Some lessons learnt (1)

- New WHO guidelines for 6 compounds
  - Plus: good practice statements for BC/EC, UFP, sand & dust
  - Interim targets for guiding improvement
  - New HRAPIE study starts in 2022
- EC: process to revise air quality limit values in 2023
  - Current shortcomings found for: enforcement, informing public, effectiveness of plans, …
  - Air quality index now available as app
- Consistent high resolution modeling
  - Source contributions urban emissions
  - Many larger cities, local actions responsible for significant fraction of local $PM_{2.5}$ pollution
  - Methodological choices can underestimate the cities responsibility for their AQ
  - High resolution modelling especially important for primary emissions
  - Height of building important for exposure calculations
  - Quality of input data is very important: emissions, buildings, population, consistency datasets

Some lessons learnt (2)

- The contributions from local sources to the NO2 and PM contributions are different. NO2 originate mainly from local sources, while sources from further away contribute most to PM
- Electrification of road transport give small (and uncertain) benefits for $PM_{2.5}$ and air quality. Reductions in traffic are required to give more substantial improvements
- Local and national policies
  - Collaboration at different government levels (cities)
  - Joint effectiveness of implementation of local plans
  - On the job learning how to involve citizens
  - How to take into account higher sensitivity of low-income groups (from housing conditions and lifestyle)?
- Connecting policies: climate/energy, biodiversity, healthy cities/spatial planning
- Attention for communication and raising awareness of local AQ to the public is vital and increasing
- Positive actions from a city can be an example for other cities and regions

Some lessons learnt (3)

- COVID lockdown lessons
- The lockdown proved that reduction of traffic has significant positive effect on air quality
  - Ultra low emissions zone gave similar reductions in NO_2 as COVID lockdown (London)
  - Reduction in concentrations seen for NO_x and NO_2
  - Results seen for $PM_{2.5}$ and PM_{10} are mixed, varying from limited to significant reduction.
  - For O_3 increased concentrations have been identified in urban areas
- Reductions as large as during the COVID lockdown are needed to improve the air quality