Expert Panel on Clean Air in Cities

As adopted by the Executive Body of the UNECE Air Convention, 14-12-2018

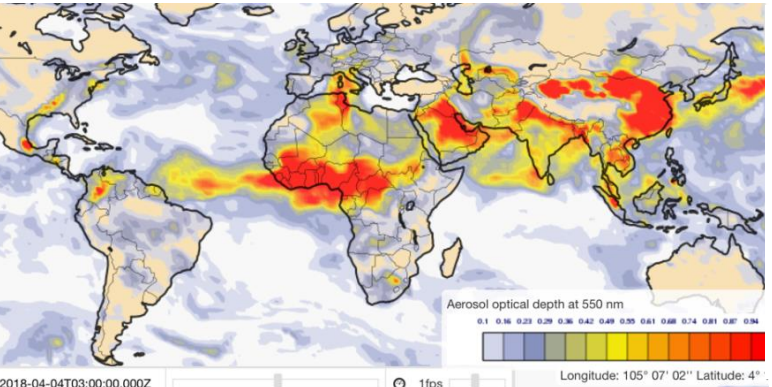
Rob Maas, Warszawa, 12-02-2019

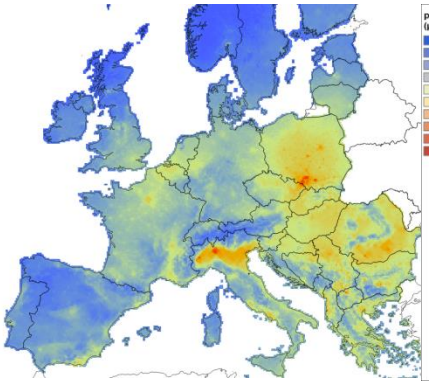
Expert Panel on Clean Air in Cities

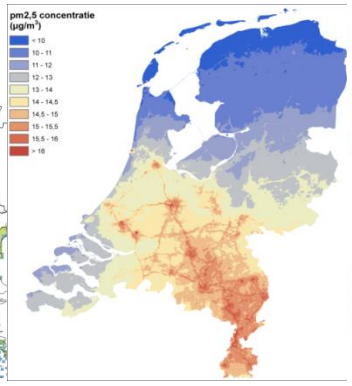
under: Task Force Integrated Assessment Modelling

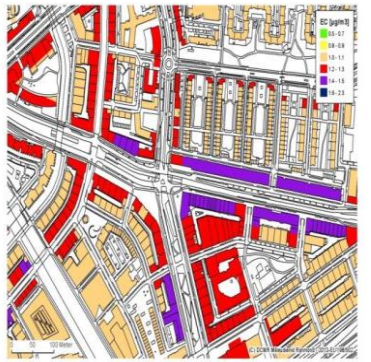
Revised TFIAM mandate

Multi-scale multi-objective assessment modelling aimed at cost-effective policy strategies that combine international, national and local actions as well as the links between air quality policy and other policy processes (e.g. on SDGs, climate, biodiversity)









Findings from earlier TFIAM-workshops
(spring 2017 & 2018, back to back with FAIRMODE)

- YLL in a country, city or street is associated with average annual population exposure
- How to best reduce average exposure of the urban population? Action at which government level?
- Compare additional costs of European, national and local measures with their gains in YLL
- How to assess risk reduction of highly exposed population at local hotspots? → Equity constraints decrease cost-effectiveness
- How to maximize synergies with climate, energy, transport, agricultural policy?

Expert Panel on Clean Air in Cities

Preparation meeting Brussels 30-11-2018

Input from:

Laurence Rouil (EMEP-SB) , Chris Boocock (AERIS), Augustin Colette (TFMM), Margherita Tolotto (EEB), Joana Cruz (Eurocities), Hilde Fagerli (MSC-W), Cristina Guerreiro (ETC-ATNI), Javier Querol (Spain), Stefan Åström (TFIAM), Markus Amann (IIASA), Rene Korenromp (Urban Partnership), Enrico Pisoni/Philippe Thunis (FAIRMODE), Roald Wolters/Michel Klinkenberg (COM), Hannah Yang (WHO), Anne Staufer (HEAL), Andreas Eisold (Germany), Andrew Kelly (Ireland), Evrim Ozturk (EEA)

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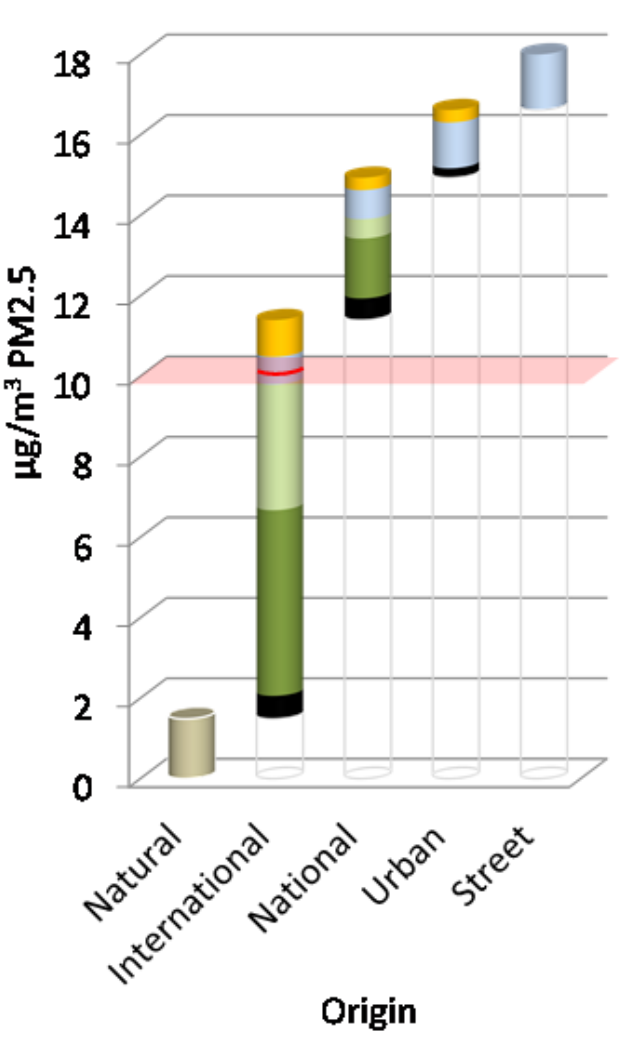
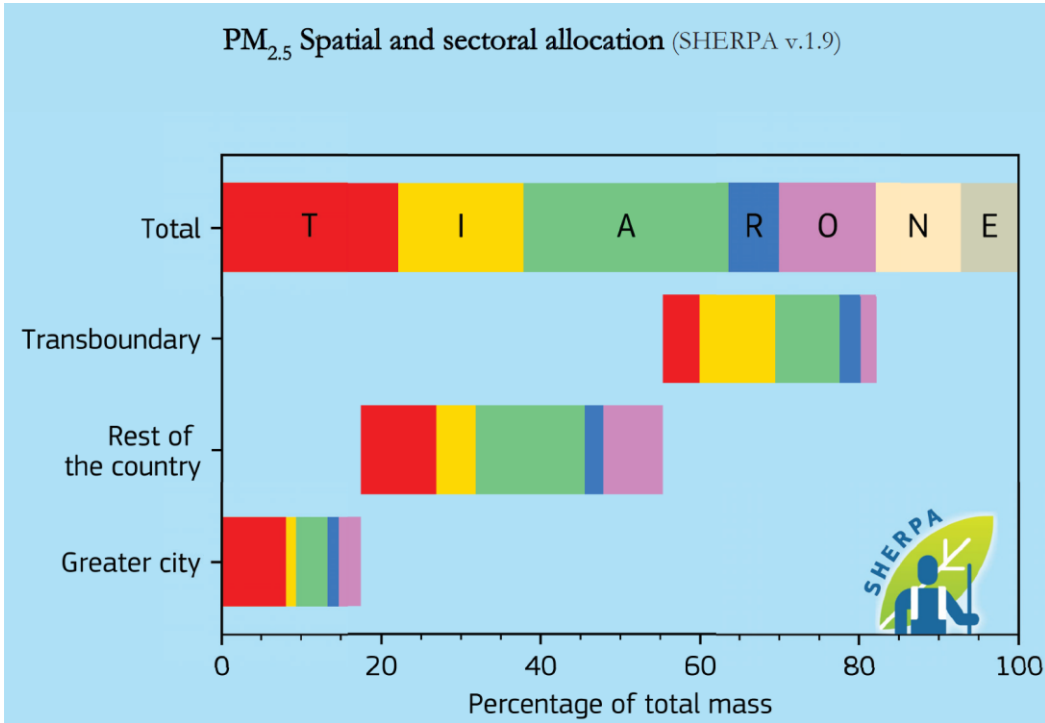
Rationale

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

Multi-scale co-operation is needed



- Households
- Primary PM: Traffic
- Sec. PM: Traffic + agri.
- Sec. PM: Industry + agri
- Primary PM: Industry
- Natural



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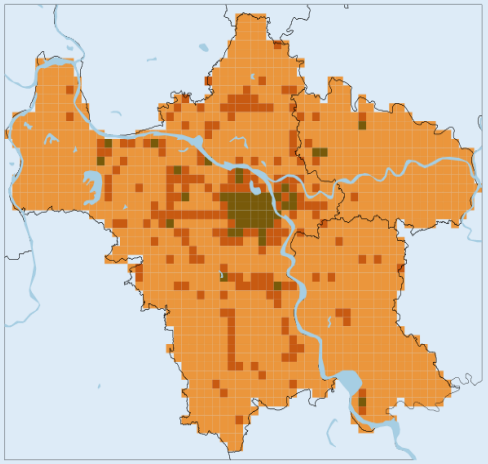
Key questions

- Which actions at which government level are most effective to reduce the loss of life years?
- Can we say more about the cost-effectiveness on measures at different government levels?
- What knowledge should be improved for robust policy advice? (e.g. on emissions, dispersion, health impacts, efficient measures, multi-scale multi objective policy design, …)

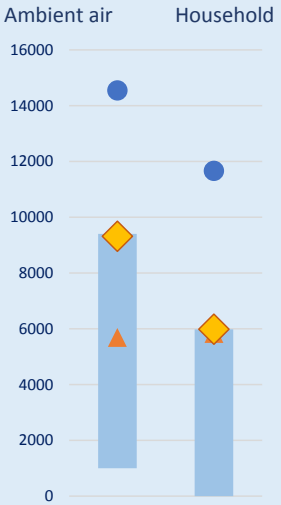
GAINS PMEH

Hanoi

Ambient PM2.5

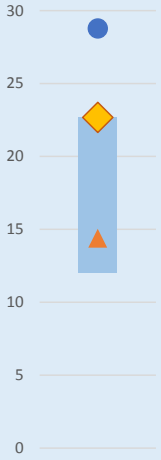


Premature deaths



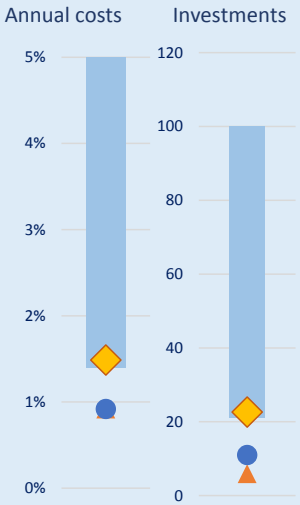
9316 cases | 5985 cases

Greenhouse gases



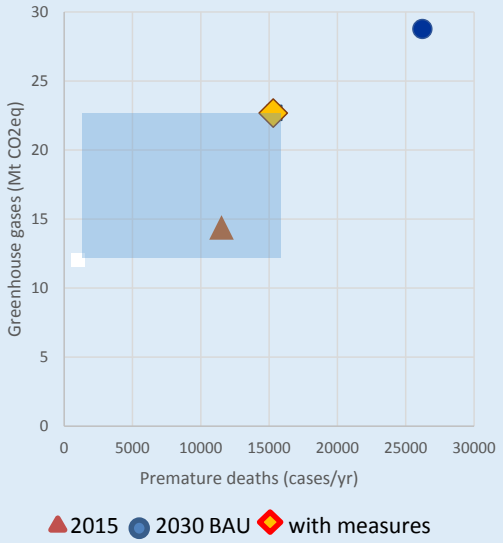
23 Mt CO2eq

Costs

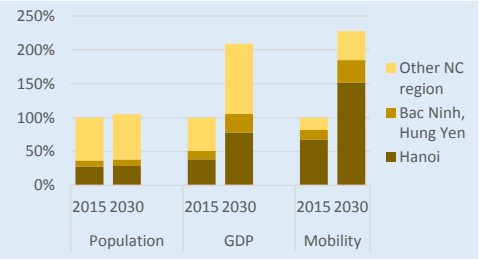


1.5% of GDP | 23 mio US-$

Co-benefits



DRIVERS (rel to 2015)	Hanoi	Bac Ninh - H.	North Vietnam
Socio-economic drivers			
Population change (%/yr)	0.2%	0.5%	0.4%
Income growth (%/yr)	4.7%	4.7%	4.7%
Mobility demand			
Share two-wheelers	80%	82%	51%
Share diesel	15%	9%	46%
Industrial structure			



COST-EFFECTIVENESS ANALYSIS

Determines the cheapest measures for the following targets:

Prem. deaths:

GHG emissions:

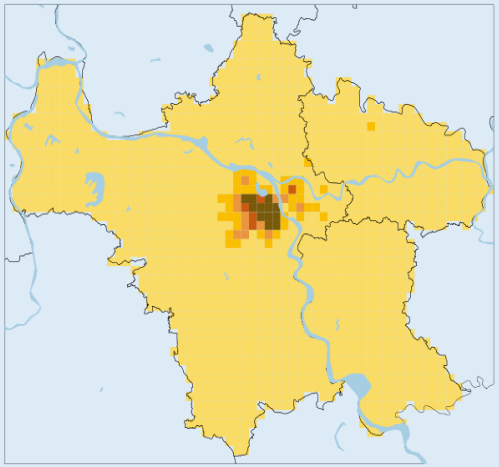
Start

MEASURES	Hanoi	Bac Ninh - H.	North Vietnam
Power plants			
NOx controls	100%	100%	0%
SO2 and PM controls	100%	100%	0%
Coal to gas	0%	0%	0%
Industry			
Boilers - NOx controls	100%	100%	0%
Boilers - SO2 controls	100%	100%	0%
Cement industry - BAT	100%	100%	0%
Chemical industry - BAT	100%	100%	0%
Steel industry - BAT	100%	100%	0%
Other industry - BAT	100%	100%	0%
Households			
Agriculture			
Road transport			
Non-road machinery			
Other sources			

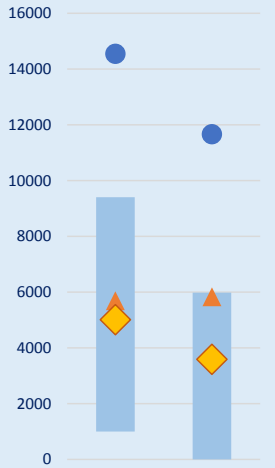
IIASA GAINS PMEH

Hanoi

Ambient PM2.5

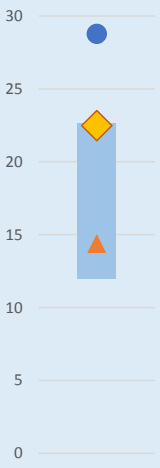


Premature deaths



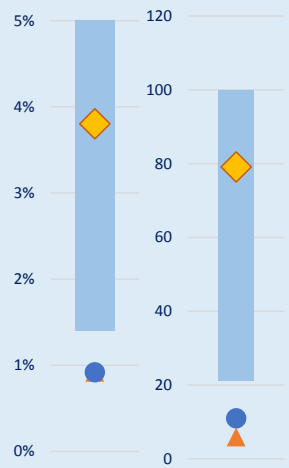
5013 cases | 3591 cases

Greenhouse gases



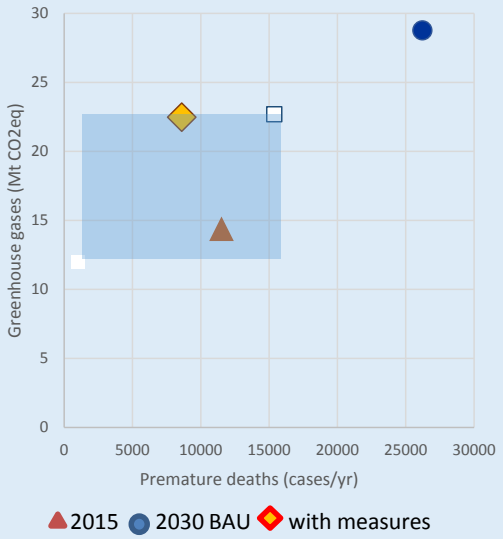
22 Mt CO2eq

Costs



3.8% of GDP | 79 mio US-$

Co-benefits



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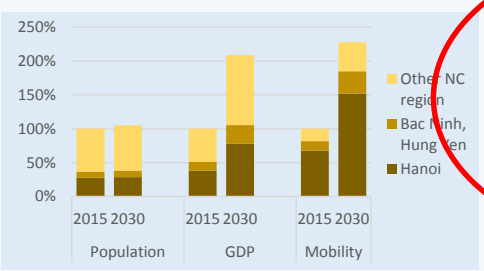

COST-EFFECTIVENESS ANALYSIS

Determines the cheapest measures for the following targets:

Prem. deaths: 4000 cases

GHG emissions: 15 Mt CO2eq

Start

MEASURES	Hanoi	Bac Ninh - H.	North Vietnam
Power plants			
Industry			
Households			
Agriculture			
Agriculture			
Manure management	0%	0%	0%
Urea application	0%	0%	0%
Ban of agr. waste burning	100%	100%	100%
Non-road machinery			
Other sources			

Expert Panel on Clean Air in Cities
Mission

- **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 on a 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 review if local or national policies are cost-effective or sufficient, 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

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Mandate

1. **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
2. **Advice the Working Group on Strategies and Review** 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
3. **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 damage indicators
4. **Build upon** the knowledge in existing Task Forces and external networks, such as FAIRMODE, EEA, Eurocities, HEAL, GAW and the Covenant of Mayors
5. **Refer parties and international organizations** to available experts that are able to advice on multi-level air pollution abatement strategies

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Deliverables

1. 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
2. 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
3. Ensure a **database** is maintained of available technical and non-technical measures with an indication of their effectiveness and costs
4. Develop illustrative optimized **scenarios** for health improvement through clean air in cities
5. **Participate** in the work of relevant Task Forces, Centres and external networks with the aim to strengthen the knowledge base
6. Actively disseminate knowledge to parties and international organizations via **presentations, documents and advice**

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Co-operation with existing activities and networks

- UNECE : TFMM/MSCW, US/CAN/EECCA
- WHO
- WMO
- Fairmode
- Urban Partnership Air Quality
- EEA
- Eurocities, HEAL
- Covenant of mayors

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Challenges

1. Progress depends on work done by the participants
2. Parties nominate experts that are working *(or are going to work)* on multi-scale and multi-objective linkages; including parties in North-America and Asia
3. Experts present their projects and ask each other for guidance
4. The chair of the Expert Panel can invite additional experts
5. Funding remains an issue (database; reporting; reimbursement of invited speakers)
6. Suggestions for a lead country / chair ?