

SUA·FEM Faculty of Economics and Management

SUA Slovak University of Agriculture in Nitra

# Erasmus+ Cooperation Partnerships

## Increasing the Visibility and Knowledge Base on Air Quality with Big Data and Its Impact on the Population Health (VISIONAIR)

**2023-1-SK01-KA220-HED-000158470**

**THEORETICAL REVIEW**

**TRAINING ACTIVITY 3.5**

**at UCT Prague, Czechia**

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# The impact of air pollution on health – HR

- Main pollutants: PM2.5, PM10, $NO_2$, $O_3$ and $SO_2$
- Health risks: chronic respiratory diseases (asthma, COPD)
- Cardiovascular diseases (heart attacks, strokes)
- Increased risk of lung cancer
- Premature deaths (more than 400,000 per year in the EU)
- Most vulnerable groups: children, elderly, people with existing diseases
- **Economic impact: health care and productivity costs estimated at 600 billion EUR per year**

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# Possible mitigation measures – HR

- Individual steps: use of public transport, low emission vehicles, recycling
- Reduce the burning of solid fuels
- Policy measures: strengthen regulations for transport and industrial emissions
- European Green Convention: 55% reduction target by 2030
- Cooperation: transboundary solutions for PM2.5 and $O_3$
- Combining climate change and air quality policies
- Benefits: improved quality of life, protection of ecosystems and long-term economic savings

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# Main Health Impacts of Air Pollution – ES

**Global Burden:** Air pollution, especially fine particulate matter (PM2.5) and ozone (O3), is a major global health concern, contributing to **4.2 million deaths annually** and significant disability-adjusted life years (DALYs)

- **Health Effects:**
  - **Cardiovascular:** Elevated risk of heart attacks, strokes, and hypertension due to PM2.5
  - **Respiratory:** Aggravation of asthma, COPD, bronchitis, and pneumonia
  - **Neurological and Cognitive Decline:** Long-term exposure linked to dementia and reduced cognitive functions
  - **Other Diseases:** Linked to diabetes, bone health decline, and autoimmune disorders
- **Sources:** Major sources include traffic emissions, industrial pollution, and burning of solid fuels, especially in low-income regions.

**Takeaway:** Addressing air pollution can significantly reduce the burden of diseases across all age groups.

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# Policy Recommendations and Actions – ES

**International Frameworks:**

1. **European Green Deal:** Aims for a 55% reduction in greenhouse gas emissions by 2030 and climate neutrality by 2050.
2. **WHO Guidelines:** Recommendations to reduce PM, NOx, and CO emissions, and enhance public awareness and urban planning
3. **Local Actions:**

Promote renewable energy, energy efficiency, and clean transportation

Introduce stricter regulations for industries and emissions

**Public Engagement:**

1. Increase awareness campaigns on the health risks of air pollution
2. Empower communities with tools to monitor and reduce pollution exposure

**Takeaway:** Collaborative efforts, supported by strong policy frameworks and public awareness, are essential to mitigate the health impacts of air pollution and ensure cleaner air for all.

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# THANK YOU FOR YOUR ATTENTION

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