European Commission

Towards clean cities
TFIAM meeting

DG JRC
Directorate: Energy, Transport and Climate
EU Commission

Brescia

08-09 May 2018

Joint Research Centre

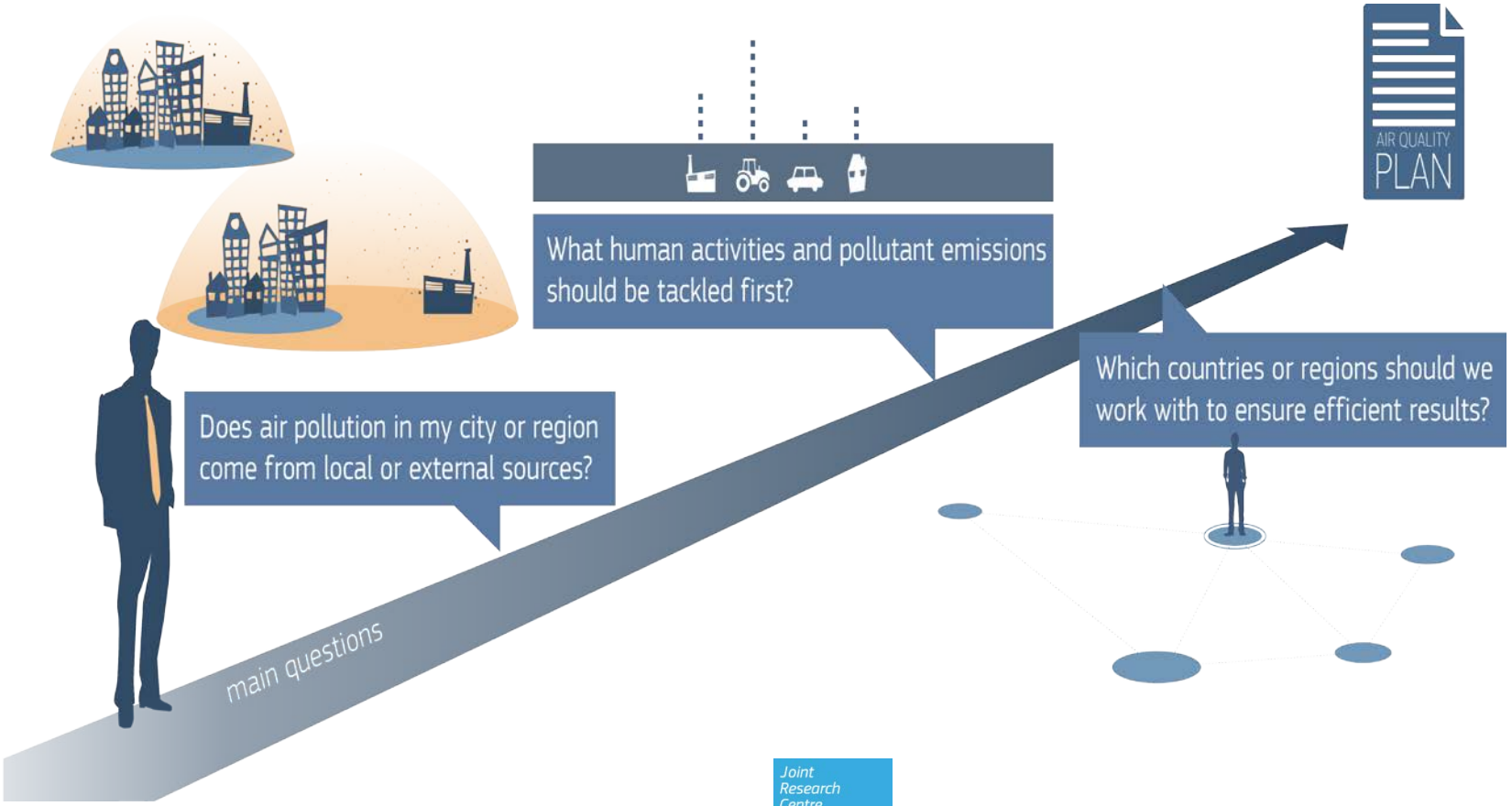
European Commission

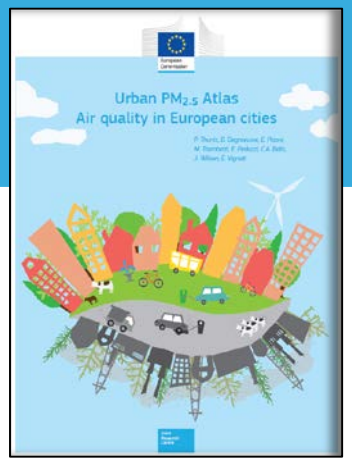
Air quality ATLAS

Joint Research Centre

The JRC PM2.5 urban atlas

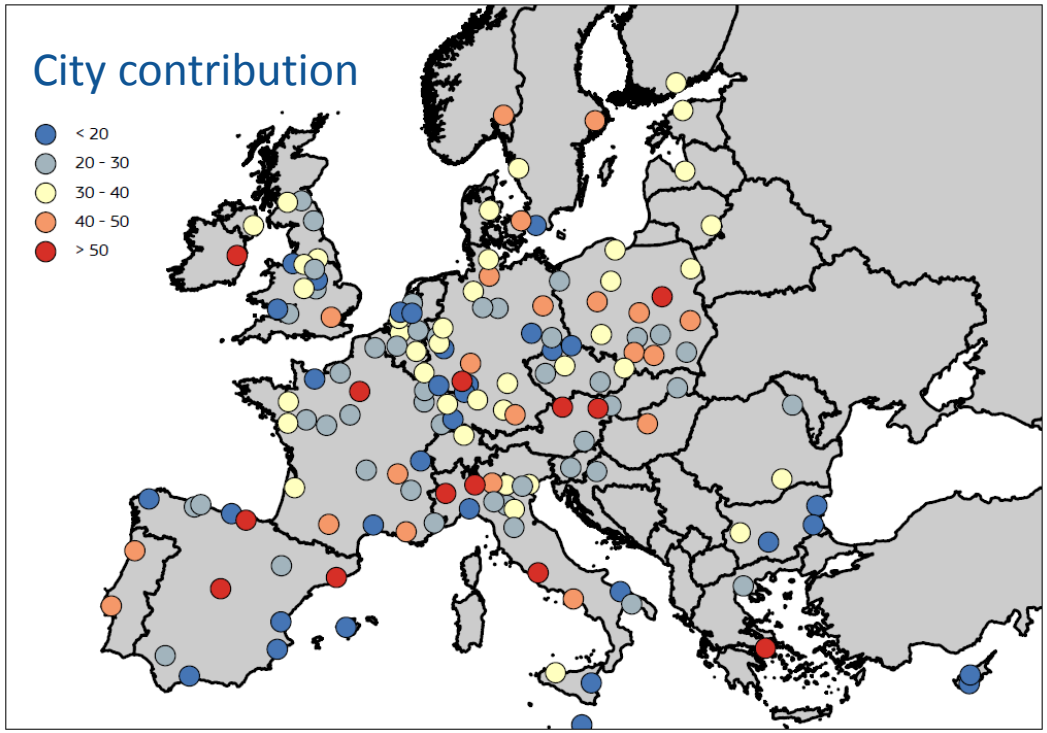
The JRC recently published the Urban PM2.5 Atlas to help local/regional policy makers design their air quality plans

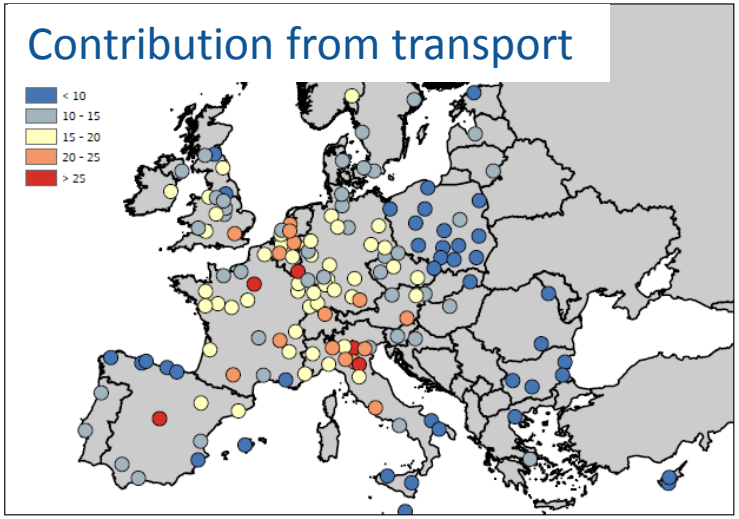


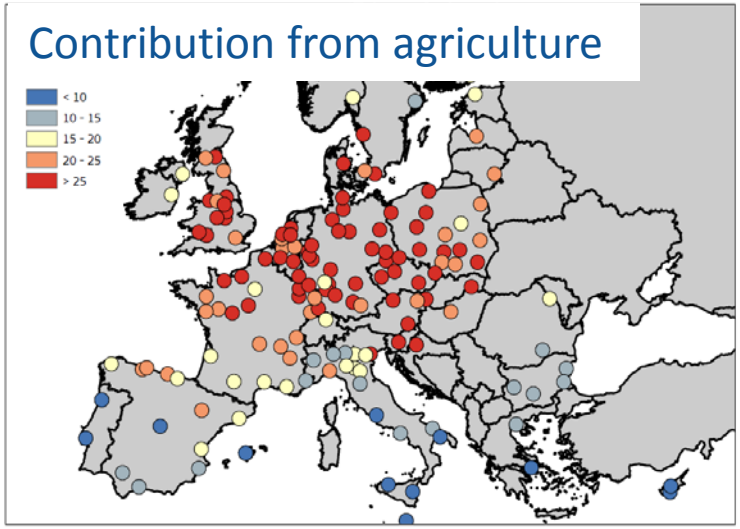


Mapping the source of $PM_{2.5}$ in the EU
(Urban Air Quality Atlas, JRC-C05)

European Commission







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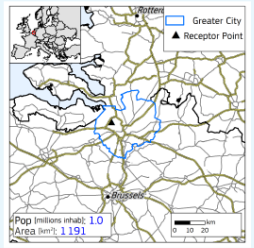
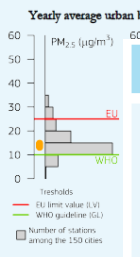
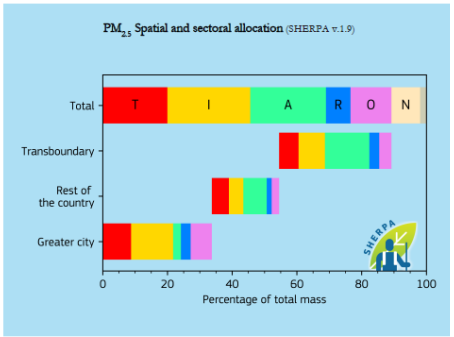
Detailed analysis for 150 cities in Europe

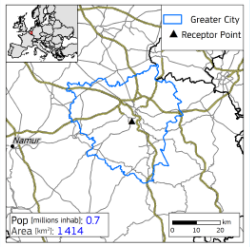
Belgium, Antwerp

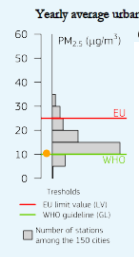


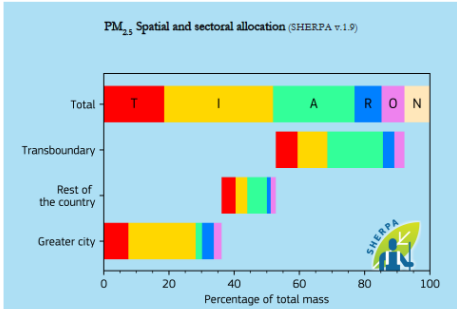




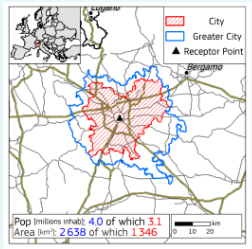
Belgium, Liege

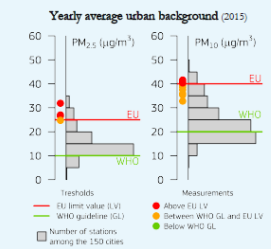


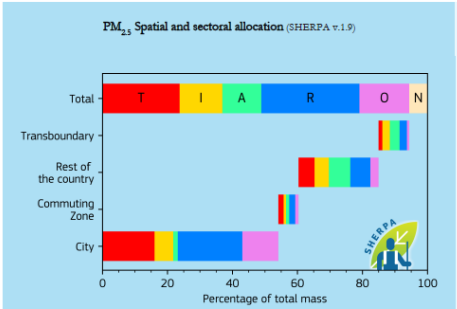


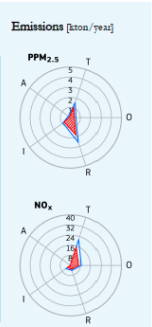


Italy, Milan









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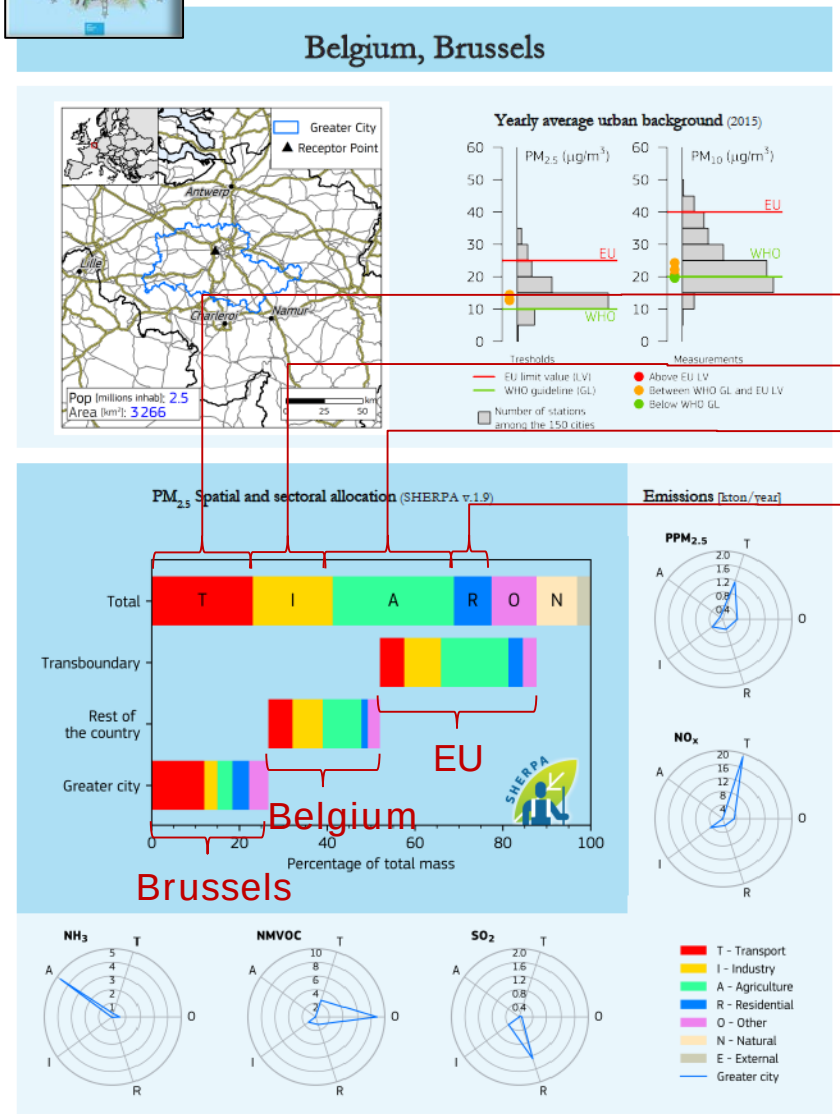

Transport

Industry

Agriculture

Residential

Information for additional cities & regions can be produced with the JRC SHERPA air quality integrated tool (freely available)

SHERPA

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Mapping the source of $PM_{2.5}$ in the EU
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Local actions at the city scale are an effective means of improving air quality.

Air quality plans (sectors, scales) should be city specific.

Sectoral measures addressing agriculture at country or EU scale would have a clear benefit on urban air quality.

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Future steps

Compare with other methodologies

- Gains
- Source apportionment results
- ...

Checking the robustness of the results

- using EMEP vs CHIMERE
- other emissions inventories
- point sources sensitivity
- downscaling

- For NO2: working on a dedicated approach...

The urban Air Quality PM2.5 Atlas is available at:

https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/urban-pm25-atlas-air-quality-european-cities

The SHERPA Air Quality integrated tool is available at:

http://aqm.jrc.ec.europa.eu/sherpa.aspx

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Links with the Covenant of Mayors

Scope

The Covenant of Mayors is the world's largest movement for local climate and energy actions.

Is it possible to quantify the co-benefits for air quality for such a wide initiative?

Covenant of Mayors initiative

- 54 Countries
- 7 755 signatories
- 252 million citizens

Covenant EU

28 EU Member States + EEA Countries

Covenant East

Armenia, Azerbaijan, Belarus, Georgia, Moldova, Ukraine

Covenant South

Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Palestine, Tunisia

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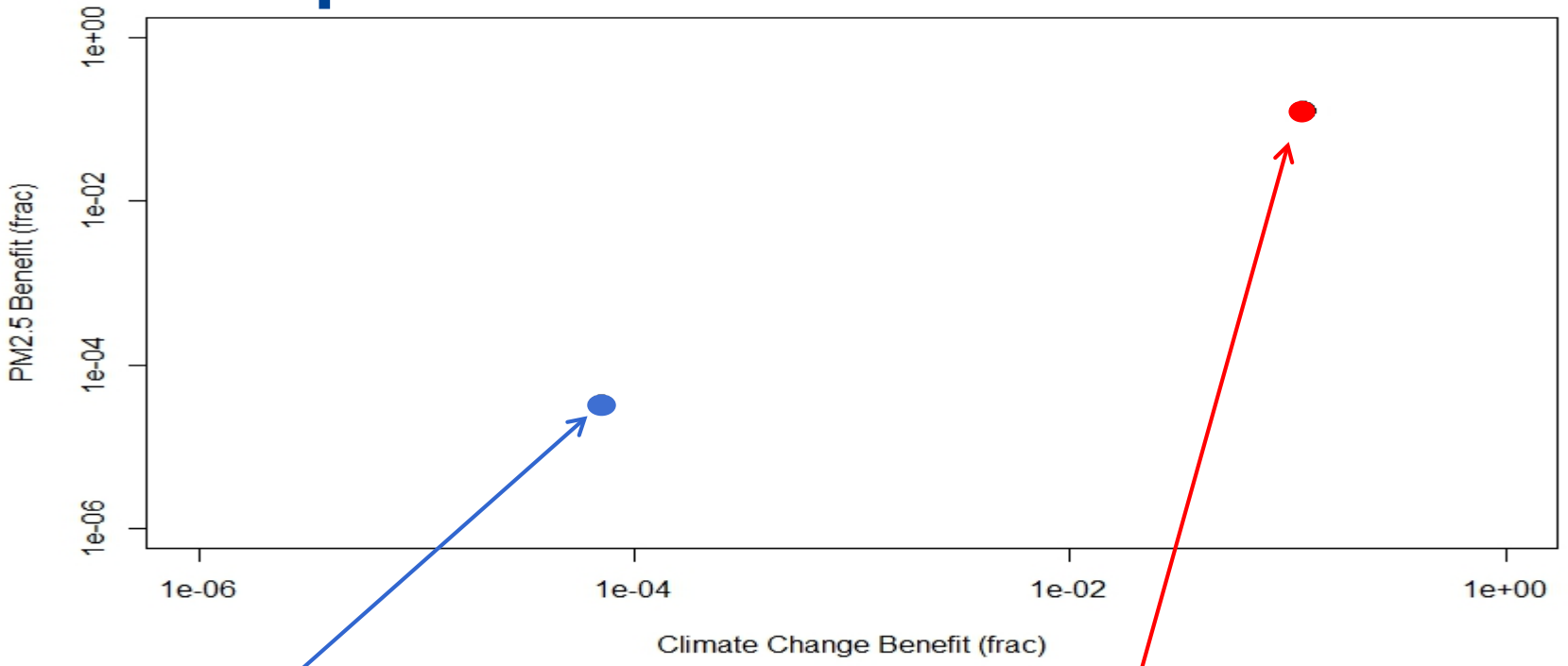
The CoM datasets

BEI – baseline emission inventories

SEAP – sustainable energy action plans

Three main types of measures:
- Energy Saving measures (ES)
- Renewable Energy Production measures (REP)
- Mixed measures (MIX)

Examples of measures in Barcelona



Promote the installation of solar thermal systems in sports centres

Implementation of Barcelona Urban Mobility Plan

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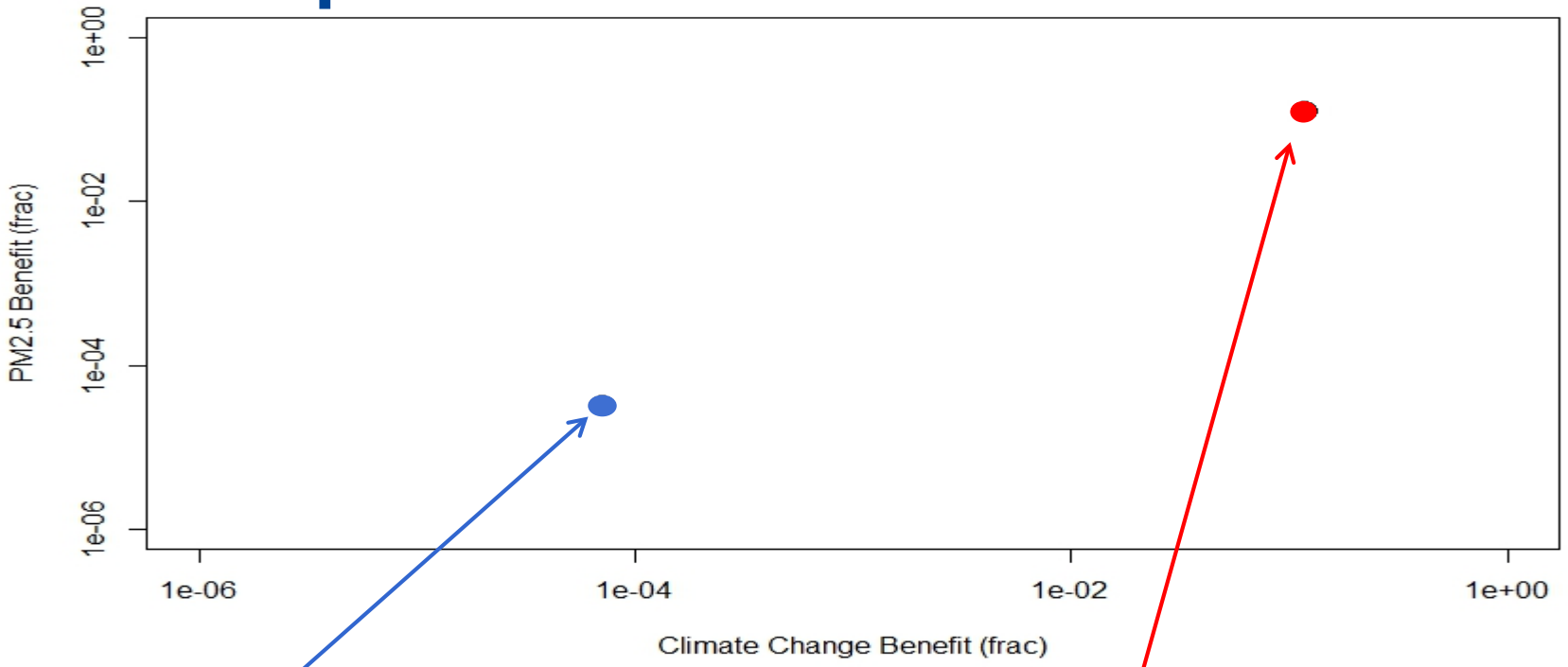
Examples of measures in Barcelona



CCB = 0.007 % AQB = 0.003 %	CCB = 11.9 % AQB = 12.4 %

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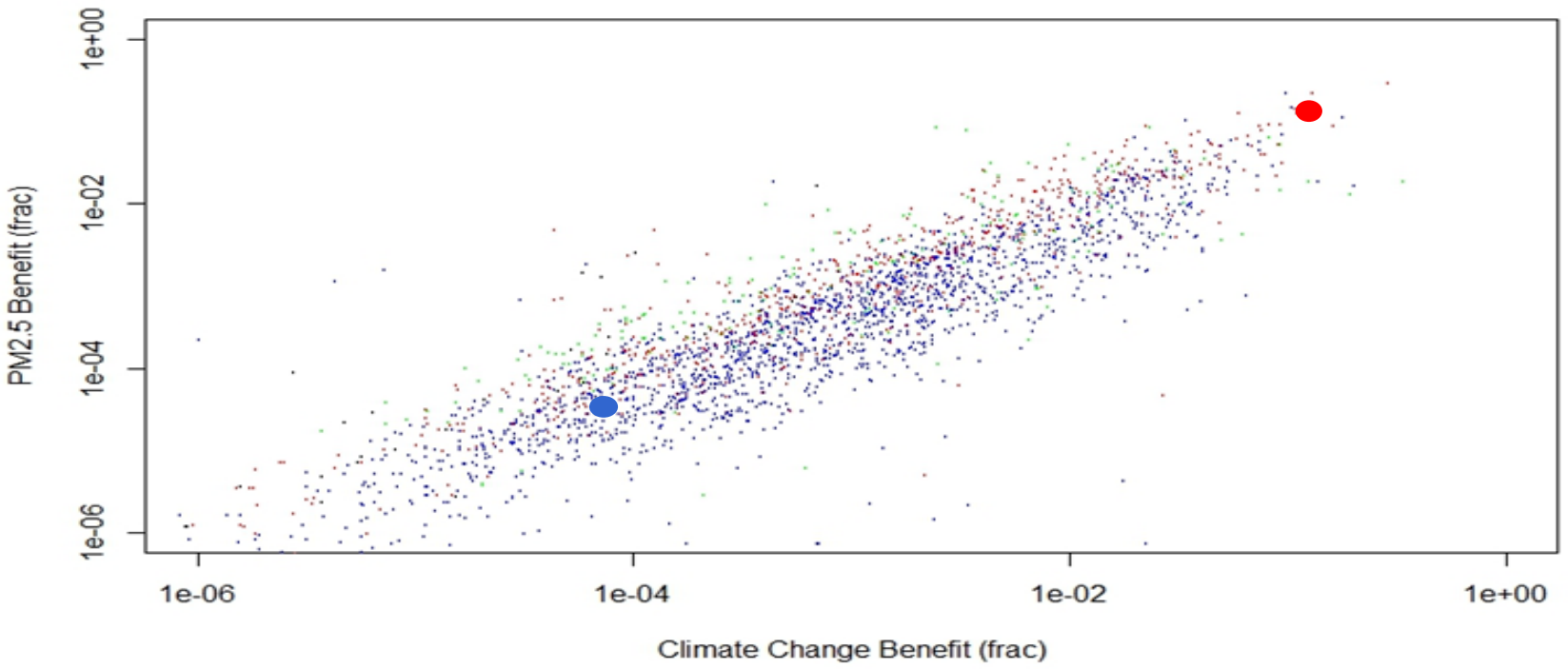
AQB vs CCB - all selected measures



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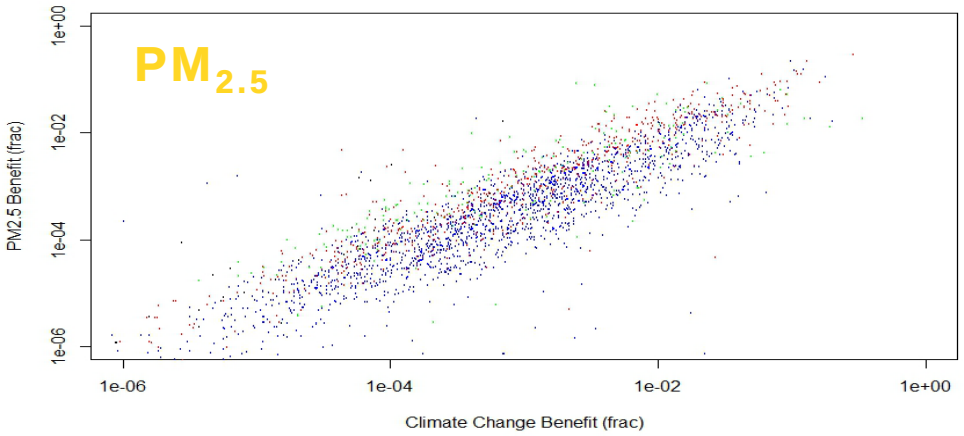
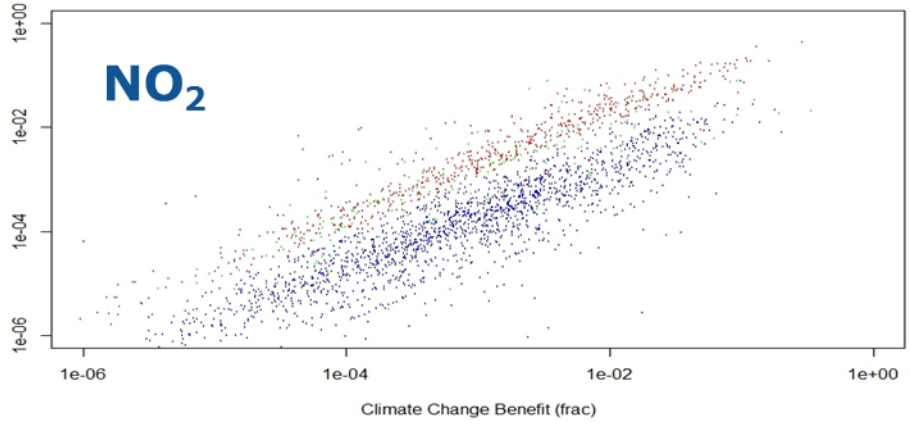
AQB vs CCB - sectors and pollutants





For the same climate benefit, traffic measures produce a higher $PM_{2.5}$ benefit than measures targeting residential sector

For the same climate benefit, traffic measures produce a much higher NO_2 benefit than measures targeting residential sector

Conclusions

- We have provided a first **quantitative** evaluation of the Air Quality co-benefits of a subset of the measures planned in the CoM.

- A main result of this study is the demonstration **of existence of co-benefits**: for the cities and the measures involved, the presence of relevant co-benefits has been demonstrated in a robust way.

- Moreover, statistical analysis has also shown that **co-benefits depend on the sector targeted and the pollutant considered** and has provided a first quantification.