

A dark, atmospheric photograph showing the back of a woman with long hair and a child sitting on her shoulders. They are looking towards a distant industrial complex with several tall chimneys emitting thick smoke. A body of water is in the foreground.

# The UNECE Air Convention and its protocols

Albena Karadjova

Twelfth meeting of the Task Force on Access to Justice  
Geneva, 28 February 2019



**UNECE**

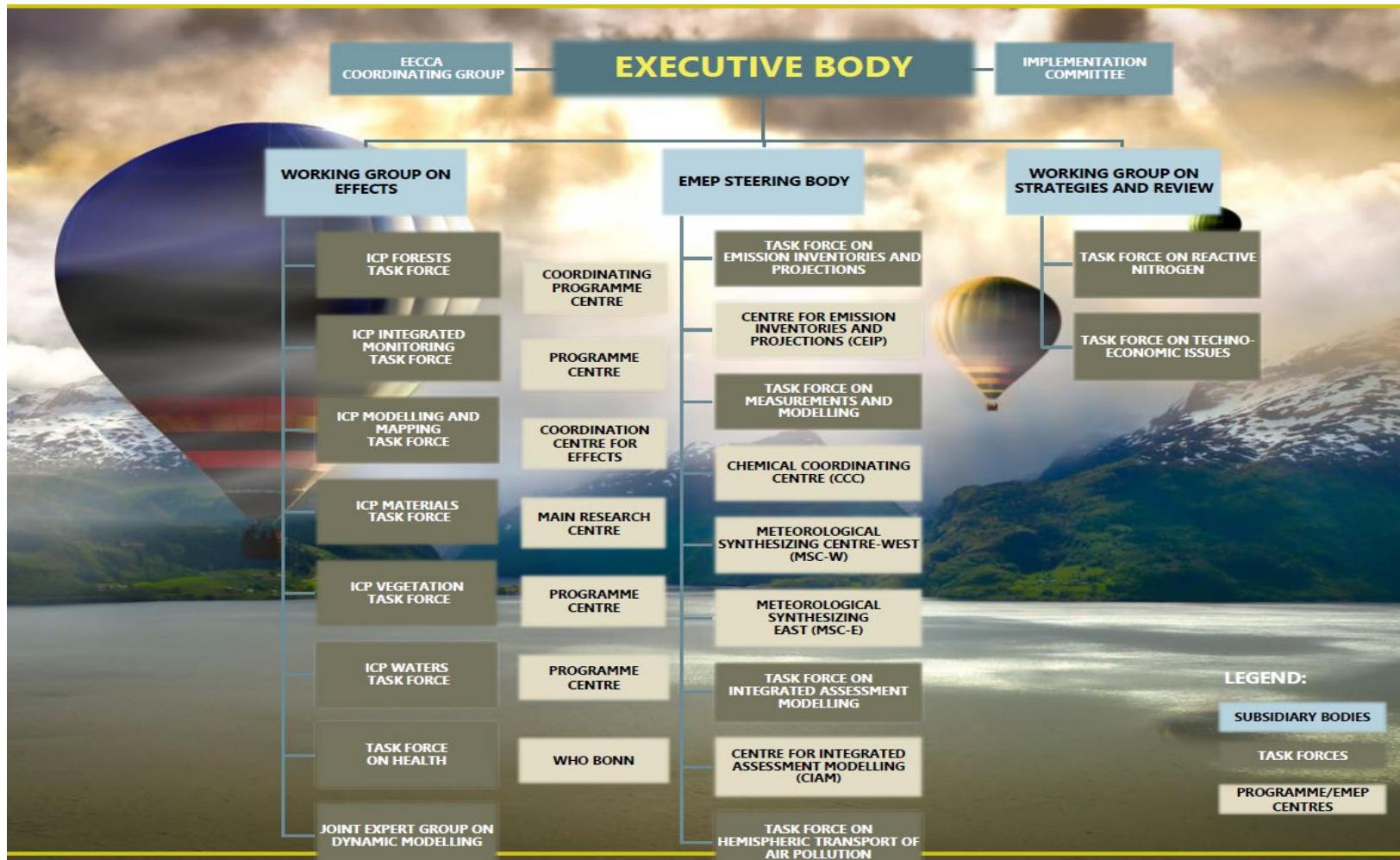
# UNECE Convention on Long-range Transboundary Air Pollution (Air Convention)



- 1979: First international treaty to deal with air pollution on a broad regional basis
- 51 Parties in the UNECE region
- Framework Convention, laying down the principles of international cooperation for air pollution abatement

# The Air Convention

**Setting up an institutional framework, which brings together research and policy**



# Protocols to the Air Convention

- Protocol on EMEP (cost-sharing and funding of monitoring and evaluation work)**

EMEP – Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe:

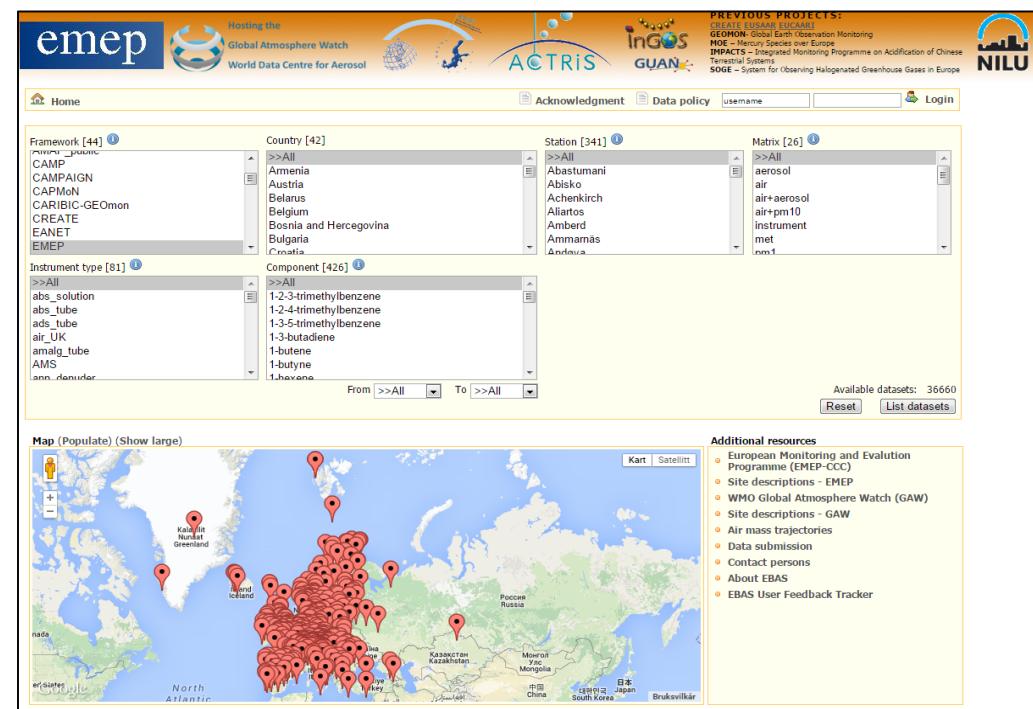
Information on the emission, transport and deposition of air pollutants.  
Informs policy developments under the Convention

## Free access to EMEP data

→ <http://www.emep.int>

→ <http://www.ceip.at>

→ <http://ebas.nilu.no>

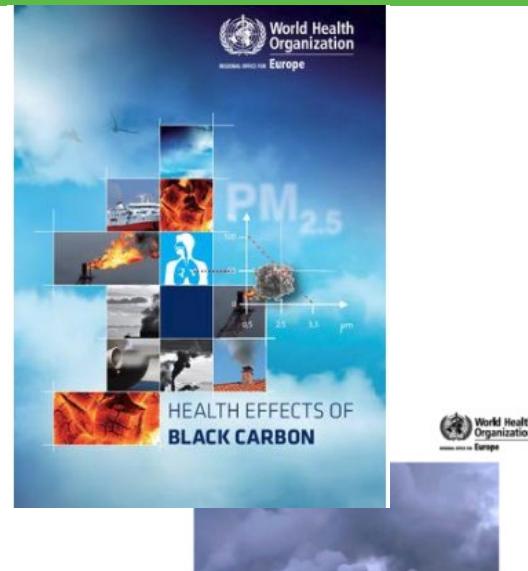


The screenshot shows the EMEP data portal interface. At the top, there are logos for EMEP, Global Atmosphere Watch, ACTRIS, InGOS, GUAN, and NILU. Below the header, there are four search dropdown menus: Framework [44], Country [42], Station [341], and Matrix [26]. The 'Country' menu includes options like Armenia, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Abastumani, Abisko, Achenkirch, Allartos, Ambred, Ammamas, Andreua, aerosol, air, air+air, air+pm10, instrument, met, and nm1. The 'Instrument type' menu includes options like abs\_solution, abs\_tube, ads\_tube, air\_UK, amalg\_tube, AMS, and ann\_sonor. The 'Component' menu includes options like 1,2,3-trimethylbenzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1-butadiene, 1-butene, 1-butyne, and 1-hexene. At the bottom left, there is a map titled 'Map (Populate) (Show large)' showing the locations of monitoring stations across Europe and the Arctic. On the right side, there is a sidebar titled 'Additional resources' with links to European Monitoring and Evaluation Programme (EMEP-CCC), Site descriptions - EMEP, WMO Global Atmosphere Watch (GAW), Site descriptions - GAW, Air mass trajectories, Data submission, Contact persons, About EBAS, and EBAS User Feedback Tracker.



## ENVIRONMENT

- Chaired by WHO European Centre for Environment and Health in Bonn (Germany)
- Provides scientific evaluation of the risks to health from air pollution and identifies the benefits associated with the effective implementation of the Convention.



HEALTH EFFECTS  
OF PARTICULATE MATTER  
Policy implications for countries in eastern Europe, Caucasus and central Asia

# Under the Convention and its protocols:

- Parties develop their own national policies and strategies including air quality management system and, as part of them, control measures using the best available technology
- Critical loads and levels – summarized for use in the integrated assessment modelling employed to provide guidance for setting emission reduction commitments; critical levels of ozone and PM for human health are determined in accordance with the WHO AQ guidelines
- Emission limit values – permissible quantities of a pollutant contained in the waste gases discharged during a given period
- Guidance documents – a range of abatement techniques and economic instruments for the reduction of emissions

# Protocols to the Air Convention

**Binding obligations to reduce emissions of specific pollutants**

**Old protocols still in force:**

- **Protocol on Sulphur** (30% reduction of 1980 emissions by 1993)
- **Protocol on Nitrogen Oxides** (stabilization of 1987 emission by 1994, BAT requirements)
- **Protocol on Volatile Organic Compounds** (30% reduction by 1999, optional base year, stabilization for low-emission areas, BAT requirements)
- **Protocol on Sulphur** (emission ceilings, mandatory emission limit values)

# Protocols to the Air Convention

## Recently amended protocols (1)

- **Protocol on Heavy Metals** (reduction of emissions of mercury, lead and cadmium from the level in the reference year, mandatory emission limit values and product control measures)
- **Protocol on Persistent Organic Pollutants** (reduction of emissions of PAH, dioxin/furans, HCB and PCB, phase out 21 pesticides, restrictions for 2 industrial chemicals, limit values)
- **Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (Gothenburg Protocol)** (emission reduction commitments for sulphur dioxide, nitrogen oxides, ammonia, volatile organic compounds and particulate matter PM<sub>2.5</sub>, limit values for SO<sub>2</sub>, NOx and VOC from stationary sources, for mobile sources, for VOC content in the products, control measures for ammonia, BAT implementation)

# Protocols to the Air Convention

## Recently amended protocols - objectives

- **Protocol on Heavy Metals** article 2
- ...control emissions of heavy metals caused by anthropogenic activities that are subject to long-range transboundary atmospheric transport and are likely to have significant adverse effects on human health or the environment,..
- **Gothenburg Protocol** article 2
- ...control and reduce emissions of sulphur, nitrogen oxides, ammonia, volatile organic compounds and particulate matter that are caused by anthropogenic activities and are likely to cause adverse effects on human health and the environment, natural ecosystems, materials, crops and the climate in the short and long term...

# Gothenburg Protocol:

- «health»: 34 times
  - «Public awareness» article 5
1. Each Party shall....promote the provision of information to the general public, including information on: (a) national annual emissions ... (b) depositions and concentrations of the relevant pollutants... (c) levels of ground level ozone and particulate matter, (d) strategies and measures applied or to be applied to reduce air pollution problems... (e) the environmental and human health improvement associated with attaining emission reduction commitments for 2020 and beyond
  2. Each Party may make information widely available to the public with a view to minimizing emissions, including information on:
    - (a) less polluting fuels, renewable energy and energy efficiency, including their use in transport

# Gothenburg Protocol:

- (b) Volatile organic compounds in products including labelling
- (c) Management options for wastes containing VOC generated by the public
- (d) Good agricultural practices to reduce emissions of ammonia
- (e) Human health, environmental and climate effects associated with reduction of the pollutants covered by the Protocol
- (f) Steps which individuals and industries may take to help reduce emissions of the pollutants covered by the protocol

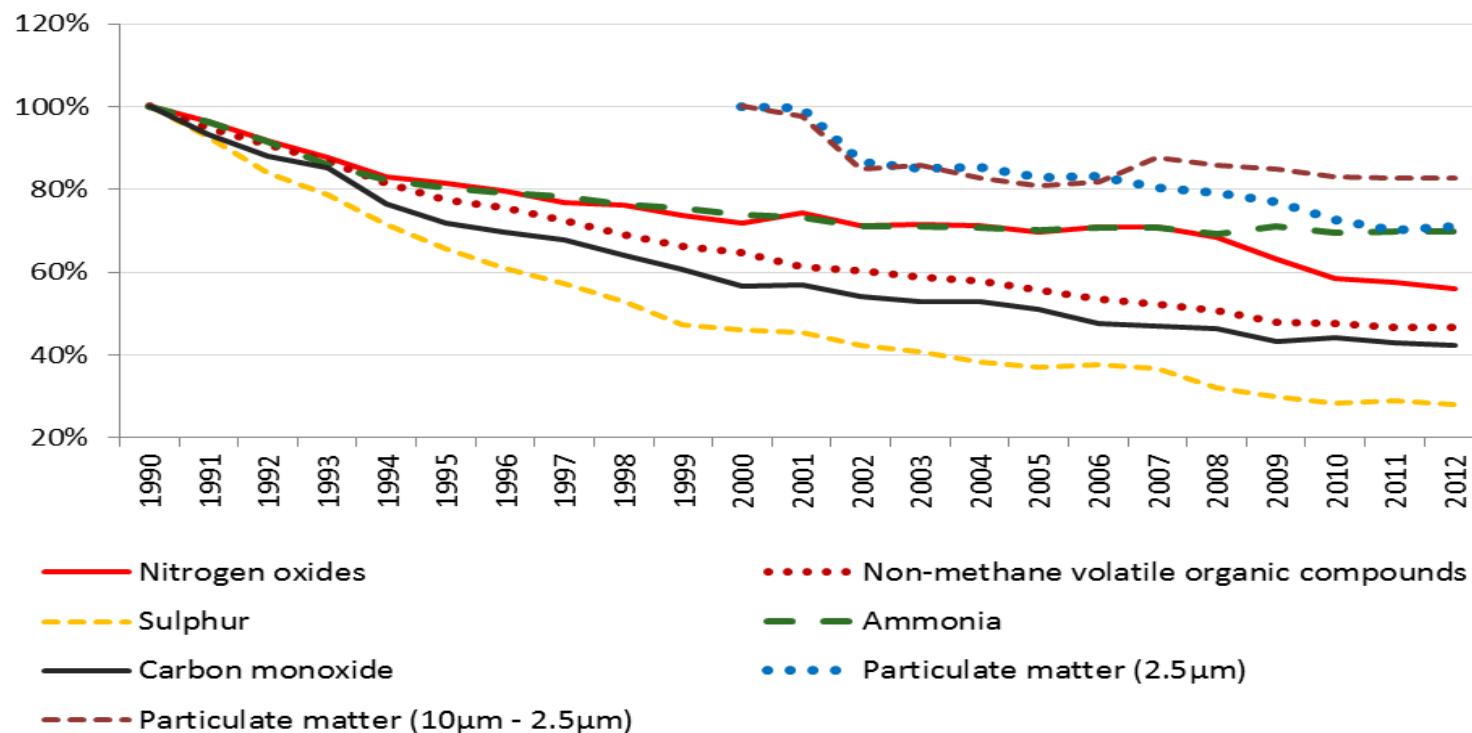
# Gothenburg Protocol:

- « Strategies, policies, programmes, measures and information»

## Article 6

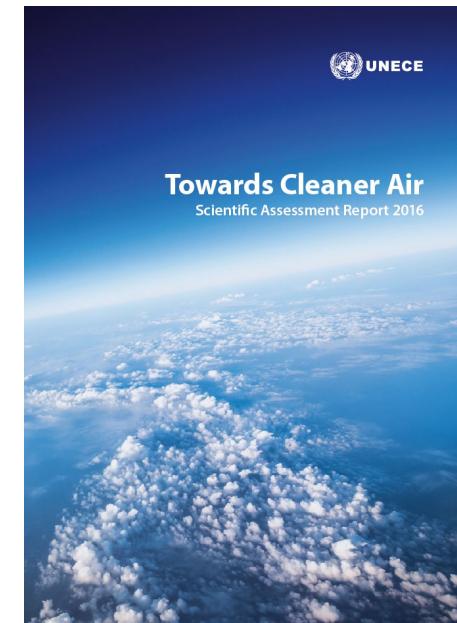
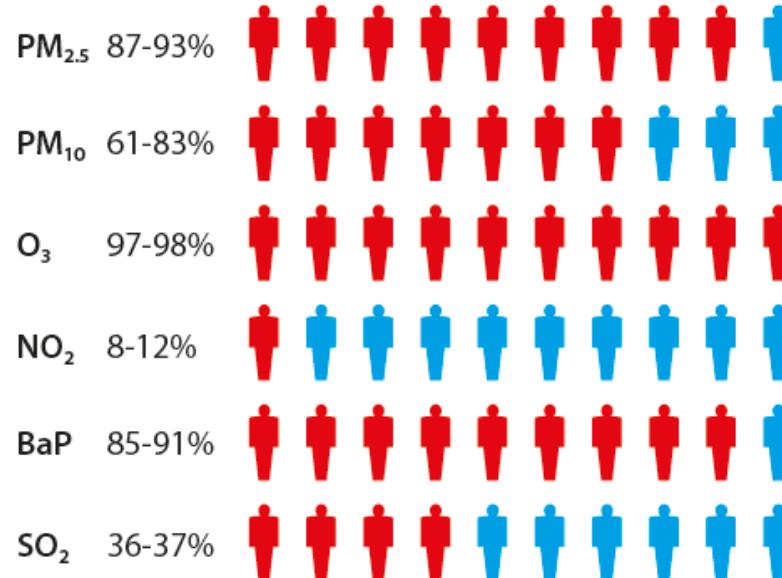
1. Each Party shall:
  - a) Adopt supporting strategies, policies and programmes
  - b) Apply measures to control and reduce its emissions of S, Nox, NH<sub>3</sub>, VOC and PM
  - c) Apply measures to encourage the increase of energy efficiency and the use of renewable energy
  - d) Apply measures to decrease the use of polluting fuels
  - e) Develop and introduce less polluting transport systems and promote traffic management systems to reduce overall emissions from road traffic

# Reduction of air pollutants emissions in the UNECE region (excluding Canada and the United States of America)



# Scientific Assessment Report 2016

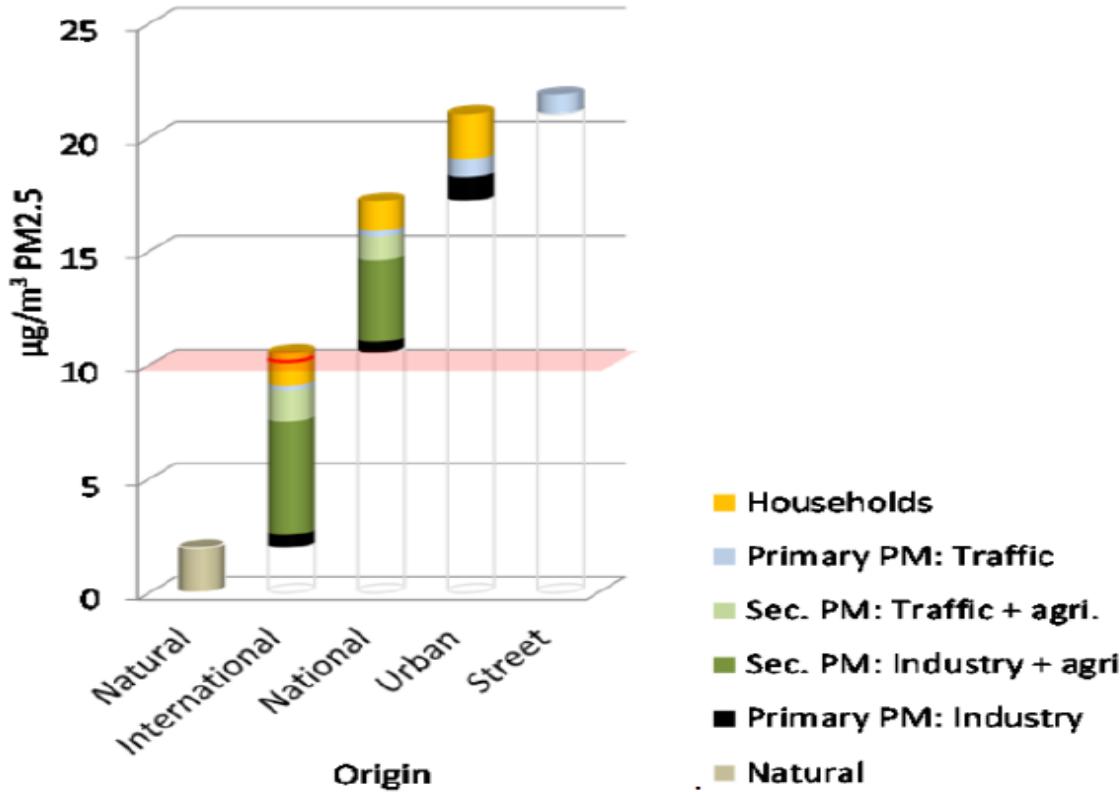
► The proportion of the population living in areas exceeding WHO air quality guideline values varies by pollutant, with over 87% of the EU population exposed to high levels of fine particles ( $PM_{2.5}$ ) and 98% to high levels of ozone ( $O_3$ ).<sup>viii</sup>



- If economic growth and air pollution trends had not been decoupled we would have had **three times more health impacts than today and the premature death of 600,000 more people.**
- Health impacts from ozone would have been 70% higher and ozone damage to crops 30% higher.
- **Overall, average life expectancy is today 12 months more than in the hypothetical unabated world**

# Why is transboundary cooperation on air pollution mitigation essential?

Components of PM<sub>2.5</sub> concentrations in Hungary



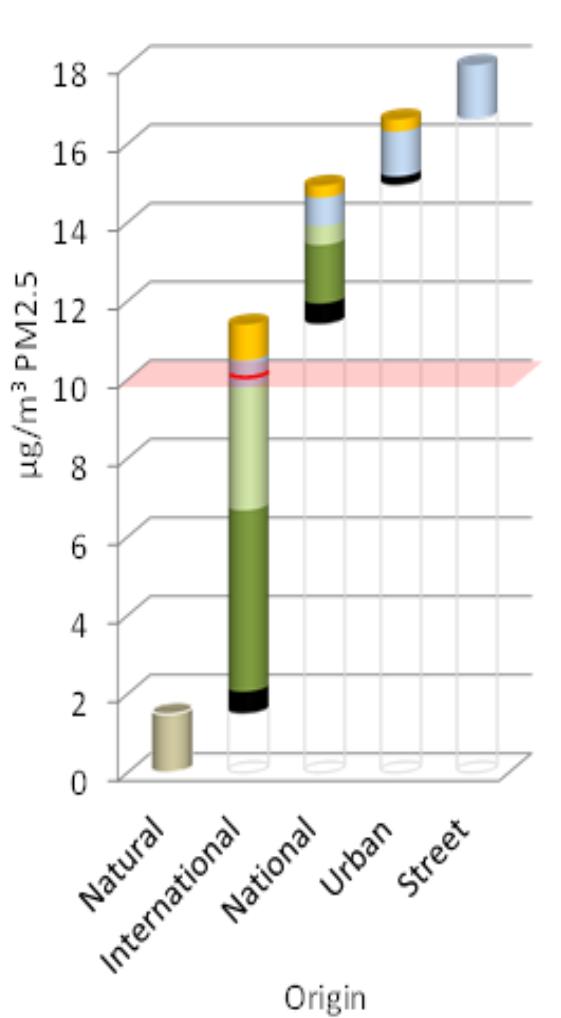
Source: IIASA GAINS.

Note: Contributions to ambient PM<sub>2.5</sub> at urban traffic stations in Hungary, in the base year 2009.

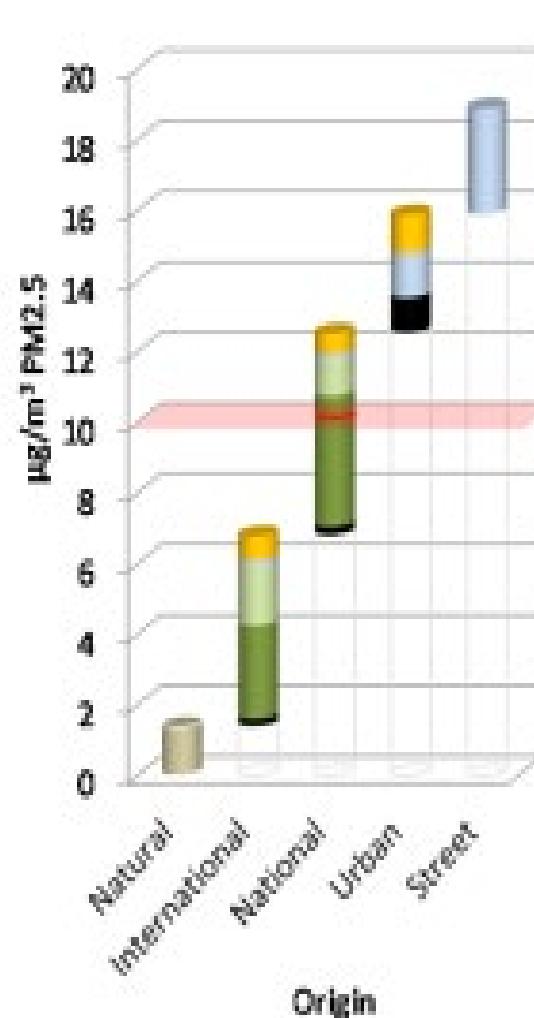
Abbreviations: agri = agriculture; Sec. = secondary. The pink shading demarcates the WHO annual guideline value of 10 µg/m<sup>3</sup> for PM<sub>2.5</sub> concentrations. The red band shows the crossing point to better visualize where the level exceeds the WHO annual guideline value.

# Why is transboundary cooperation on air pollution mitigation essential?

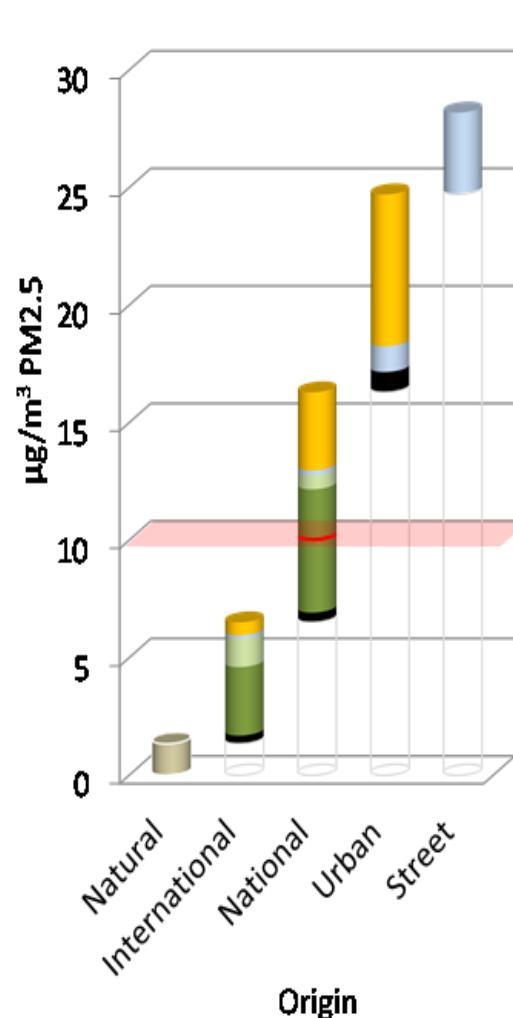
Netherlands



Germany



Poland



# **Task Force on Integrated Assessment Modelling: Expert Panel on Clean Air in Cities Rationale**

1. Most people exposed to air pollution live in urban areas
2. Air quality in cities is influenced by transboundary sources
3. Activities, emissions and measures in cities also influence air quality in other cities
4. Co-operative actions at all government levels will benefit cities (improve air quality at lower costs)
5. Synergies with other policy objectives would increase effectiveness (e.g. objectives for transport, energy, agriculture)
6. The expertise on *multi-scale multi-objective* assessment modelling and governance should be strengthened

# Long-term Strategy for the Convention for 2020-2030 and beyond

## Strategic priorities and tasks, including:

- In future review of the Gothenburg Protocol to consider: mandatory emissions reporting and reduction commitments for black carbon, further requirements for PM, acid rain and ozone precursors, strengthened ammonia abatement measures, including methane as ozone precursor, strengthened emissions standards based on BAT and energy efficiency requirements for residential burning;
- Focus on combustion-related POPs and consider additional measures that strengthen BAT;
- Act as a centre of expertise on reducing emissions of heavy metals;
- Further improve the scientific and technical basis;
- Improve cooperation with other countries, regions and organizations to advance efforts to address air pollution more broadly

# Compliance review under the Convention

## The Implementation Committee:

- Established in 1997
- Considers cases of possible non-compliance of a Party with any of its emission reduction obligations under a given protocol with a view to securing a constructive solution
- Reviews compliance with reporting obligations under the protocols
- Cases can be triggered by Parties or by the secretariat

## The EMEP Centre on Emission Inventories and Projections (collects all reported emission data under the Convention):

→ <http://www.ceip.at>

# Compliance review under the Convention

In 2018, the Implementation Committee considered 19 “substantive” cases:

- Out of them, 8 cases of exceedance of POPs emissions (mostly HCB), 5 – ammonia, 4 - heavy metals, 1- sulphur oxides, 1 – nitrogen oxides
- 7 cases were closed
- In December 2018, the Executive Body adopted decisions urging 2 Parties to fulfil their obligations under the Protocol on POPs and the Protocol on Heavy Metals, to provide additional information to the Implementation Committee and to report back to the Executive Body on the progress towards compliance

# Thank you

- <http://www.unece.org/env/lrtap/welcome.html.html>
- [albena.karadjova@un.org](mailto:albena.karadjova@un.org)