

# Modelling city specific situations

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# Urban Agenda for the EU

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## What is the Urban Agenda?

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The Urban Agenda for the EU is a new working method to ensure maximum utilisation of the growth potential of cities and to successfully tackle social challenges. It aims to promote cooperation between Member States, Cities, the European Commission and other stakeholders, in order to stimulate growth, liveability and innovation in the cities of Europe.

# Scope

## ***Better regulation***

- more effective and coherent implementation of existing EU policies, legislation
- no new regulation, but focus on helping Urban Authorities.

## ***Better funding***

- identifying sources of funding for Urban Areas
- no new funding, but again support for Urban Authorities.

## ***Better knowledge***

- enhancing the knowledge base on urban issues and exchange of best practices and knowledge.
- knowledge on how Urban Areas evolve is fragmented and successful experiences can be better exploited.

# One-stop-shop for cities

## Urban agenda for the EU

The urban agenda brings together city governments, national governments and the European Commission to improve urban policy.

## Action for cities

The Commission plays an active role in initiatives to address urban issues.

Sustainable Urban Development  
Smart Cities and Communities [🔗](#)  
Covenant of Mayors for Climate and Energy  
[🔗](#)  
Habitat III - New Urban Agenda [🔗](#)

## Knowledge for cities

EU databases such as the urban data platform promote knowledge sharing and better policy-making on urban issues.

## Priority themes

### Air quality in cities

Circular economy in cities  
Climate adaptation in cities  
Culture in cities  
Digital transition in cities  
Energy transition in cities  
Housing in cities  
Innovative and responsible public procurement in cities  
Integration of migrants and refugees in cities  
Jobs and skills in the local economy  
Sustainable use of land and nature-based solutions in cities  
Urban mobility  
Urban poverty

## Funding for cities

Several EU funds offer support to cities, including advice on implementation.

European Fund for Strategic Investments  
European Structural and Investment Funds  
Horizon 2020  
LIFE  
Urban Innovative Actions [🔗](#)  
European Investment Project Portal  
European Investment Advisory Hub [🔗](#)

## Cities events

Upcoming and past events related to cities and urban development.

# PAQ

(<http://urbanagendaforthe.eu/partnerships/air-quality/>)

The main objective of this partnership is to:

- Identify gaps, overlaps and contradictions regarding regulations and funding
- exchange knowledge and best practices.

Action 1: MODELING CITY-SPECIFIC SITUATIONS

Action 2: MAPPING REGULATORY INSTRUMENTS AND FUNDING

Action 3: RECOMMENDATIONS ON AIR QUALITY BEST PRACTICES

Action 4: GUIDELINE FOR CITIES AIR QUALITY ACTION PLANS

# Outline of the work

- Bottom-up approach  
Questionnaire and “Catalogue of measures”
- Top-down approach  
SHERPA model  
(<http://aqm.jrc.ec.europa.eu/sherpa.aspx>)

# How the cities defined key measures

- On the basis of emission inventories (national, regional, local)
- On the basis of modelling: all cities used different models, from national, regional and city level to local street canyon models
- Through projections of future emissions without measures (BAU) and with the planned measures taking place
- Linking with other plans, such as SUMP (Sustainable Urban Mobility Plan) and SEAP (Sustainable Energy Action Plan)

# Barriers and positive issues

## Barriers

- Governance: air quality planning is not always the responsibility of the city (but cities in charge of SUMP, SEAP, ...)
- Uncertainty of emission factors for traffic emissions (esp. diesel) and residential biomass burning
- Legislation does not everywhere allow for a city to collect congestion charges, and use the revenue to finance local investments

## Positive issue:

- Cooperation between national, regional and local government
- Synergies between AQ effects and climate as well as noise
- Use of modelling to test effect of measures



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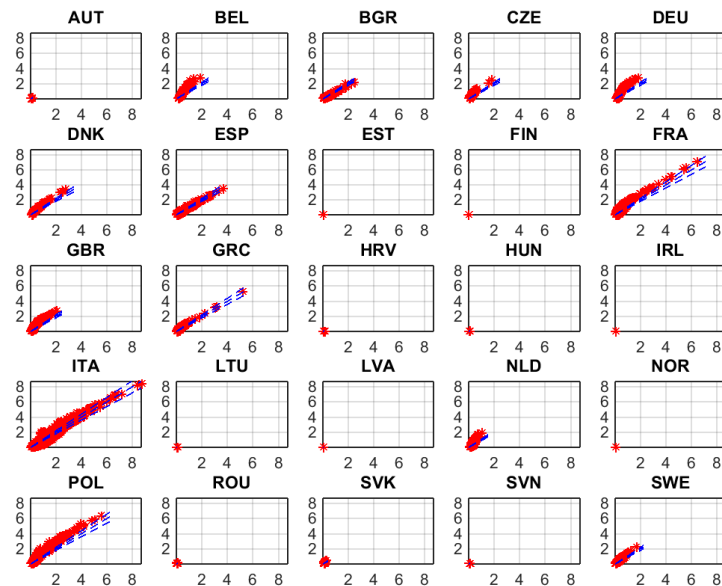
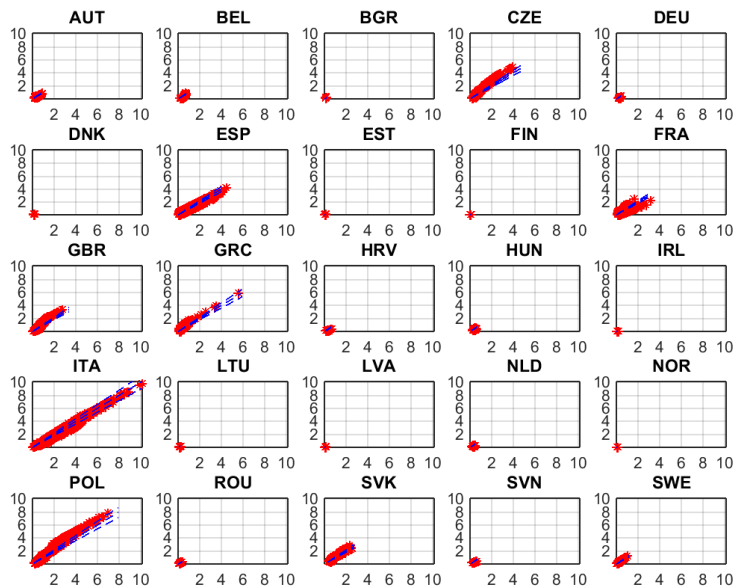
# SHERPA assumptions

Main assumptions/limitations of SHERPA:

- It simulates urban background...you cannot use it for pollution in street canyons
- It uses 2009 meteorology, and top-down emission inventory
- It is based on a unique full air quality model CHIMERE
- It uses a spatial resolution of 7x7 km<sup>2</sup> over the whole Europe
- SHERPA geographical domain:
  - Currently, for computational limitation, does not cover all Northern EU
  - A full domain coverage will be available Mid 2017



# SHERPA validation



Environmental Modelling & Software

Volume 74, December 2015, Pages 66–74



A new approach to design source–receptor relationships for air quality modelling

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Journal of Environmental Management

Volume 183, Part 3, 1 December 2016, Pages 952–958



Research article

On the design and assessment of regional air quality plans:  
The SHERPA approach

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Environmental Modelling & Software

Volume 90, April 2017, Pages 68–77



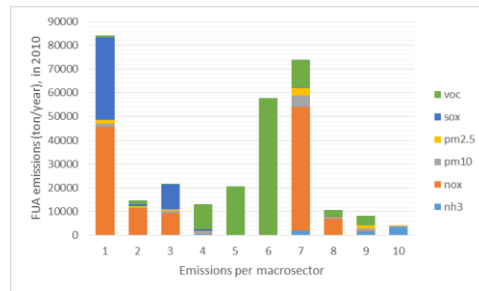
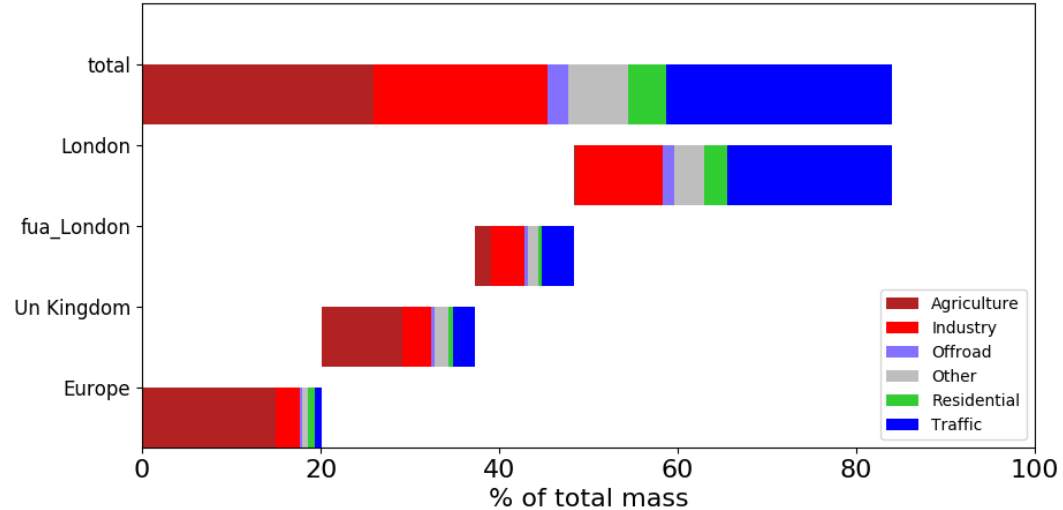
Adding spatial flexibility to source-receptor relationships for air quality modeling

E. Pisoni<sup>a</sup>, A. Clappier<sup>a</sup>, B. Degraeuwe<sup>a</sup>, P. Thunis<sup>a</sup>

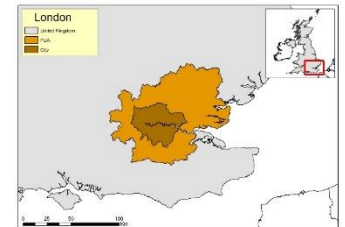
<sup>a</sup> European Commission, Joint Research Centre (JRC), Directorate for Energy, Transport and Climate, Air and Climate Unit, Via E. Fermi 2749, I-21027, Ispra, VA, Italy

<sup>b</sup> Université de Strasbourg, Laboratoire Image Ville Environnement, 3, rue de l'Argonne, 67000, Strasbourg, France

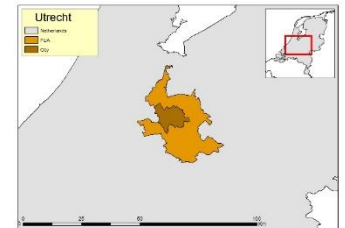
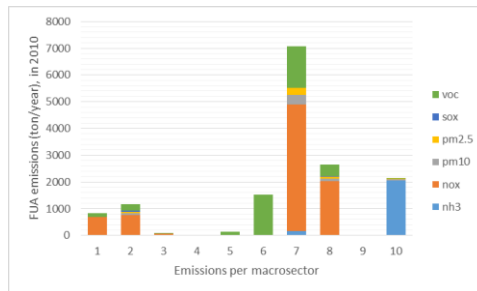
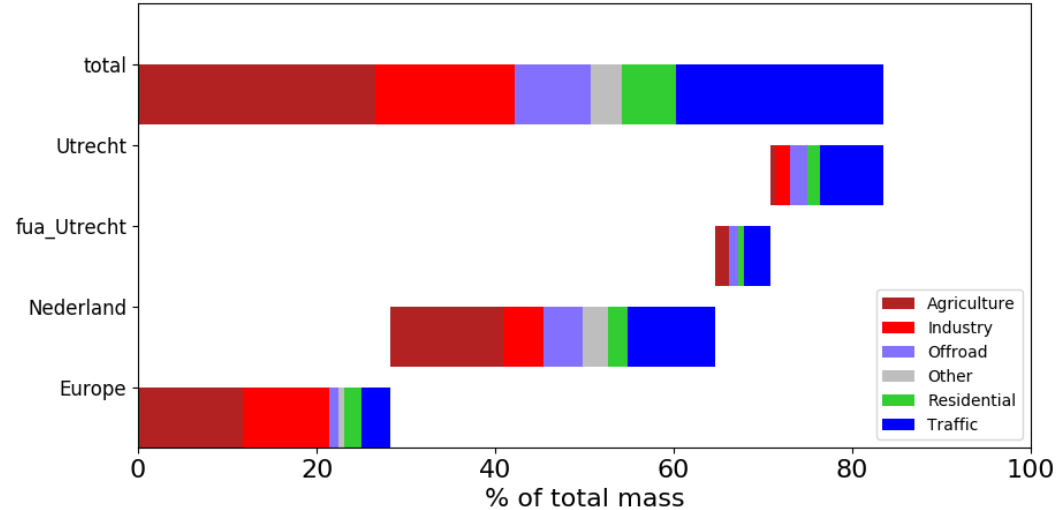
# London case



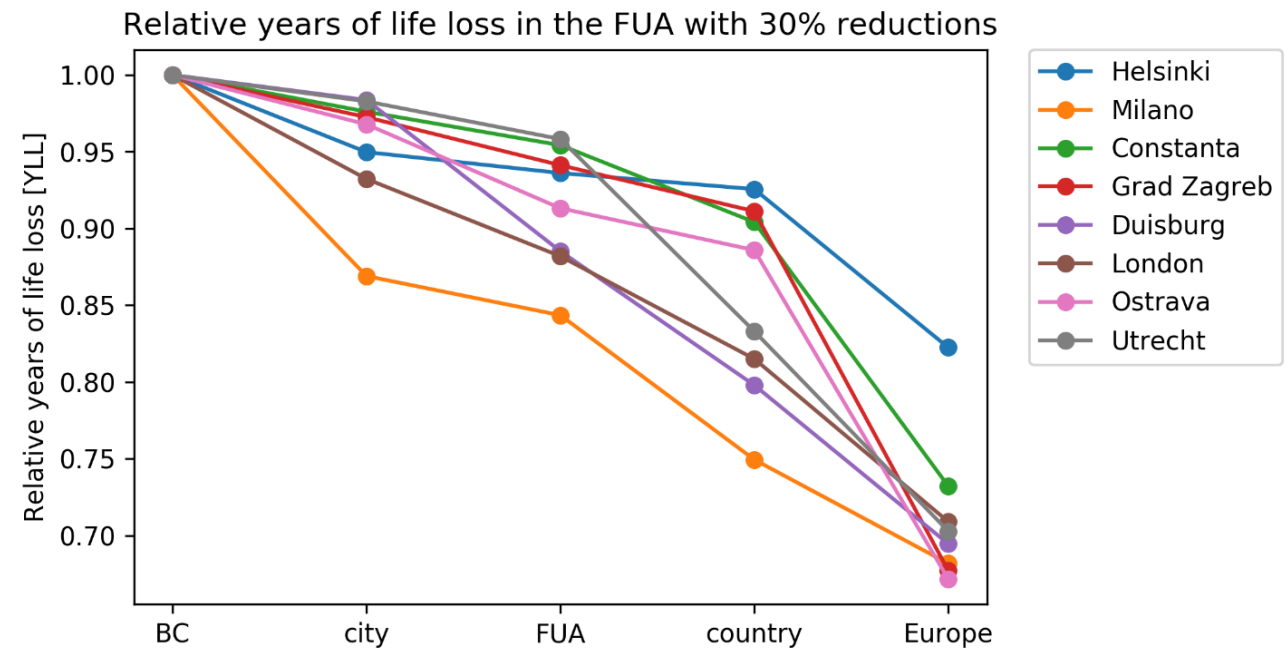
Agriculture: ms 10  
 Industry: ms 3-4  
 Other: ms 5-6-9  
 PublicPower: ms 1  
 Residential: ms 2  
 Traffic: ms 7-8



# Utrecht case



# An health perspective



# Conclusions

- WP1 contributed to better understanding of the current air quality situation (PM and NO<sub>2</sub>), from geographical and sectoral point of view
- Focus on PM<sub>2.5</sub>: health impact is still an issue
- For the analysis, there is room for improvement, i.e. with more accurate input data
- One option to be explored: integrating the two information (TP-BU), so that the top-down approach can be applied to more cities in a robust way

Questions ?