



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

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**Progress in activities of the Cooperative Programme for Monitoring and Evaluation
of the Long-range Transmission of Air Pollutants in Europe in 2021 and future work:
improvement and reporting of emission data and adjustments under the Protocol to
Abate Acidification, Eutrophication and Ground-level Ozone:
improvement and reporting 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.^a To help ensure the fulfilment of 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-fourth meeting (online, 4–6 May 2021), where participants considered progress in Task Force activities under the 2020–2021 workplan (ECE/EB.AIR/144/Add.2) and future work to support the implementation of the Convention, in particular, the priorities for future updates to the *EMEP/European Environment Agency air pollutant emission inventory guidebook* and contributions to the review of the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone, as amended in 2012 (ECE/EB.AIR/144/Add.1, decision 2019/4).

^a See ECE/EB.AIR/68, annex III, appendix III, para. 1.



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 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* (the Guidebook).

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

II. Task Force 2021 annual meeting

A. Organization and planning

4. The thirty-fourth meeting of the Task Force on Emission Inventories and Projections, a subsidiary body of the United Nations Economic Commission for Europe (ECE) Convention on Long-range Transboundary Air Pollution, was held as a web conference, from 4 to 6 May 2021.¹ It was held jointly with a meeting of the European Environment Agency European Environment Information and Observation Network (Eionet) air pollution mitigation representatives.

5. Due to the ongoing coronavirus disease (COVID-19) pandemic, the meeting was held online using a web conferencing platform and was hosted by the Ministry of Environment of Slovakia and the Slovak Hydrometeorological Institute.

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 sessions were held sequentially, with no parallel sessions. The meeting attendance peaked at over 200 participants representing approximately 40 countries and international organizations, including the Centre on Emission Inventories and Projections and the European Environment Agency (EEA) European Topic Centre on Air Pollution and Climate Change Mitigation. Several industry representatives also attended.

¹ Presentations and documents from the Task Force meeting and the workshop are available at www.tfeip-secretariat.org/web-conference-2021/.

C. Opening address

8. The meeting hosts and Task Force Co-Chairs delivered opening addresses and welcomed the participants. Ms. Zuzana Jonáček (Slovakia) gave a presentation summarizing the latest developments in the Slovak emissions inventory.

D. International news and related work under the Convention

9. An update from the Task Force's black carbon working group was presented by Mr. Richard Claxton (United Kingdom of Great Britain and Northern Ireland). Key developments included: a review of existing emission factors; an online library for gathering information on black carbon; input into Intergovernmental Panel on Climate Change work on short-lived climate forcers; and work to ensure harmony between guidance on black carbon and condensable particulate matter.

10. Mr. Jeroen Kuenen (Netherlands) reflected on recent work to improve the scientific understanding of condensable particulate matter, and specific challenges arising therefrom for the Task Force. Scientific users of emissions inventories within the Convention required emission data sets that were consistent across Parties with regard to their inclusion of the condensable component of particulate matter, and the "Ref 2" emissions inventory developed by researchers in the Netherlands would be used for that purpose. Further work was needed to determine how particulate matter emissions should be reported in the future.

11. Mr. Adams (EEA) informed the participants that the structure and functions of Eionet were currently being reviewed to support the implementation of the recently published "EEA-Eionet strategy 2021–2030: Delivering data and knowledge to achieve Europe's environment and climate ambitions".² The European Topic Centres had also been restructured, and air quality issues would be included in the future European Topic Centre on Human Health and the Environment.

12. Ms. Sabine Schindlbacher (Centre on Emission Inventories and Projections) presented an overview of emission inventories submitted in 2021. The completeness of time series reporting had improved compared to the previous year but reporting of gridded and large point source emissions was far from complete, with less than half of the Parties making submissions. A similar situation was noted with regard to the inclusion of uncertainty assessments in national submissions. Proposals were also made with regard to amending annex II to the reporting guidelines – Recommended Structure for Informative Inventory Report (IIR).³ Those proposals would be forwarded to the EMEP Steering Body for consideration.

13. Mr. Dore (Co-Chair) explained that the Task Force would contribute to the review of the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (Gothenburg Protocol) by assessing: (a) whether the Guidebook was fit for purpose; and (b) the current coverage and quality of black carbon emissions reporting. Those two issues appeared as questions 1.2e and 4.1 respectively in "Preparations for the review of the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone, as amended in 2012" (ECE/EB.AIR/2020/3–ECE/EB.AIR/WG.5/2020/3, annex I, table). The Task Force agreed to form an ad hoc working group to undertake that work. The Co-Chairs explained that they had already indicated to the EMEP Chair and the Convention secretariat that the Task Force did not intend to contribute to other topics in annex I as suggested, because the Task Force was not well placed to undertake the work.

14. Mr. Dore (Co-Chair) also explained that the Task Force had been invited to provide reflections on the current Guidelines for Reporting Emissions and Projections Data under the Convention on Long-range Transboundary Air Pollution (ECE/EB.AIR/125), an invitation that offered an opportunity for the Task Force to identify potential updates and revisions. Some key considerations were put to the participants to outline some of the thinking that

² EEA (Luxembourg: Publications Office of the European Union, 2021). Available at www.eea.europa.eu/publications/eea-eionet-strategy-2021-2030.

³ Available at www.ceip.at/reporting-instructions/annexes-to-the-2014-reporting-guidelines.

could go into formulating the Task Force’s reflections, for example: the metrics that should be used for reporting black carbon and particulate matter emissions; whether the current reporting was sufficiently detailed to support the scientific assessments being undertaken; and whether all reported data were being used by other groups within the Convention. Initial views of participants were collected and would be used to prioritize future discussions on the topic.

15. The Co-Chairs presented the Task Force’s intention to update the Guidebook in 2023. Discussions at the meeting indicated general support for the Guidebook to include “regional” emission factors for selected sources where there could be significant differences between different locations within the geographical coverage of the Convention. The Task Force also discussed other recurring tasks in the workplan and agreed that they should remain unchanged. Suggested longer-term priorities for improving emissions inventory science and emissions inventory reporting were also shared and discussed. Ideas and comments from the participants were collected and would contribute to future planning and identification of priorities for the Task Force.

16. Mr. Kevin Hausmann (Germany) raised an issue regarding the methodology currently used for calculating adjustments from the road transport sector. The Task Force agreed that, for the purpose of quantifying adjustments, current emission factor values should be used when gap-filling original version of models. That clarification would be forwarded to the EMEP Steering Body for consideration.

E. Expert Panel on Projections

17. The Expert Panel on Projections (6 May) was attended by approximately 150 participants. Presentations were given on several topics, including: emission projections in Slovenia; the Second Clean Air Outlook;⁴ emission projections in the Western Balkans and Eastern Europe, the Caucasus and Central Asia; and the impacts of coronavirus disease (COVID-19) on emission projections in the United Kingdom of Great Britain and Northern Ireland.

18. The Expert Panel agreed to review and update the annex IV projections reporting template⁵ by creating a separate ad hoc group. An updated draft would be compiled for discussion and endorsement at the Task Force’s meeting in 2022.

F. Expert Panel on Agriculture and Nature

19. The Expert Panel on Agriculture and Nature (4 May) was attended by over 100 participants. The Expert Panel leaders provided feedback on recent activities within the Convention associated with the review of the Gothenburg Protocol and the latest scientific information on ammonia (NH₃) emissions from agricultural activities. Presentations and discussions took place on: experience with the nitrogen flow tool; the usefulness of background information provided in the Informative Inventory Reports; European Union training sessions in 2020 and 2022; and the European Union emission tool developed by the Joint Research Council of the European Commission.

20. Following discussions, the Expert Panel reached the following conclusions:

(a) Based on a review of the scientific literature, no changes were justified for the emission factors for direct emissions of nitrogen oxide from fertiliser, manure and excreta;

⁴ See European Commission, “Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: The Second Clean Air Outlook”, COM(2021) 3 final, Brussels, 8 January 2021. Available at <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021DC0003>.

⁵ Available at www.ceip.at/ms/ceip_home1/ceip_home/reporting_instructions/annexes_to_guidelines/.

(b) To harmonize with greenhouse gas emissions guidance published by the Intergovernmental Panel on Climate Change, direct emissions of nitrogen oxide from crop residues and indirect emissions would be included in emission inventories;

(c) Based on the review of the scientific literature, marine NH₃ emissions were not considered a significant source at the European scale and would not therefore be included in the Guidebook.

21. The Expert Panel discussed several definitions of the term “livestock” and how emissions arising from animal activities should be included within the current emissions reporting structure. It was concluded that, before clarifications could be issued, discussions must be held with experts in the greenhouse gas emissions community to ensure that a consistent approach was used.

22. The Expert Panel also discussed how emissions associated with imported and exported animal manure should be reported. The participants were reminded that the best practice approach was to include all emission sources to the extent that data allowed, and in some cases, that data might need to be collected to allow emissions to be estimated. The Task Force would assess whether import and export data in the European Union could be obtained and made available to national emission inventory teams.

G. Expert Panel on Combustion and Industry

23. The Expert Panel on Combustion and Industry (5 May) was attended by over 150 participants. Presentations were given on several topics, including: emissions from fireworks; how to improve on a Tier 1 methodology for solvent emissions; emissions from small combustion sources; biodiesel and biogas use in energy industries; and several proposed updates to the Guidebook.

24. Recognizing that new information, and potentially new guidance, were likely to become available on methodologies for estimating solvent emissions, the Task Force agreed to establish an ad hoc group to review new information or methodologies and indicate whether it was endorsed by the Task Force. That would ensure that the new information was available in time for Parties to use for their 2022 emissions inventory submissions.

25. The Task Force also noted that an updated Guidebook chapter 2.H.2 Food and beverages industry was available but had not been included on the current Guidebook website. It was agreed that it would be added to the Guidebook website.

H. Expert Panel on Transport

26. The Expert Panel on Transport (5 May) was attended by over 100 participants. Presentations were given on several topics, including: feedback from recent Joint Research Centre training; improvements made to Italian road transport inventorying; an innovative and cost effective approach to analysing shipping movements density; and new developments regarding the road transport chapters of the Guidebook.

27. The Task Force decided that updated Guidebook chapters on road transport and navigation would be added to the Guidebook website so that they would be available for emissions inventory compilers to use as they wished ahead of the Guidebook update, which was currently scheduled for 2023.

I. New science

28. Ms. Eloise Marais and Mr. Richard Pope (United Kingdom of Great Britain and Northern Ireland) gave a presentation on the use of Earth observations to determine NH₃ and nitrogen oxides emissions in the United Kingdom of Great Britain and Northern Ireland. Results indicated that traditional emission inventories underestimated emissions of NH₃ compared to estimates derived from satellite measurements. The largest differences were observed in July in locations dominated by dairy cattle.

29. Mr. Hausmann (Germany) presented a tool with a global coverage that allowed users to obtain emissions data that were based on satellite measurements. Comparisons with a traditionally compiled inventory for Germany showed good agreement in 2020 and 2021, but divergence in 2018 and 2019.

J. Other business

30. Ms. Schindlbacher (Centre on Emissions Inventories and Projections) announced the winners of the annual awards for emissions inventories and Informative Inventory Reports.

31. The Task Force Co-Chairs reflected on the agreed tasks, and in particular on the work that would contribute to the review of the Gothenburg Protocol. The Task Force agreed to circulate a questionnaire that would invite individuals to indicate whether they were able to contribute to that work. The intention was to then hold a webinar in July 2021 to discuss the results of the questionnaire and plan the Task Force's contributions to the review of the Gothenburg Protocol. An initial draft of the Task Force's input into the review could then be provided to the EMEP Steering Body by the end of August 2021.

32. With regard to providing reflections on the current Guidelines for Reporting Emissions and Projections Data under the Convention on Long-range Transboundary Air Pollution, the Task Force agreed to plan that work with an initial indicative timeline of December 2021 to March 2022. However, the Co-Chairs noted that Parties would need updated guidance on the application process for adjustments before then. The Task Force agreed that an ad hoc group could be formed to draft the updated guidance on adjustments on behalf of the Task Force if necessary, and the Co-Chairs agreed to liaise with the EMEP Steering Body Chairs and the Convention secretariat about the formal process and timeline for updating the current Technical Guidance for Parties Making Adjustment Applications and for the Expert Review of Adjustment Applications (ECE/EB.AIR/130).

33. The Task Force thanked Parties, and in particular the European Union (through the European Environment Agency), for supporting its work.

34. The Task Force Co-Chairs thanked the Ministry of Environment of Slovakia and the Slovak Hydrometeorological Institute for hosting the meeting. The meeting was then closed.
