LIFE INDEX AIR

NEWSLETTER 06

THIS PROJECT IS FUNDED BY THE LIFE PROGRAMME FROM THE EUROPEAN UNION

TÉCNICO LISBOA · universidade de aveiro · Technical University of crete · DEMOKRITOS NATIONAL CENTRE FOR SCIENTIFIC RESEARCH · NATIONAL INSTITUTE FOR HEALTH AND WELFARE

LIFE INDEX-AIR – REACHING OUR GOALS

Welcome to the last newsletter of our project – LIFE INDEX-AIR!

After six years of a great experience, we arrived to the moment that our project ends, providing to everyone a set of new tools that can contribute to improve our daily life.

LIFE Index-Air project developed an innovative and versatile decision support tool for policy makers that helps them to identify measures to improve air quality and quantitatively assess their impact on the health and well-being of the population. The implementation of this tool was done in 5 European cities – Lisbon, Porto, Athens, Kuopio and Treviso.

This last newsletter will provide some highlights of the latest documents available in our website, such as, the Layman's Report or the booklet "Guidelines for good air quality in public buildings, homes and cities". All the outputs of our project are freely available in our website to be used by everyone.

We would like to thank to everyone that contributed to our project throughout these amazing years.

And always remember… **The air belongs to everyone!**

TO KNOW MORE ABOUT OUR PROJECT

We invite you to follow us through our website and facebook!

www.lifeindexair.net
www.facebook.com/LIFEIndexAir

If you have any questions or comments about our work or our future plans, don't hesitate to get in touch.

SIX YEARS WORKING TOGETHER TO IMPROVE THE AIR WE BREATHE

In the last decade, there was a great improvement with respect to control strategies for anthropogenic emissions to the atmosphere. However, a substantial proportion of **EU's population living in urban areas remains exposed to high levels of air pollution**. Prompt action through efficient air quality management, considering outdoor and indoor sources, is required not only to ensure that the legal limits are not exceeded but principally to guarantee that the consequences of poor air quality are controlled and minimized.

In 2015, five partners across five European cities proposed the LIFE Index-Air project to the **European LIFE Programme for the Environment and Climate Action**. We were responding to the EU priority "to safeguard the Union's citizens from environment-related pressures and risk to health and well-being".

After six years, **LIFE Index-Air** contributed to the understanding of sources and factors affecting the exposure of the citizens to PM and to the reduction of the associated health impacts by:

- **characterizing air quality in children's micro-environments** (schools, homes, transport modes, outdoor) and identifying emission sources and factors affecting the integrated exposure of children to PM.
- developing the **LIFE Index-Air Management Tool** that considers the chain of events, from emissions to the atmosphere until health impacts, passing through exposure and inhaled dose. The tool provides a user-friendly interface, suitable for policy makers and other relevant stakeholders, to evaluate the effectiveness of selected air pollution mitigation measures with respect to ambient air quality, population exposure and the protection of public health.
- applying the tool in Lisbon, Oporto, Athens, Kuopio and Treviso **to identify cost-effective air pollution abatement measures** for these cities.
- implementing a **citizen science** approach to **engage the population**, make it aware of the complex processes that contribute to air pollution and to change behaviours.

Kick-off meeting: 20th October 2016

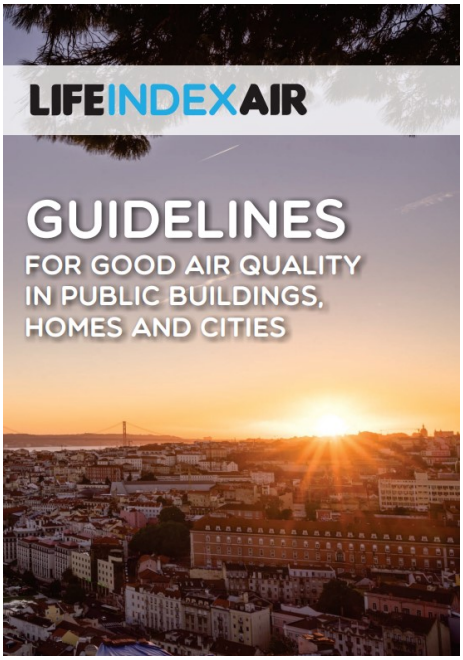
Last monitoring meeting: 21st October 2021

WHAT IS NEW?

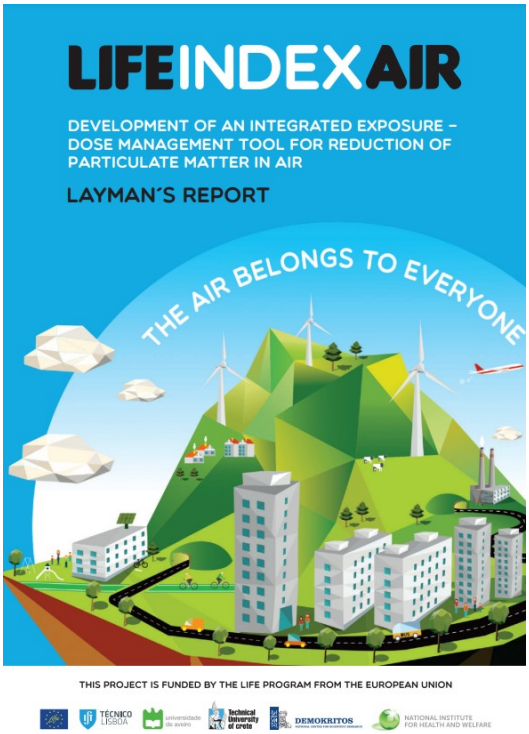
GUIDELINES FOR GOOD AIR QUALITY IN PUBLIC BUILDINGS, HOMES AND CITIES

LIFE Index-Air created a summary of guidelines for good air quality in public buildings, homes and cities to help everyone to contribute to a better air quality in our daily lifes.

The document is available at our website in the "Deliverables" section (direct link here).



LIFE INDEX-AIR – THE STORY DESCRIBED IN OUR LAYMAN' S REPORT



The Layman's Report of LIFE Index-Air was built in order to summarise all the achievements of our project troughout its implementation period.

This document is available in four different languages: English, Finnish, Greek and Portuguese.

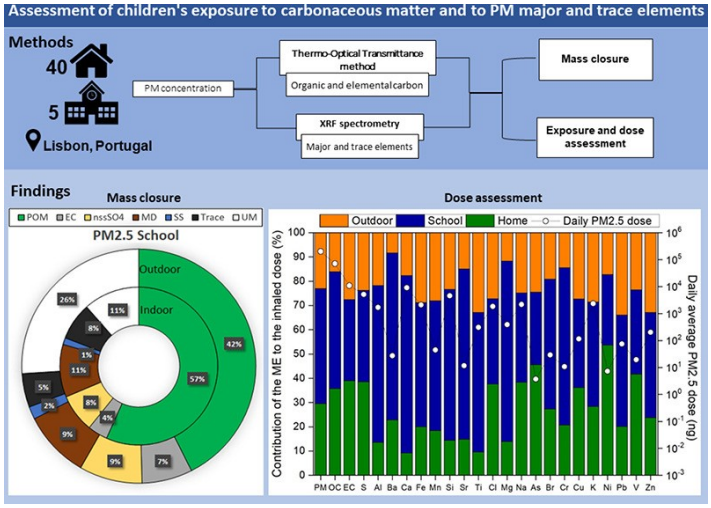
You can check our Layman's Report in the "Deliverables" section of our website: www.lifeindexair.net/deliverables/

NEW SCIENTIFIC ARTICLE WITHIN THE FRAMEWORK OF LIFE INDEX-AIR

Assessment of children's exposure to carbonaceous matter and to PM major and trace elements

Authors: T. Faria, V. Martins, N. Canha, E. Diapouli, M. Masousakas, P. Fetfatzis, M.I. Gini, S.M. Almeida

Abstract: Particulate matter (PM) pollution is one of the major environmental concerns due to its harmful effects on human health. As children are particularly vulnerable to particle exposure, this study integrates the concentration of PM chemical compounds measured in the micro-environments (MEs) where children spend most of their time to assess the daily exposure and inhaled dose. PM samples were analysed for organic and elemental carbon and for major and trace elements. Results showed that the MEs that contribute most to the children's daily exposure (80%) and inhaled dose (65%) were homes and schools. Results indicated that the high contribution of particulate organic matter (POM) indoors indicate high contributions of indoor sources to the organic fraction of the particles. The highest concentrations of PM chemical compounds and the highest Indoor/Outdoor ratios were measured in schools, where the contribution of mineral elements stands out due to the resuspension of dust caused by the students and to the chalk used in blackboards. The contribution of the outdoor particles to inhaled dose (24%) was higher than to the exposure (12%), due to the highest inhalation rates associated with the activities performed outdoor. This study indicates the importance of indoor air quality for the children's exposure and health.



Type of publication: Scientific article published at **Science of The Total Environment**

How to cite: Faria T., Martins V., Canha N., Diapouli E., Manousakas M., Fetfatzis P., Gini M.I., Almeida S.M. (2022) Assessment of children's exposure to carbonaceous matter and to PM major and trace elements. Science of The Total Environment 807(3), 151021. DOI: 10.1016/j.scitotenv.2021.151021

Our publications - an overview

One of the goals of our project was to provide a comprehensive set of scientific outputs to all scientific community could benefit from the contribution of LIFE Index-Air to the state-the-art.

Get to know all of our publications in our website:
www.lifeindexair.net/publications/

INVOLVING CITIZENS FOR BETTER AIR QUALITY

Increase public awareness about health benefits of clean air and active citizens' involvement is essential for changing behaviors, improving social acceptance and supporting air quality management measures.

LIFE Index-Air project engaged students, teachers, parents and the wider community fostering transformational change of behaviors in the spirit of citizen science.

ACTIVITIES DEVELOPED TO ENGAGE CITIZENS

- LIFE Index-Air made 64 awareness campaigns in 29 primary schools, reaching 4100 children;
- Students developed their own projects and communicated their results to the community;
- Students from primary schools assessed their own exposure to PM using portable equipment;
- University students measured air quality in homes, schools and transports and assessed the impact of different emission sources such as fireplaces and new generation of cigarettes;
- 1 PhD and 9 MSc students developed their thesis inside the project.
- LIFE Index-Air results were presented in 133 dissemination activities: seminars, workshops, courses, awareness campaigns and fairs.

LIFE INDEX-AIR IN NUMBERS

1 time activity survey available for Lisbon

120 MEs monitored

1 Database with PM levels for 5 cities

15 Technical reports

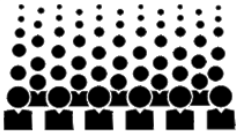
1 Decision Support tool

5 cities

5 Guidelines for action plans

140 Stakeholders trained

133 dissemination events



17626 people involved in dissemination events

63 Communications in conference

23 Publications in scientific journals

7859570 people affected by the tool

8525 km^2 affected by the tool

-13% DALY associated with exposure to PM

-7% Costs associated with exposure to PM

LIFE INDEX AIR

NEWSLETTER 06

KEEP IN TOUCH

E-MAIL life-index-air@ctn.tecnico.ulisboa.pt
FACEBOOK www.facebook.com/LIFEIndexAir
RESEARCHGATE www.researchgate.net/project/LIFE-Index-Air

WWW.LIFEINDEXAIR.NET