



Economic and Social Council

Distr.: General
1 July 2019

Original: English

Economic Commission for Europe

Executive Body for the Convention on Long-range
Transboundary Air Pollution

Steering Body to the Cooperative Programme for
Monitoring and Evaluation of the Long-range
Transmission of Air Pollutants in Europe

Working Group on Effects

Fifth joint session

Geneva, 9–13 September 2019

Item 2 (b) of the provisional agenda

**Progress in emission inventories and other emissions-
related issues: improvement of emission data**

Emission inventories and projections

Report by the Co-Chairs of the Task Force on Emission Inventories and Projections

Summary

The Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP) is mandated to provide sound scientific support to the Convention on Long-range Transboundary Air Pollution, among other things, in emission inventories and projections (see ECE/EB.AIR/68, annex III, appendix III). To help EMEP to fulfil that mandate, the Task Force on Emission Inventories and Projections reports annually to the EMEP Steering Body on progress in the area, providing policy-relevant messages and recommendations.

The present report contains a summary of the discussions at and outcomes of the Task Force's thirty-second meeting (Thessaloniki, Greece, 13–15 May 2019), where participants considered progress in Task Force activities under the 2018–2019 workplan for the implementation of the Convention on Long-range Transboundary Air Pollution (ECE/EB.AIR/140/Add.1), in particular, progress in updating the EMEP/European Environment Agency air pollutant emission inventory guidebook and the planning of future activities.

Annexed to the meeting report is a summary of the conclusions of the joint Task Force/European Research on Mobile Emission Sources network scientific workshop on transport emissions, held in Thessaloniki, Greece, on 15 May 2019.



Contents

	<i>Page</i>
I. Introduction	3
II. 2019 annual meeting of the Task Force	3
A. Organization and planning	3
B. Attendance	3
C. Opening address.....	4
D. Review of related work under the Convention	4
E. Annex I reporting template for reporting of emission inventory data.....	4
F. Review of emission inventories	4
G. Emissions from selected sources	5
H. Projections expert panel.....	6
I. New science and European Environment Information and Observation Network sessions	6
J. Future work.....	7
K. Other business.....	7
Annex	
Joint European Research for Mobile Emission Sources network/Task Force transport workshop ..	8

I. Introduction

1. The Task Force on Emission Inventories and Projections under the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP) assists EMEP in providing sound scientific support for the Convention on Long-range Transboundary Air Pollution in the area of emissions inventories and projections. The work of the Task Force is organized and led by the Co-Chairs, Mr. Chris Dore (United Kingdom of Great Britain and Northern Ireland), Mr. Martin Adams (European Union – European Environment Agency) and Ms. Kristina Saarinen (Finland). In addition, expert panel leaders coordinate work relating to emissions in four specific technical areas:

- (a) Combustion and industry;
- (b) Transport and mobile machinery;
- (c) Agriculture and nature;
- (d) Emission projections.

2. The goal of this work is to support the Convention's Parties in reporting air pollutant emissions and projections data and to capture relevant information for maintenance and improvement of the EMEP/European Environment Agency air pollutant emission inventory guidebook.¹

3. The outcome of the annual meeting constitutes the Task Force's main annual output.

II. 2019 annual meeting of the Task Force

A. Organization and planning

4. The thirty-second meeting of the Task Force on Emission Inventories and Projections, a subsidiary body of the United Nations Economic Commission for Europe Convention on Long-range Transboundary Air Pollution, was held in Thessaloniki, Greece, on 13 and 14 May 2019.² It was held jointly with a meeting of the European Environment Agency European Environment Information and Observation Network air pollution mitigation representatives. The meeting was followed on 15 May 2019 by a joint Task Force on Emission Inventories and Projections/European Research for Mobile Emission Sources network scientific workshop focusing on emissions from the transport sector (see annex).

5. The meeting and joint workshop were hosted by the Aristotle University of Thessaloniki, Greece.

6. The Co-Chairs jointly chaired the meeting and the expert panel leaders chaired the technical sessions in the four defined technical work areas (see para. 1 above).

B. Attendance

7. The meeting was attended by 109 participants representing 38 countries and international organizations, including the Centre on Emission Inventories and Projections and the European Environment Agency European Topic Centre for Air Pollution and Climate Change Mitigation. Several industry representatives also attended.

¹ The most recent edition (2016) is available at www.European Environment Agency.europa.eu/publications/emep-eea-guidebook-2016.

² Presentations and documents from the Task Force meeting and the workshop are available at www.tfeip-secretariat.org/meetings/.

C. Opening address

8. Mr. George Dimarelos, Deputy Mayor for Urban Resilience and Development Programme of Thessaloniki, Greece, delivered an opening address and the Co-Chairs welcomed the participants.

D. Review of related work under the Convention

9. Mr. Chris Dore (Co-Chair) presented the most recent information on activities under the Convention, informed by updates received from the Chair of the EMEP Steering Body and the Convention secretariat, noting that the Protocol to the 1979 Convention on Long-range Transboundary Air Pollution to Abate Acidification, Eutrophication and Ground-level Ozone (Gothenburg Protocol) would be reviewed, providing an opportunity to reflect upon potential future change and improvements to emissions reporting requirements, including adjustment procedures. It was expected that the review would assess opportunities to increase focus on black carbon, condensables and the quality of emission inventories. In due course, the Task Force would consider how it might best support that and other aims of the Convention.

10. A representative of the Centre on Emission Inventories and Projections provided an overview of results from the most recent emission reporting cycle, and a representative from the Meteorological Synthesizing Centre-West showed how the improvement in the resolution of gridded emissions in the EMEP region reported by Parties had resulted in substantial improvements to the results of modelling studies. There were still some substantial gaps in reporting: during the 2019 inventory review, four Parties (Armenia, Belarus, Republic of Moldova and Ukraine) had not responded to the expert review team questions and one Party (Azerbaijan) had only provided limited responses. The Task Force agreed to raise the issue with the EMEP Steering Body and the Convention secretariat (through this reporting), so that they could consider how best to address the situation.

11. The Co-Chairs presented the current programme of work and the process foreseen for finalizing the 2019 update of the EMEP/European Environment Agency air pollutant emission inventory guidebook (see section G below for a discussion on progress regarding the update of the guidebook and proposed changes).

E. Annex I reporting template for reporting of emission inventory data

12. A representative of Germany, a member of the Task Force ad hoc group that had been formed to update the annex I reporting template, described the improvements made in the proposed new template, including to facilitate the reporting of “fuel used” emissions, and to ensure the template’s ongoing use for emission inventory reporting under both the Convention and by the European Union Member States under the European Union National Emission Ceilings Directive.³

13. The Task Force approved the new template, subject to its endorsement by the EMEP Steering Body at its fifth session (Geneva, Switzerland, 9–13 September 2019). The template would subsequently be made available by the Centre on Emission Inventories and Projections for use by Parties for the 2020 reporting round.

F. Review of emissions inventories

14. Mr. Zlatko Kregar (European Commission) provided an update on developments within the European Union regarding emission inventories and work associated with the National Emission Ceilings Directive, in particular emission inventory reviews planned for

³ Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EC and repealing Directive 2001/81/EC, *Official Journal of the European Union*, L 344, 2016, pp. 1–31.

2019 and future years. Activities in 2019 included the review of historical emission estimates, emission projections and national air pollution control programmes reported by the European Union Member States.

G. Emissions from selected sources

15. The following technical presentations were given during the parallel expert panel sessions:

(a) *Combustion and Industry*: There had been good progress in the sector and the following improvements had been approved for inclusion in the updated EMEP/European Environment Agency guidebook:

(i) 1.A.1 – Energy industries. Updated heavy metals emission factors for Tiers 1 and 2 in refineries, based on new information available from industry;

(ii) 1.B.2.c – Venting and flaring. Updated heavy metal emission factors and nitrogen oxides/carbon monoxide in Tier 2 for flaring, based on new information available from industry;

(iii) 2.D.3.i, 2G – Other solvent and product use. Introduction of new Tier 2 methods for aircraft de-icing (following input from Switzerland);

(iv) 1.A.4 – Small combustion. Update of particulate matter emission factors for biomass combustion, with a separate table for filterable only emission factors. One Party (Germany) expressed reservations about the Task Force’s earlier (2018) decision to recommend standardizing emissions reporting for the sector to include condensables. Given that the recommendation had previously been agreed by the Task Force and that the issue had subsequently been discussed at the fourth session of the EMEP Steering Body (Geneva, Switzerland, 10–14 September 2018), the Co-Chairs invited Germany to provide further reflections on the topic at the Steering Body’s fifth session (Geneva, Switzerland, 9–13 September 2019). The proposed changes to chapter 2.A.5.a – Quarrying and Mining of Minerals Other than Coal, to introduce a new Tier 2 methodology supported by Germany, had been approved pending the latest comments being resolved, likewise a newly developed spreadsheet calculation tool. The proposed changes to Chapter 2.D.3.i, – Other Solvent Use and Other Product Use, introducing a new Tier 2 method for lubricant use, had not been approved. Clarifications were needed, in particular regarding the availability of activity data. A “live list” of guidebook issues would be shared in a structured way on the Task Force website; Parties would be requested to review the list and volunteer resources in an attempt to address any issues;

(b) *Transport*: There had been several new developments regarding the road transport chapter. Implemented updates and new elements included: the revision of emission factors for mopeds and motorcycles; the calculation of the fossil fuel fraction in biodiesel; the revision of Euro 6 evaporation and light commercial vehicles emission factors; the review of the exhaust non-methane volatile organic compound specification profile; and new exhaust emission factors for motorcycles. The following updated chapters of the guidebook were recommended for adoption, subject to minor amendments: 1.A.3.bi-iv – Road transport; and [1.A.3.b.v – Gasoline evaporation](#). New emission factors for electrified vehicles (diesel hybrids, plug-in hybrids, battery electric vehicles) would be recommended for 2020. Similarly, a review of non-exhaust particulate matter emission factors would be recommended for 2020. Further research was required on rail abrasive emissions;

(c) *Agriculture*: Discussion focused on the proposed updates to chapters 3.B – Manure Management and 3.D – Crop Production and Agricultural Soils. The following decisions were made regarding the update of ammonia emission factors:

(i) An ad hoc group would be established to undertake a review of emission factors for chapter 3.B – Agricultural Livestock;

- (ii) Field-applied liquid and solid manures – a second ad hoc group would be formed with the aim of working towards recommending the adoption of an updated chapter before September 2019;
- (iii) Synthetic nitrogen fertilizer application – the Expert Panel advised delaying revision until 2022;
- (iv) Pesticide application – recommended adoption of the proposed new methodology for emissions of hexachlorobenzene (chapter 3.D.f), with some minor changes from the version presented;
- (v) A new agricultural emissions calculation spreadsheet tool had been accepted and recommended for adoption, subject to revision in the light of any changes to emission factors (as discussed above).

16. On the basis of the expert panel recommendations, the Task Force adopted the updated 2019 version of the EMEP/European Environment Agency guidebook, subject to completion of the remaining agreed changes and the completion of work of the mandated ad hoc groups prior to the guidebook's publication. The Task Force accordingly recommended that the EMEP Steering Body endorse the new version of the guidebook at its fifth session (Geneva, Switzerland, 9–13 September 2019).

H. Projections expert panel

17. The projections expert panel was held in the plenary, enabling more participants to attend. Presentations were given on several topics, including:

- (a) Tools, method and case studies in emission projections for regional and local air quality plants;
- (b) The results of a European Commission-funded project on projections guidance.

18. The expert panel Co-Chairs facilitated a discussion on the general and sectoral projection guidance chapters in the EMEP/European Environment Agency guidebook, and identified the need for a future update to the annex IV projections reporting template. An ad hoc group would be formed to decide on the extent of the information from the European Commission's consultancy report that would be incorporated into the projections chapter of the guidebook. A separate ad hoc group would be created to formalize the update of the annex IV projections reporting template, ready for adoption before September.

I. New science and European Environment Information and Observation Network sessions

19. The sessions were held in parallel with the European Research for Mobile Emission Sources plenary session. The following new science presentations were given:

- (a) Using inventories for policy support (United Kingdom);
- (b) Emissions Database for Global Atmospheric Research (Joint Research Centre);
- (c) Update on uncertainties of the agriculture emissions from the Netherlands (Netherlands);
- (d) Copernicus Atmospheric Monitoring Service (Netherlands).

20. An overview of European Environment Agency activities was provided during a session for European Environment Agency European Environment Information and Observation Network participants, followed by presentations on:

- (a) Improving data processing to improve feedback from countries (European Environment Agency);

(b) Cross-cutting analysis on greenhouse gas and air pollution policies and measures (European Environment Agency).

J. Future work

21. The Task Force discussed the topic “Task Force on Emission Inventories and Projections – The Next 10 Years”, with participants reflecting on how the Task Force might better serve the needs of Parties over the next 10 years. The Co-Chairs would compile feedback and make it available through the Task Force website.

22. The draft workplan for 2020–2021 was proposed and draft conclusions from the meeting were presented and agreed on. A number of actions were agreed on, with priority being given to the following:

(a) Standing items:

(i) Holding an annual Task Force meeting and workshop to support development of the EMEP/European Environment Agency guidebook and share best practice;

(ii) Acting as a focal point for technical discussions on emission estimates relating to the Convention and managing associated communication channels (including dissemination and maintaining website services);

(iii) Promoting and supporting efforts to provide updated information for the EMEP/European Environment Agency guidebook by sourcing data from the literature and coordinating with other projects, task forces and centres under the Convention, as resources allowed.

(b) Other core workplan items (all subject to offers of active participation from national representatives/resources):

(i) Formation of a black carbon working group;

(ii) Supporting the improvement of condensable particulate matter reporting and supporting guidance;

(iii) Forming a working group or drafting a paper on opportunities arising from earth observation;

(iv) Draft guidance on fine timescale emission estimates;

(v) Strengthening links with the Task Force on Hemispheric Transport of Air Pollution;

(vi) Supporting the review of the Gothenburg Protocol.

23. The Task Force also reviewed the key long-term aims of:

(a) Securing predictable and regular funding for the EMEP/European Environment Agency guidebook;

(b) Drafting a plan for the introduction of emission-reporting software.

24. There was no consensus on whether the Task Force should support more detailed reporting.

K. Other business

25. The Task Force thanked Parties and, in particular, the European Union (through the European Environment Agency) for supporting its work. It also expressed its sincere appreciation to its host, the Aristotle University of Thessaloniki, Greece.

Annex

Joint European Research for Mobile Emission Sources network/Task Force transport workshop

1. The joint workshop was opened by the Co-Chairs Mr. Georgios Fontaras (Joint Research Centre) and Mr. Martin Adams (European Environment Agency), who welcomed the participants and introduced the agenda.
2. Mr. Adams (European Environment Agency) reflected on the current focus of transport-related work by the European Environment Agency and, more broadly, the trend towards an integrated systemic approach to policy development, for example, linking air quality transport policy to energy, urban development, noise and mobility. He raised the issue of the need for convergence in the methodologies supporting road transport emission inventories (EMEP/European Environment Agency guidebook and Handbook Emission Factors for Road Transport).
3. Mr. Zlatko Kregar (European Commission) provided an update of transport work within the European Commission. Novel concepts and new technologies were being considered for suitability for inclusion in future emission standards. It would be at least two years before realistic proposals for legislation could be drafted.
4. Mr. Leon Ntziachristos (Laboratory of Applied Thermodynamics/Emisia) led a discussion on the Task Force's needs and priorities in terms of emission factors, methods and assistance from the research community. The Task Force had flagged certain needs, which the European Research for Mobile Emission Sources should take into consideration by helping to steer future research.
5. Several Parties provided overviews on national activities from funding organizations:
 - (a) Sweden urgently required additional climate change policies and measures with ambitious targets. There was a need to reduce passenger car kms by 2030, in order to meet targets. There were plans to reduce transport emissions, including through the use of renewable energy in the transport sector;
 - (b) Germany stated that greenhouse gas emissions in the transport sector had not really changed and that reaching 2050 emission targets would be difficult. Policies and measures were needed for more climate-friendly freight transport, in addition to policy instruments for passenger transport;
 - (c) Switzerland discussed remote-sensing measurements used in the country and different exhaust emission measurements;
 - (d) Australia gave an overview of the Computer Programme to Calculate Emissions from Road Transport-Australia model and "POP" (a second-by-second road transport model). Details of activities and novel approaches introduced in the remote-sensing field were provided.
6. Mr. Jens Borken-Kleefeld (International Institute for Applied Systems Analysis) gave an overview of remote sensing research activity undertaken by the International Institute for Applied Systems Analysis. The CONOx database had over 1 million records from over 20 measurement campaigns. Analysis of random subsets of the data showed how many records were needed to obtain a value that was close to the mean of the full datasets. Only a few hours of monitoring were required to obtain a value that had good representativeness of the "real" mean in the case of Euro 4 and 5 vehicles.
7. Brief presentations of Horizon 2020 projects were also given by European Research for Mobile Emission Sources members. Mr. Philippe Degeilh (French Institute of Petroleum – New Energies) gave a brief presentation on connected mobility for air quality and the development of an online application for the Government of France.

8. The Co-Chairs closed the workshop by thanking the European Research for Mobile Emission Sources and Task Force members for attending and those who had made presentations.
