



# Health and Environment Alliance (HEAL)

CARI Air Quality Planning Guidance Session I - ZONING

Srdjan Kukolj, Consultant, Balkan region

# About HEAL



>90 organisations in 28 countries

- Doctors associations
- Patient groups
- Nurses associations
- Public health institutes
- Research institutes
- Not-for-profit health insurers
- Women's groups
- Youth groups
- Environmental groups



*Working for better health through  
a healthier environment*

According to the World Health Organization, indoor and outdoor air pollution is the largest single environmental health risk, causing numerable noncommunicable diseases, such as cardiovascular and respiratory diseases, stroke and lung cancer as well as increasing the risk for acute respiratory infections.

In Europe, poor air quality causes about 400,000 premature deaths annually. According to the latest estimates of the number of deaths in 2019 in the Western Balkans, PM2.5 particles are responsible for a total of 32,340 deaths per year (Republic of Serbia 14,600, Bosnia and Herzegovina 5,100, Albania 5,000, Kosovo\* 4,000, North Macedonia 3,000 and Montenegro 640).



# Sources of air pollution

**Around 90% of ammonia emissions and 80% of methane emissions come from agricultural activities. Also, waste (landfills), coal mining and long-distance gas transmission are source of methane.**

**Some 60% of sulphur oxides come from energy production and energy distribution. More than 40% of emissions of nitrogen oxides come from road transport. Almost 40% of primary PM2.5 emissions come from transport.**

**Fuel combustion is a key contributor to air pollution – from road transport, households to energy use and production. Businesses, public buildings and households contribute to around half of the PM2.5 and carbon monoxide emissions.**

Source: [European Environmental Agency](#)



**Particulate matter (PM)** Small particles in the air. The number next to the abbreviation PM indicates the size of the particle: PM10 is 10 micrometres or less, while PM2.5 is 2.5 micrometres or less. When inhaled, particles travel into the bloodstream and cause harm to our lungs and heart. They can cause stroke and lead to premature death. New studies also link particulate matter with harm to the healthy development of children, and diseases such as obesity and Alzheimer's.

**Sulphur dioxide (SO<sub>2</sub>)** is classified as very toxic for humans when inhaled. It can cause severe irritation of the nose and throat. High concentrations can cause a life-threatening accumulation of fluid in the lungs (pulmonary edema). Symptoms may include coughing, shortness of breath, difficult breathing and tightness in the chest. Even a single exposure to a high concentration can cause a long-lasting condition like asthma. It can react in the atmosphere to form PM, called 'secondary PM'.

**Nitrogen oxides (NO<sub>x</sub>)** are gases that cause inflammation of the airways. They are oxidisers which means they cause oxidative stress which can disrupt normal cell mechanisms and cause damage to tissues, reducing the immune abilities of the body. They can react in the atmosphere to form PM, called 'secondary PM'.

Source: Chronic Coal Pollution Report, Health and Environment Alliance



# Air pollution and Health (2)



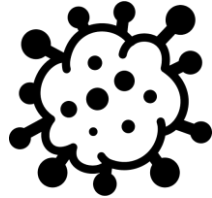
## Brain

- Increased cerebrovascular ischemia
- Dementia



## Blood

- Altered rheology
- Increased coagulability
- Translocated particles
- Peripheral thrombosis
- Reduced oxygen saturation



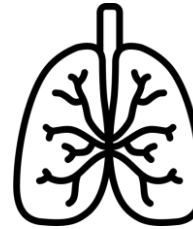
## Cells

- Bladder cancer
- Skin cancer
- Obesity
- Diabetes



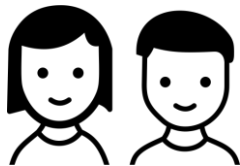
## Heart

- Altered cardiac autonomic function
- Oxidative stress
- Increased dysrhythmic susceptibility
- Altered cardiac repolarization
- Increased myocardial ischemia



## Lungs

- Inflammation
- Oxidative stress
- Accelerated progression and exacerbation of chronic obstructive pulmonary disease
- Increased respiratory symptoms
- Effected pulmonary reflexes
- Reduced lung function
- Higher lung cancer risk



## Children

- Pre-eclampsia of the pregnant mother
- Pre-term birth
- Reduced birth weight
- Pollutants can reach the placenta
- Increased asthma risk, asthma attacks
- Attention deficit hyperactivity disorder



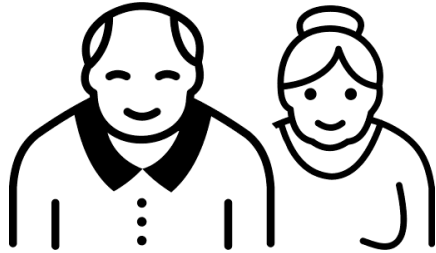
## Vasculature

- Atherosclerosis, accelerated progression and destabilisation of plaques
- Endothelial dysfunction
- Vasoconstriction and hypertension

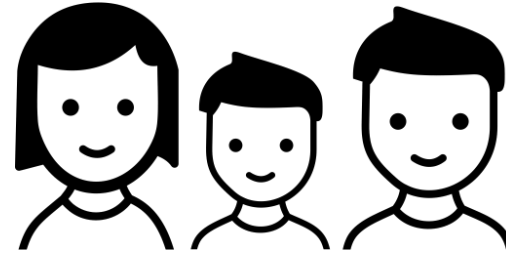
Source: Chronic Coal Pollution Report, Health and Environment Alliance ([English](#), [Lokalni jezik](#))



## PEOPLE WHO ARE AT THE HIGHEST RISK OF AIR POLLUTION



elderly people



children under 5 years



pregnant women



respiratory and cardiovascular  
disease patients



# Air pollution and Health (4)



Banovići – Kakanj – Lukavac – Maglaj – Tuzla – Pljevlja – Bitola – Niš – Novi Sad

total population about **823,600**

**823,000** is a number that shows how many people are exposed to air pollution on a daily basis. Both short and long term exposure to air pollutants have been associated with health impacts.

**Short-term exposure to air pollutants** is closely related to COPD (Chronic Obstructive Pulmonary Disease), cough, shortness of breath, wheezing, asthma, respiratory disease, and high rates of hospitalization.

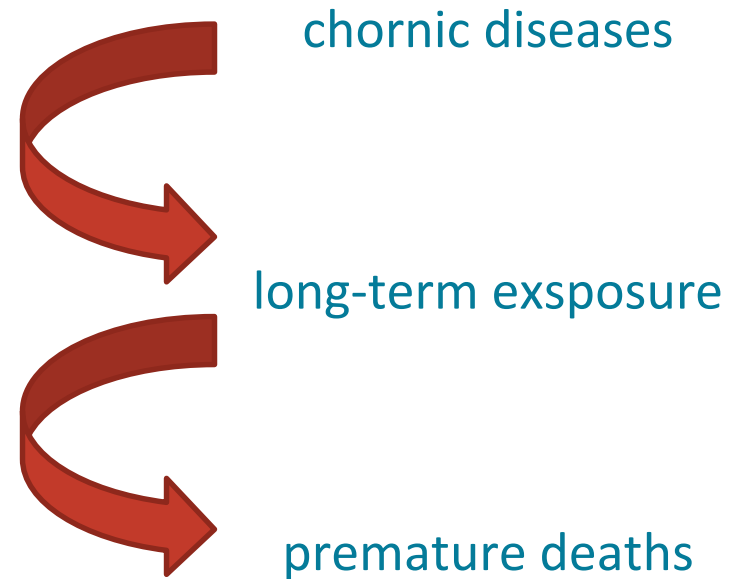
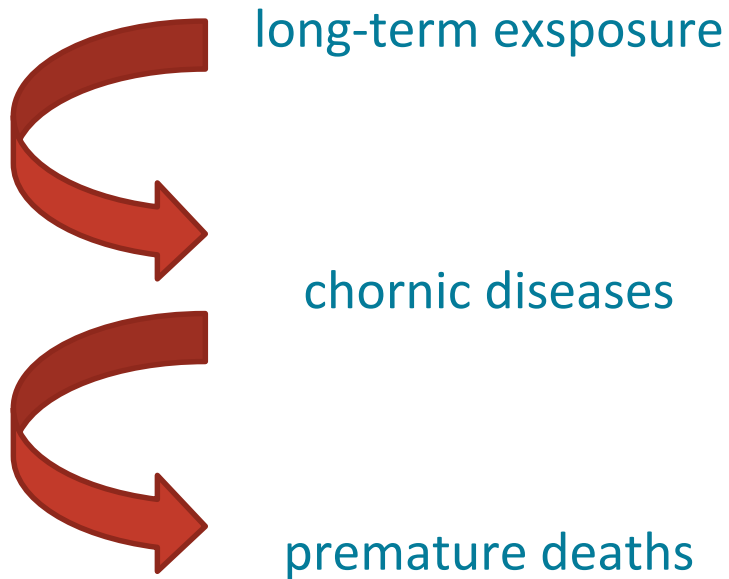
**The long-term effects associated with air pollution** are chronic asthma, pulmonary insufficiency, cardiovascular diseases, and cardiovascular mortality. Air pollution seems to have various health effects in early human life, such as respiratory, cardiovascular, mental, and perinatal disorders, leading to infant mortality or chronic disease in adult age.

Source: [Air Pollution and Noncommunicable Diseases: A Review by the Forum of International Respiratory Societies' Environmental Committee, Part 1: The Damaging Effects of Air Pollution](#)





# Air pollution and Health (5)



# Air pollution and Health (6)

**air pollution**



**human health**

(acute-chronic diseases)



**health costs**

(diagnostics, hospital admissions, treatments, restricted activity days)

--

**premature deaths**



# Call to action <sup>(1)</sup>

In September 2021, the World Health Organization (WHO) has published new evidence-based [Global Air Quality guidelines](#), the first update since 2005. National/local air quality standards need to be fully aligned with WHO guidelines, in order to contribute to better health for people, and reduce the overall health cost burden.



## increase engagement with health experts

**increase the participation of health experts in decision-making processes** to ensure that the timely integration of public health measures into environmental policies are in place

identify and prioritise measures that will provide for the greatest health benefit, **air pollution is a public threat and should be addressed through strategic measures aimed at a healthier future and economic growth**

**the city authorities needs to make decisions based on scientific evidence**, using the knowledge of the international and national scientific community



increase engagement with national authorities

**conduct a health impact assessment for all industrial installations, energy sector, domestic heating and transport deliberations and decisions.** this means that every project is assessed for its potential effects, damages and benefits for the health of a population, both in the country concerned and beyond

the country should encourage the public interest in decision-making processes using the legal mechanisms which will ensure a higher level of transparency in the work of public institutions. **efficiency in the implementation of laws and decisions in the field of industrial installations, energy sector, domestic heating and transport should be increased in order to achieve greater health and economic benefits for all citizens**



## **increase engagement with expert local/national organizations**

sharing examples of lessons learned

sharing examples of good practice

knowledge sharing

sharing contacts

joint actions

advocacy

## **increase engagement with citizens/activists**

air quality monitoring

advocacy



## Our healthy city of tomorrow



### Cities for people

Cities should belong to people, not cars - they need to be built for people. Reducing car use is good for health, productivity, urban liveability and the economy.

#### We want

- Car free city centres with green spaces and mostly pedestrianised areas
- Urban planning and design that offers car-free mobility for work and leisure



### Walking and cycling first

Walking and especially cycling is a great way to get around in cities, benefits health through physical activity and public health through pollution reduction.

#### We want

- Expansion of safe cycling lanes in and around the city centre including bicycle highways
- Pedestrian-friendly city: move safely, barrier-free and comfortably in the city, with attractive views and opportunities to move and play



### Sustainable and affordable public transport

Car free cities need reliable, affordable and green public transportation options. Smart and sustainable transport systems improve air quality and benefit health and the climate.

#### We want

- Reliable, accessible, affordable and fossil-fuel-free public transport alternatives for all
- Free public transportation for all in and around city centers



### Green city centres

Urban green spaces can promote mental and physical health, and reduce morbidity and mortality, with relaxation and stress reduction, social connections, physical activity. They also reduce air pollution, noise and excessive heat.

#### We want

- Expansion of green and wild areas such as parks, community gardens or facade planting
- Meaningful offers for sports, play and recreation for all ages such as playgrounds and free outdoor workout spots



# A HEALTHY PLANET FOR HEALTHY PEOPLE

## Our healthy city of tomorrow

Cities  
for people



Walking and  
cycling first



Sustainable and  
affordable public  
transport



Green city  
centres



#CleanAir4Health





# HEAL webinar series

Air quality, Climate and the Green Agenda in the Western Balkans



**WATCH HERE**

Webinars available in English

Webinari dostupni na lokalnom jeziku



Geneva

8 October 2021

**The Human Rights Council recognised, for the first time, that having a clean, healthy and sustainable environment is a human right**

**“The Human Rights Council’s decisive action in recognising the human right to a clean, healthy and sustainable environment is about protecting people and planet – the air we breathe, the water we drink, the food we eat. It is also about protecting the natural systems which are basic preconditions to the lives and livelihoods of all people, wherever they live. Having long called for such a step, I am gratified that the Council’s action today clearly recognises environmental degradation and climate change as interconnected human rights crises.”**

**-UN High Commissioner for Human Rights Michelle Bachelet-**

Source: [United Nations Human Rights](#)





**Thank you for your attention!  
And do get in touch...**

**Srdjan Kukolj, Consultant, Balkan region**  
srdjan@env-health.org

MUNDO MADOU

Avenue des Arts 7/8, B-1210 Bruxelles

[www.env-health.org](http://www.env-health.org)

Twitter@HealthandEnv



HEAL gratefully acknowledges the financial support of the European Union (EU) and the European Climate Foundation for the production of this publication. The responsibility for the content lies with the authors and the views expressed in this publication do not necessarily reflect the views of the EU institutions and funders. The European Climate, Infrastructure and Environment Executive Agency (CINEA) and the funders are not responsible for any use that may be made of the information contained in this publication. HEAL EU transparency register number: 00723343929-96

