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Discussion on evolution of the current best practice guidance document for the road transport sector

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Overview

- 15/05/2020: Call for contributions to review the first draft on recommendations and best practices for the compilation of urban exhaust traffic emissions
- Comments received from several contributors (Thanks a lot!):
 - Oxana Tchepele
 - Alexandra Monteiro
 - Jenny Stocker
 - Philippe Thunis
 - Florian Pfäfflin
 - Joana Leitao
- Summary of the feedback received
- Summary of proposed changes/updates of the document

Scope of the document

- Review of current methodologies used to compile traffic-related input data in relation to the development of urban exhaust traffic emission inventories.
 - Discussion of strengths and limitations for each method
 - Literature examples of their application and performance of sensitivity analysis
- Provide guidance for the selection of the best methods to be used for the compilation of urban traffic emissions.

Feedback:

- Address also cold-start and non-exhaust emission sources (wear, resuspension, evaporative)

Proposal:

- Cold-start emissions should be included in the document, as they are part of the exhaust source category (discussion about importance of cold-distance, NH3 gasoline emissions)
- Non-exhaust sources should remain out of the scope of this document, as the processes, methods, input data is different and requires specific attention.
- We can add an “OPEN ISSUES” section in the document and briefly comment on them

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Feedback:

- Include analysis of top-down (downscaling) approaches (not only bottom-up approaches)

Proposal:

- The focus of the document is on bottom-up approaches, since downscaling/regional emission inventories are too limited for urban AQ modelling (in terms of spatial and temporal resolution)
- Nevertheless, we could add a section at the beginning giving a general description on the different methods to compile traffic emission inventories (bottom-up / downscaling) and mentioning that the review will focus on the bottom-up ones (use section 3.1 as a basis and move it to the beginning of the document)

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Feedback:

- Replace the concept of “best methods” for the idea of “fitness-to-purpose” (as it is almost impossible to give a best method for all cases)

Proposal:

- Change the current “4.1 Recommended approaches section” to a “which emission estimation approach for which purpose” section, including:
 - Support AQ assessment/forecasting
 - Support AQ planning
 - Support microscale modelling (feedback/discussion with CT4) ?

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Feedback:

- Current conclusions focussed mostly on floating car data

Proposal:

- Rewrite the conclusions section using as a basis a summary table with:
 - Recommendations for each case
 - Potential issues to consider

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Feedback:

- Include the quality criteria of “completeness” (right now only accuracy of emission estimates is mentioned)

Proposal:

- Include the concept of completeness in terms of:
 - Vehicle categories included (private and public transport)
 - Road network included (major versus minor roads)
 - Emission processes considered
 - Fuel blend (different type of blends)
- Very useful for the decision-tree as well

Other feedback

- F1: Add equations giving the formula to estimate emissions for each approach
- F2: Mention the concept of temporal variation of the vehicle fleet composition (e.g. weekdays more light duty vehicles than weekends; morning rush hour dominated by light duty vehicle and afternoon rush hour dominated by passenger cars)
- F3: Mention the impact of fleet forecasts when performing AQ planning studies
- F4: Discuss more in detail how to deal with public transport bus service emissions (spatial allocation of the emissions, use of bus timetables).
- F5: HBEFA-approach and its content seems to be a little under-represented (include description of national vehicle fleet compositions, consideration of ageing in EF)
- F6: Mention ACEA as source of vehicle fleet composition
- F7: Introduce more recent references (right now up to 2015)
- Other minor comments / correction of typos

Structure of the document

Current

1. Introduction
2. Methodologies to compile input traffic information
 1. Vehicle activity
 2. Vehicle fleet composition
 3. Exhaust emission factors
3. Practice and trends
 1. Current use of input data for the estimation of urban traffic emissions
 2. Trends of methods to estimate traffic emissions
4. Summary and recommendations
 1. Recommended approaches
5. Conclusions

New proposal

1. Introduction
2. Methods to estimate urban traffic emissions
3. Methods to compile input traffic information
 1. Vehicle activity
 2. Vehicle fleet composition
 3. Exhaust emission factors
4. Which emission estimation approach for which purpose (AQ assessment/forecasting, planning, microscale modelling)
 1. Spatial distribution
 2. Temporal distribution
 3. Completeness analysis
5. Summary overview and links to the decision tree
6. Open issues

Discussion and Next steps

- Do you agree with the proposed changes/ways to address the comments received?
- Are there any other comments that should be considered?
- Who is interested to contribute with specific ideas/points to fill-in the document and contribute to specific sections (living document)?

Proposed action plan:

- Implementation of proposed changes in the document
- Circulation of new version of the document for review

LIFE 2020 application (“Support for the compilation of emission inventories to improve air quality modelling”) → Ensure coordinate/establish synergies and communication between groups involved in a winning consortium and CT7