

## TRAP

Transboundary Air Pollution Health Index Development and Implementation

# Air Quality and Health Sensitization Campaigns Material



TRAP

Transboundary Air Pollution

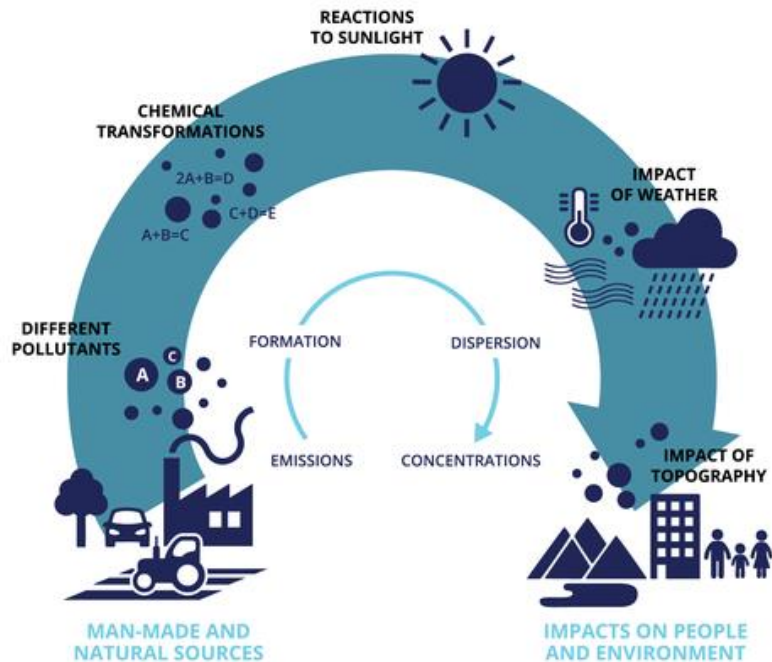
Health Index Development and Implementation



## Air Pollution

**Air** – it’s all around us. It’s what we breathe, and it’s vital to our health and well-being. Economic activities, such as transport, industry and agriculture, release air pollutants, harmful to the environment and human health.

**Air pollution** occurs when harmful or excessive quantities of substances including gases, particulates, and biological molecules are introduced into Earth's atmosphere. It may cause diseases, allergies and even death to humans; it may also cause harm to other living organisms such as animals and food crops, and may damage the natural or built environment. Both human activity and natural processes can generate air pollution.



Road transport contributes about 20 % of the EU's total emissions of carbon dioxide.

More than 30 % of NO<sub>x</sub> emissions in the EU come from road transport.

Around 12 % of the EU's primary PM<sub>2.5</sub> emissions come from road transport.

Data: EEA 2015 Indicators 'Total greenhouse gas (GHG) emission trends and projections' and 'Emissions of air pollutants from transport'. Read more: EEA, 2015, Air quality in Europe — 2015 report.

## Air Pollutants

**Air pollutants** can be released directly into the atmosphere (primary emissions) or can form as a result of chemical interaction involving precursor substances.

The air pollutant emissions cause air pollution, however, reductions in emissions do not always automatically result in similar cuts in concentrations. There are complex links between air pollutant emissions and air quality. These include emission heights, chemical transformations, reactions to sunlight, additional natural and hemispheric contributions and the impact of weather and topography. Significant cuts in emissions are essential for improving air quality.

## Health problems by air pollution

Ambient (outdoor air pollution) is a major cause of death and disease globally. The health effects range from increased hospital admissions and emergency room visits, to increased risk of premature death.

An estimated 4.2 million premature deaths globally are linked to ambient air pollution, mainly from heart disease, stroke, chronic obstructive pulmonary disease, lung cancer, and acute respiratory infections in children.

## The pollutants with the strongest evidence of health effects are:

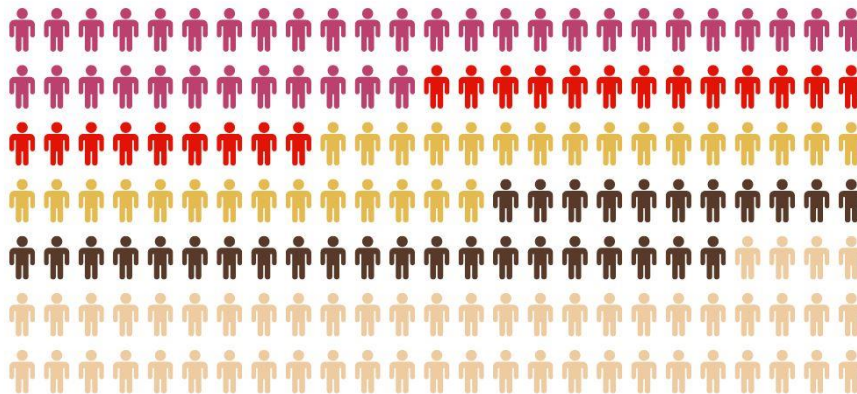
- Particulate matter (PM)
- Ozon (O3)
- Nitrogen dioxide (NO<sub>2</sub>)
- Sulphur dioxide (SO<sub>2</sub>)






Source: WHO

## Worldwide ambient air pollution accounts for:

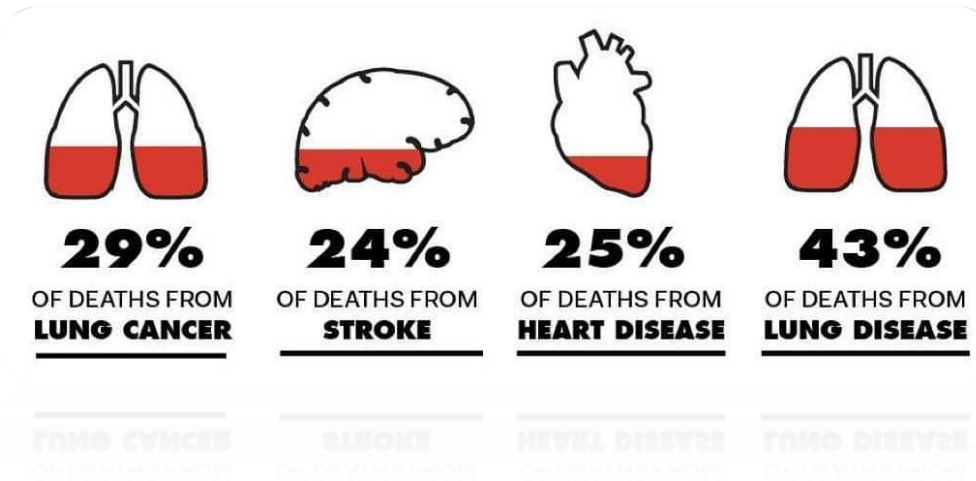
- 29% of all deaths and disease from lung cancer
- 17% of all deaths and disease from acute lower respiratory infection
- 25% of all deaths and disease from ischaemic heart disease
- 43% of all deaths and disease from chronic obstructive pulmonary disease
- 24% of all deaths from stroke

Source: WHO



-  Deaths and disease from lung cancer
-  Deaths and disease from acute lower respiratory infection  Deaths from stroke
-  Deaths and disease from ischaemic heart disease
-  Deaths and disease from chronic obstructive pulmonary disease





### Currently legislation of EU related to ambient air quality

Directive 2008/50/EC on ambient air quality and cleaner air for Europe including the following elements:

- The merging of most of existing legislation into a single directive (except for the Fourth Daughter Directive) with no change to existing air quality objectives.
- New air quality objectives for PM2.5 (fine particles) including the limit value and exposure related objectives.
- The possibility to discount natural sources of pollution when assessing compliance against limit values.
- The possibility for time extensions of three years (PM10) or up to five years (NO2, benzene) for complying with limit values.



*Air pollution in the Region of Western Macedonia, Greece*

## Air pollution sources

Air pollution is not the same everywhere. Different pollutants are released into the atmosphere from a wide range of sources, including industry, transport, agriculture, waste management and households. Certain air pollutants are also released from natural sources.



Source EEA

- 1) Around 90% of ammonia emissions and 80% of methane emissions come from agricultural activities
- 2) Some 60% of Sulphur oxides come from energy production and distribution
- 3) Many natural phenomena, including volcanic eruptions and sandstorms, release air pollutants into the atmosphere
- 4) Waste (landfills), coal mining and long-distance gas transmissions are sources of methane.
- 5) More than 40% of emissions of nitrogen oxides come from road transport
- 6) Fuel combustion is a key contributor to air pollution – from road transport, households to energy use and production

Generally, businesses, public buildings and households contribute to around half of the PM2.5 and carbon monoxide emissions.

## Air Pollution in the CBC area

Air Pollution has been recognized as one of the most pressing problems in both Greece and Republic of North Macedonia, following the economic and social development of the two countries, the sources of air pollution are mainly industrial activities, transport and central heating.



*Burning of fossil fuels*

The major challenges of transport in urban areas are the rising number of vehicles, their increased average age, and traffic congestion. Air quality problems from industrial sources mainly concern areas with thermo-electrical power stations and industrial units located close to residential areas. Natural sources (e.g. transport of dust from deserts) and conditions (e.g. local topography and climatic conditions) also worsen urban air quality. Local meteorological conditions and topography have a major impact on air quality in CB cities and contribute to the generation of air pollution episodes.

## TRAP brief description and objectives

TRAP developed on the necessity for developing ICT applications in environmental protection, monitoring and management of the eligible areas. Environmental initiatives are a privileged field for developing cooperation in the cross-border area, contributing significantly to economic and social development of the population and public health, therefore, the opportunity for mutual cooperation and understanding between public authorities, scientific institutions and residents of the area. The major challenge is the development of an integrated approach including air quality monitoring, with providing health indicator for vulnerable groups of the population.

Through TRAP project a series of issues will be addressed: a) Identification of the emission sources and development of regional and CB emission inventory, b) Assessment of each emission source, c) Development of air quality plans, d) Monitoring data, validation and analysis e) Basic demographic, health and public health profile, f) Air quality and Health Indicators g) Joint CB comparative analyses h) Capacity building at user level (health and authority stakeholders), i) Air quality and health sensitization campaigns, j) Protection of human health, k) Citizen involvement, l) Implementation of Air quality directives.



**Official Website:**  
<https://trap-project.eu/>

**Facebook Pages:**  
<https://www.facebook.com/ProjectTRAPpage/>  
<https://www.facebook.com/TRAPproject/>

## Partners



Министерство за животна средина и просторно планирање

PRIORITY AXIS: 2. Protection of Environment - Transportation  
SPECIFIC OBJECTIVE: "2.3 Sustainable management of protected areas, ecosystems and biodiversity"

This material developed by ERFC in the framework of Air Quality and Health sensitization campaigns of TRAP Project

The views expressed in this promotional material do not necessarily reflect the views of the European Union, the participating countries and the Managing Authority

The project is co-funded by the European Union and by National Funds of the participating countries

