UNECE Air Convention

Expert Panel on Clean Air in Cities (EP-CAC)

Established at the 38th Executive Body of the Air Convention, December 2018

Rationale

Air pollution still causes severe health problems throughout the UNECE area. Exposure to poor air quality is relatively high in cities and especially along busy roads, near industrial sources or when many houses are heated with solid fuels. However, in most cities a large share of the local concentrations originates from sources outside the city, despite the fact that cities are net exporters of pollution. Cities influence their surroundings, but at the same time their air quality is heavily influenced by sources in the region of the city, other cities or countries. As a result, reducing emissions from local sources helps in reducing exposure to air pollution in hot spot areas in the cities but can also improve air quality outside the city. On the other hand might stand-alone action by local authorities prove to be insufficient or even ineffective to minimize air pollution-related health problems. A co-operative approach with other cities and national or international actors might prove to be more effective and efficient.

The mission of the *Expert Panel on Clean Air in Cities* is to analyse and communicate the potential benefits of multi-scale air quality management and find an optimal mix of local, national and international policy actions.

The Expert Panel will assess and further develop available practices and methodologies. Not only will the expert panel look at the linkages between geographical scales, but it will also include the potential linkages between air quality policies and other policy processes, such as energy, transport, food and the implementation of the United Nations Sustainable Development Goals.

The Expert Panel works under the auspices of the UNECE Task Force on Integrated Assessment Modelling. In order to support the work of the *Expert Panel on Clean Air in Cities*, it is necessary to expanding the current assessment models analyse the different pollutants and their effects on health and environment in an integrated way (the so-called multipollutant/multi-effect Integrated Assessment models) with multi-scale aspects. This requires method development, new knowledge and ideas and intensified collaboration with experts and policy makers working on local and national interactions.

Mandates and tasks

Key questions:

- Which actions at which government level are most effective to reduce the negative health impacts of air pollution (expressed as loss of life years)?

- Can we say more about the cost-effectiveness of measures at different government levels?
- What knowledge should be improved for robust policy advice?
  (e.g. on emission data, dispersion modelling, health impact assessment, costs and effects of measures, multi-scale multi objective policy design.)

EP-CAC will provide a science-policy arena for analysis of cost-effective multi-scale air quality strategies in the UNECE region. EP-CAC will highlight the interactions between geographical scales, acknowledging that air quality at the local scale is affected by international policies whilst the impact of local policies is propagated to other cities, regions and countries.

EP-CAC is *not* going to review whether local or national policies are cost-effective or sufficient in a specific and individual case, but will merely bring together people that are prepared to think and work on multi-scale linkages and exchange experiences.

EP-CAC could however suggest experts from the panel if cities, countries or international organizations would like to have advice on multi-scale policy design.

Mandate

- Form a community of experts working on multi-scale multi-objective assessment modelling and governance; facilitate mutual learning and interactions between policy makers and scientists.
- Advice the Working Group on Strategies and Review of the Air Convention on science-based cost-effective policy strategies aimed at clean air and better health in cities, that include the linkages between geographical scales and relevant other policy objectives.
- Advice the joint EMEP-Steering Body and Working Group on Effects on research priorities, the improvement of data and models and the use of health impact indicators.
- Build upon the knowledge in existing Task Forces and external networks.
- Refer parties, cities and international organizations to available experts that are able to advice on multi-level air pollution abatement strategies.

Cooperation with existing networks will be pursued. Relevant external networks are: Fairmode/Joint Research Centre, European Environment Agency, EU Urban Partnership on Air Quality, Eurocities, HEAL (Health and Environment Alliance), World Meteorological Organization Global Atmospheric Watch on Urban Research Meteorology and Environment (WMO/GURME), the World Health Organization and the Covenant of Mayors.

Work plan

Expected deliverables

- Prepare a position paper to raise awareness among national and local policy makers of the multi-scale interactions. To be followed by other relevant guidance documents.
- Organize annual workshops together with relevant networks to exchange knowledge and experiences and report to Working Group on Strategies and Review, Joint EMEP-Steering Body and Working Group on Effects.

- Ensure a database or guidance document is maintained of available technical and non-technical measures with an indication of their effectiveness and costs.
- Develop illustrative optimized scenarios for health improvement through clean air in cities.
- Participate in the work of relevant Task Forces, Centres and external networks with the aim to strengthen the knowledge base.
- Actively disseminate knowledge to parties and international organizations via presentations, documents and advice.

The first formal meeting of the expert panel is envisaged in autumn 2019. The conclusions of the meeting will be presented at the 39th meeting of the Executive Body of the Air Convention in December 2019.

Invitations will be sent to experts that have already registered as member of expert group, the TFIAM-mailing list, and to representatives of external networks.

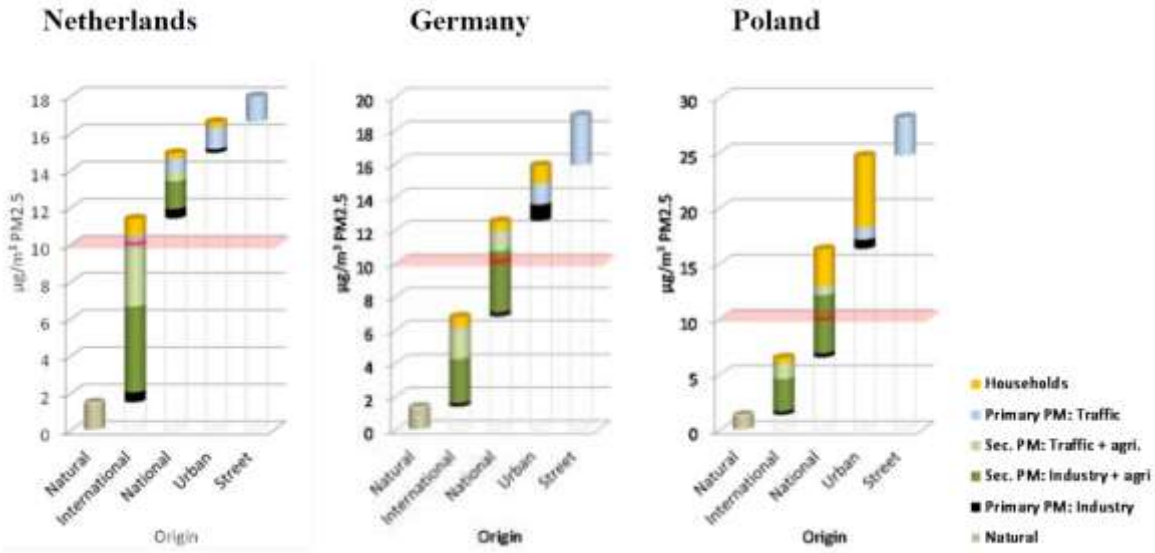
Earlier two workshops on improvement of local air quality were organised together with FAIRMODE:

- *Modelling urban and regional measures for improved air quality*
  in Utrecht, The Netherlands, 15-16 February, 2017
- *Local measures to improve air quality and health*
  in Tallinn, Estonia, 28-29 June, 2018

Reports and presentations of these workshops can be found on:
http://www.iiasa.ac.at/web/home/research/researchPrograms/air/policy/past_meetings.html

NO2-plumes from urban areas (INERIS - CHIMERE runs, January 2014)

Source apportionment of concentrations at traffic locations in 2009 (IIASA, 2012)



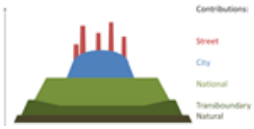
Raising citizen awareness

Typical health impacts of local measures

local share in NO_2-exposure is substantial

local share in PM2.5 exposure is small

1.	Less car traffic – more walking & cycling	+++
2.	Electric vehicles, electric busses & LDVs/HDVs	++
3.	Low emission zones (…diesel ban?)	+
4.	Speed limits	+
5.	Traffic circulation plans, Trees	+/-
6.	Adaptation (photocatalytic paint, episode warning)	0
7.	Ammonia reduction at regional level	+++
8.	Other sources in the region (industry, transport)	++
9.	Other local sources (shipping, domestic heating)	++/+

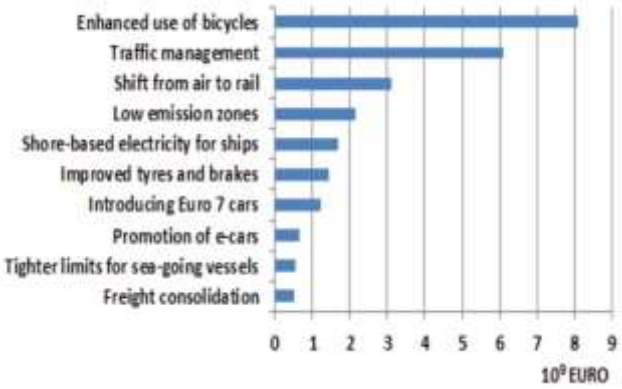


NAME	JOAQUIN SCORE
Low Emmision Zone (LEZ)	Good
Traffic Restriction	Good
Traffic Signal Coordination	Good
Public Transport	Good
Electric Vehicles (EV)	Good
Congestion Charge Scheme (CCS)	Good
Carpooling	Good
Car Sharing	Good
Active Transport	Good
Speed Limit Reduction	Good
Fuel Taxation	Good
Noise Barriers	Good
Fleet Renewal	Moderate
Parking Management	Moderate
Urban Planning	Moderate
Urban Parks	Moderate
Traffic Reallocation	Moderate
Green Barriers	Moderate
Engine Idling Reduction	Moderate
Street Cleaning	Moderate
Street Vegetation	Low
Air Purifing Building Materials	Low

Which local measures are effective ?

← Life project JOAQUIN

Net benefits - FP7- Transphorm project:



Relevant links

http://www.unece.org/index.php?id=42861&L=0
http://gains.iiasa.ac.at/index.php/tfiam/
http://www.iiasa.ac.at/web/home/research/researchPrograms/air/policy/TSAP_12_final_v1.pdf
http://fairmode.jrc.ec.europa.eu/
https://ec.europa.eu/jrc/en/news/sherpa-computational-model-better-air-quality-urban-areas
http://urban.jrc.ec.europa.eu/?ind=access&ru=fua&s=0&c=1&m=0&f=1&p=0&swLat=24.84656534821976&swLng=-45.3515625&neLat=65.58572002329472&neLng=67.1484375
http://urbanagendaforthe.eu/
http://www.covenantofmayors.eu/actions/sustainable-energy-action-plans_en.html
http://www.sustainablecities.eu/transformative-actions-database/
https://www.eionet.europa.eu/aqportal/toolbox/papers
http://airuse.eu/en/outreach-dissemination/reports/
http://www.joaquin.eu/Knowledge/Decision-Support-Tool/page.aspx/121
http://www.inherit.eu/
http://claircity.eu/
http://icarus2020.eu/
http://www.theicct.org/sites/default/files/publications/ICCT_real-world-NOX-RDE-2015-2030_dec2016.pdf
http://www.theicct.org/sites/default/files/publications/Euro-VI-versus-6_ICCT_briefing_06012017.pdf
http://www.iiasa.ac.at/web/home/research/researchPrograms/air/policy/12_Lumbreras_TFIAM45.pdf
https://www.london.gov.uk/what-we-do/environment/pollution-and-air-quality/improving-air-quality
http://www.developpement-durable.gouv.fr/index.php/politiques-publiques-reduire-pollution-lair#e5