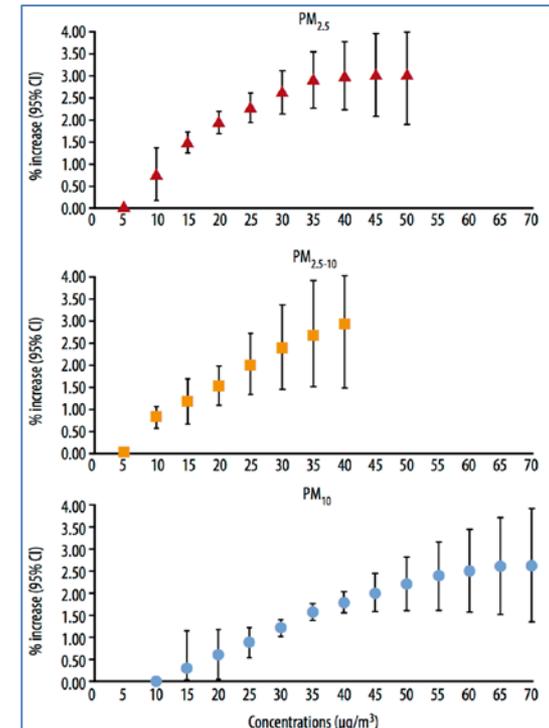


Figure 2. Association between PM and cardiovascular hospital admissions.

**All the effects were present at PM concentrations below the current daily limit values!**

## FINDINGS (II)



Image 1. African dust in PM10 (µg/m<sup>3</sup>)

### *Saharan dust*

- Highest frequency of Saharan dust advection episodes in South-Central Mediterranean.
- Highest PM concentrations attributable to Saharan dust in South-East (CY).
- The seasonal peaks of dust advectons: summer in ES & IT; spring in GR & CY.
- The annual contribution of Saharan dust to the annual total PM10 varies, (1-8 µg/m<sup>3</sup>)

**Desert PM had strong effects on mortality and cardiorespiratory admissions → similar to those for the anthropogenic sources of particles!**

## FINDINGS (III)

### Forest fires

- Days affected by forest fires:  
most affected cities →  
Thessaloniki (6%), Athens (4%)  
and Rome (3%).
- During forest fires days:
  - no increment in respiratory mortality.
  - marked increase in cardiovascular mortality → up to 8%.

xx annual events; ● Low affection; ● Moderate affection; ● Important affection

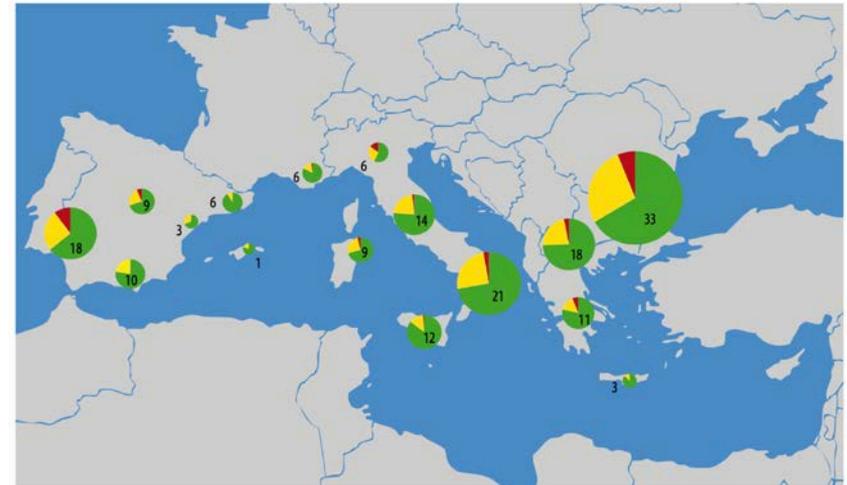


Image 2. Absolute frequency (n. days) of forest fires days

**Clear short-term effect of PM10 on cardiovascular mortality during fire days!**

## FINDINGS (IV)

### *Components of particulate matter*

Information collected on PM composition and sources for Barcelona, Madrid, Huelva (Spain), Rome and Bologna (Italy)

Components showing adverse health effects resulting in mortality and hospitalizations:

- Traffic: Elemental carbon (EC)
- Road dust: Fe, Mn, Ti
- Secondary pollutants: Sulfate
- Fuel oil combustion: Ni

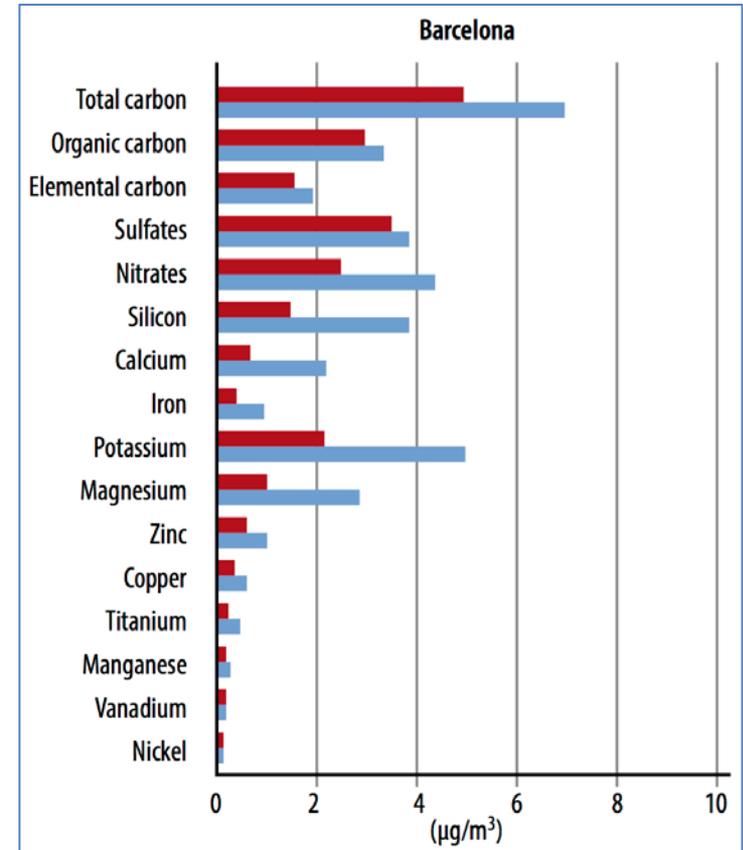


Figure 3. Average concentrations of PM components in Barcelona (ES) .

# More information

## New Regulation 2014-2020:

[Regulation \(EC\) No 1293/2013](#)

## National Contact Points:

Information on eligibility and project preparation  
<http://ec.europa.eu/life/contact/nationalcontact>

## Funding:

General information

<http://ec.europa.eu/environment/life/funding/life.htm>

2016 call – indicative planning

<http://ec.europa.eu/environment/life/funding/life2016/index.htm>



*Photos: LIFE Programme*

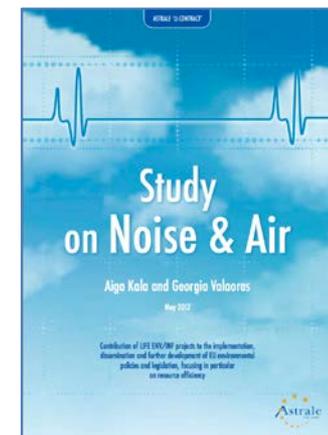
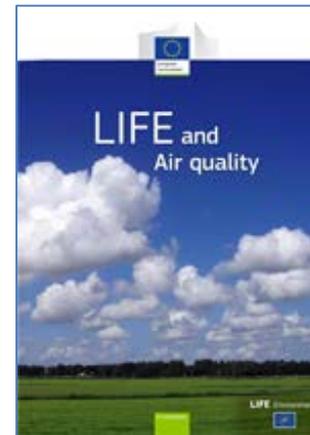
# LIFE Communication tools & services

- [LIFE website](#)
- [Project database](#)
- [Thematic publications](#)
- LIFE [thematic brochure](#) on air quality and [study](#) on noise and air

Search Results for LIFE Projects

120 Projects were found that meet your search criteria. Showing 1 - 10 of 120 entries. [View all results](#)

PROJECT TITLE	PROJECT Nº	PROJECT WEBSITE	YEAR OF FINANCE	LEAD PARTIAL COUNTRY	TYPE OF BENEFACTARY
LIFE SW - Life SmartSwissness: Development and promotion of successful green energy solutions to meet...	LIFE14 SW/04/000611		2014	GR	University
LIFE - (CLEAN HEAT - CLEAN HEAT): Reducing particulate matter (PM10) by wood burning	LIFE14 DE/04/000490		2014	DE	NGO/Foundation
Poland's LIFE - Implementation of air quality plan for Mazowieckie Region - Mitigation in a healthy atmosphere	LIFE14 PL/04/000221		2014	PL	Local authority
EMPOWER LIFE - Empowering Technologies and Practices to Reduce air pollution of the railway infrastructure	LIFE13 EN/08/000263		2013	ES	Research Institution
LIFE + SPP168 - Reduction of exposure of cyclists to urban pollution	LIFE13 EN/08/000417		2013	ES	University
LIFE PHOTOCYTIC - Air pollution treatment in European urban environments by means of photocatalytic coatings	LIFE13 EN/08/000603		2013	ES	Research Institution
LIFE S222222222 - Reduction of SO2 emissions by a non-effluent wet desulfurization process using MgO by products (...)	LIFE13 EN/08/000605		2013	ES	Large enterprise
LIFE S222222222 - New hybrid production technologies to increase road firing rate and power the boiler's urban heat ...	LIFE13 EN/08/001113		2013	ES	Research Institution
LIFE PHOTOCALINE - Sustainability of photocatalytic technologies in urban environments from laboratory tests to ...	LIFE13 EN/08/001223		2013	ES	Research Institution
LIFE Bussola - "Electric Bus Rapid Transit" high capacity Bus with zero local emissions"	LIFE13 EN/06/000281		2013	FR	International enterprise
LIFE + S222222222 - A novel manufacturing process for photocatalytic active ceramic tiles by digital printing ...	LIFE13 EN/07/000148		2013	IT	Small and medium sized enterprise
LIFE LIFE Picking - 1st - Free electrically picking system for ...	LIFE13 EN/06/000000		2013	IT	Small and medium sized enterprise



Photos: LIFE Programme





**Thank you for your attention!**

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*\*Disclaimer: Unless stated otherwise, all pictures and tables on this presentation belong to the LIFE project featured on the slide.*

LIFE, the EU funding tool for the environment and climate action  
[ec.europa.eu/life](http://ec.europa.eu/life)