Priorities for road-transport emission inventories

1. Uncertainty characterisation and sensitivity analysis

- Monte-Carlo or similar type of statistical treatment (error propagation) to identify most important variables
- Give guidance on the detail required for activity data
- Provide uncertainty range of final calculation
2. Characterisation of the emission factors quality/variability

- Quality index on each emission factor
- Uncertainty range on each value/function
- Explain uncertainty
- Provide guidance for uncertainty of different approaches

3. Provide rules/values for projections

- Develop detailed good-practice guidance for road transport projections
- Produce assessments of emission factors for emerging technologies,
- Refine methodologies for stock replacement
4. Provide methods for spatial / temporal resolution

- Develop good-practice guidance with regard to top-down and bottom-up approaches of road transport emission inventories
- Develop methods/models to support such approach
- Streamline average-speed, traffic situation, modal analysis models

5. Refine activity data

- Conduct probe surveys on vehicle utilization
- Better describe vehicle classification (new, second-hand, deregistered, mopeds)
- Collect and refine already available information from transportation statistics
6. Validate existing emission factors

- Validate existing emission factors (mostly based on dynamometer studies) by means of
  - Tunnel or roadside concentration measurements
  - Portable Emission Measurement Systems (PEMS)
  - Air-quality measurements/ inverse modelling

7. Cold start emissions

- Better detail cold-start emissions
- Perform new measurements on new vehicle technologies
- Use PEMS to record cold overemissions
- Revise the methodology
8. Biofuels and alternative fuels

- Characterise links of vehicle technology / fuel use / blend, for example E85 effect on Euro 3 passenger cars or biodiesel
- Second generation biofuels
- CNG, LPG, Biogas
- Non-regulated pollutants

9. New technologies including hybrids

- Develop emission factors, emission methodologies for new emission control technologies,
  - Strong hybrids
  - Mild hybrids
  - SCR
  - GDI, FSI
  - Flexifuel
  - ...
10. CO2/ fuel consumption characterisation

- Develop more classes and consumption factors for CO2 calculations
  - Diesel <1.6 l
  - SUV
  - Gasoline <1.0 l
  - ...
  - Develop correction factors based on average weight / capacity
  - CO2 from urea consumption in SCR

11. Non-CO2 GHGs

- Perform new measurements to characterise N2O, CH4 based on
  - Vehicle / aftertreatment technology
  - Operation conditions (cold-start)
  - Fuel use
12 Non-regulated pollutants

- Conduct studies to measure
  - NH3
  - NO2/NO
  - NMVOC speciation
  - PM speciation
  - metals from fuel consumption
  - metals from lubricant,
  - metals from attrition
  - ion emissions (sulfate, nitrate, ammonium)
  - PAHs and POPs

13. Emission corrections

- Ambient temperature (hot emissions)
- Altitude
- Use of auxiliaries (e.g. air-conditioning)
- Vehicle age
14. Idling emissions

➤ Provide idling emission factors (g/h) which may be significant in parking lots, school busses, etc.

15. Ultra emitters

➤ Estimate share of ultra-emitters by remote-sensing,
➤ Provide emission factors for ultra-emitters
➤ Estimate the effect of OBD
➤ Use PEMS to understand ultra-emitters performance