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Monitoring and Evaluation of the Long-range
Transmission of Air Pollutants in Europe

Working Group on Effects

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Item 10 (a) of the provisional agenda

**Progress in activities of the Cooperative Programme for Monitoring and Evaluation
of the Long-range Transmission of Air Pollutants in Europe in 2022 and future work:
improvement and reporting of emission data and adjustments under the Protocol to
Abate Acidification, Eutrophication and Ground-level Ozone**

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-fifth meeting (online, 9–12 May 2022), where participants considered work completed in the 2020–2021 workplan for the implementation of the Convention (ECE/EB.AIR/144/Add.2), 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 the five following specific technical areas:

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

2. The goal of this work is to support the Convention's Parties in reporting air pollutant emissions and projections data to inform air quality assessment activities of the Convention 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 2022 annual meeting

A. Organization and planning

4. The thirty-fifth 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 (the Convention), was held online, from 9 to 12 May 2022.¹

5. Due to the ongoing coronavirus disease (COVID-19) pandemic, the meeting was held online using a web conferencing platform.

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

B. Attendance

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

C. Opening address

8. The Co-Chairs delivered opening addresses and welcomed the participants. They reflected on work undertaken and completed within the past 12 months, with contributions made to the review of the Protocol to Abate Acidification, Eutrophication and Ground-level

¹ Presentations and documents from the Task Force on Emission Inventories and Projections meeting and the workshop are available at www.tfeip-secretariat.org/web-conference-2022/.

Ozone (Gothenburg Protocol) and the EMEP ad hoc group on condensable particulate matter of particular note. The Co-Chairs explained that the Task Force annual meetings would no longer be jointly held with the EEA European Environment Information and Observation Network due to a change in the focus of the Network's priorities going forward.

D. International news and related work under the Convention

9. Mr. Kiyoto Tanabe (Intergovernmental Panel on Climate Change (IPCC)) provided an update on IPCC work on short-lived climate forcers and the relevance to reporting under the Convention. The Task Force agreed to continue to work with IPCC on short-lived climate forcers, in order to improve the quality of emission estimates and ensure effective coordination between the Convention and the United Nations Framework Convention on Climate Change.

10. Mr. Jeroen Kuenen (Netherlands) reflected on recent work to improve the reporting of condensable particulate matter (PM) in the annual emissions reporting by Parties. Work within the Convention continued to assess how consistent the emissions data submitted by Parties were with different versions of the "Ref2" emissions inventory developed by researchers in the Netherlands. The aim was not just to identify inclusion and exclusion of the condensable PM in reported emissions, but also to reach consensus on emission estimates that could be used by the modelling community.

11. Ms. Alison Davies (United Kingdom of Great Britain and Northern Ireland) provided an update on the status of the forum for international cooperation on air pollution. The Task Force and individual members were invited to put forward suggestions for outreach activities through the forum and details of contacts in potential partner organizations outside the Convention.

12. Ms. Sabine Schindlbacher (Centre on Emission Inventories and Projections) presented an overview of emission inventories submitted in 2022. There continued to be improvements in the completeness and quality of the data reported; however, some Parties did not provide complete submissions. The 2022 Convention stage 3 review of Parties' emissions inventory submissions would focus on the inclusion of condensable PM and the quality of emissions from the residential sectors across all Parties, in addition to follow-up of implementation of previous review recommendations.

13. Mr. Dore (Co-Chair) provided a short update on the Task Force's contributions to the review of the Gothenburg Protocol. He also presented a draft updated version of the current Guidelines for Reporting Emissions and Projections Data under the Convention on Long-range Transboundary Air Pollution (ECE/EB.AIR/125) for discussion. The Task Force agreed on a number of updates and clarifications but agreed to form an ad hoc group to finalize the update and provide it to the Convention secretariat so that it could be discussed at the eighth joint session of the EMEP Steering Body and the Working Group on Effects.

E. Expert Panel on Projections

14. The Expert Panel on Projections (9 May) was attended by approximately 150 participants. Presentations were given on several topics, including: a regional case study of emission projections for the waste management cycle; and the impact of greenhouse gas scenarios on Swedish nitrogen oxides (NO_x) road transport emissions projections.

15. The Expert Panel discussed and agreed to proposed revisions to the annex IV reporting template used for reporting emission projections. The most significant revision proposed was that the sector resolution of projections reporting be changed to match that of the historical emissions reporting. That was agreed on by the Task Force, and the proposal would be forwarded to the EMEP Steering Body. The Expert Panel also agreed on their 2022–2023 workplan.

F. Expert Panel on Transport

16. The Expert Panel on Transport (10 May) was attended by over 150 participants. Presentations were given on several topics, including: developing European Union policy and impacts on road vehicles; a tool for inventorying airport management emissions; the use of the More Information Less Emissions, Empowering Consumers for a Greener Twenty-first Century 21 (MILE21) platform² in estimating emissions; and new developments of the Guidebook transport chapters. The Expert Panel also agreed on their 2022–2023 workplan, which was dominated by tasks associated with updating chapters of the Guidebook.

17. The Task Force formally approved changes to the road transport chapters of the Guidebook, which included revisions to brake emission factors, degradation and cold start for light duty vehicles, and new emission factors for liquid petroleum gas vehicles.

G. Expert Panel on Waste

18. The Expert Panel on Waste met for the first time on 10 May. The event was attended by over 100 participants and was chaired by Ms. Céline Guéguen (France). The Expert Panel held introductory discussions on what topics attendees would find beneficial, and the most effective way of arranging the workings of the Panel. Presentations included: domestic green waste burning in France; and small-scale agricultural burning in Italy. An interactive session identified priorities for making improvements to the Guidebook and established the workplan for 2022–2023.

19. The attendees expressed their appreciation for the arranging of the Expert Panel meeting and recommended that it be a permanent addition to the Expert Panels of the Task Force.

H. Expert Panel on Agriculture and Nature

20. The Expert Panel on Agriculture and Nature (11 May) was attended by over 100 participants. Presentations and discussions took place on: a proposal for updating the method for ammonia emissions from synthetic fertilizers; the Ammonia Loss from Field-Applied Slurry: a Model-based Approach for Emissions Inventories (ALFAMI) project; ammonia emissions from crop residues; improving emission estimates of methane from manure management; and an update on progress being made in other relevant technical groups in the Convention.

21. An ad hoc group on categorizing “livestock” had been formed at the 2021 Task Force annual meeting (online, 4–6 May 2021) and asked to make a recommendation concerning the allocation of emissions associated with agricultural and non-agricultural animals.³ The ad hoc group had recommended that emissions from horses be reported under category 6.A Other sources, rather than category 3 Agriculture. However, both the ad hoc group and the Task Force recognized that there were a wide variety of reasons for which animals were kept and consequently some flexibility should be allowed. The Task Force therefore recommended that the definition be advisory (“should”) rather than mandatory (“shall”). In the event that a Party wished to diverge from the accepted definition, the reasons should be given in the informative inventory report.

22. The Expert Panel heard presentations on the latest developments regarding the agriculture emission tool developed by the Joint Research Centre of the European Commission and the nitrogen flow tool supported by EEA. Parties varied with respect to which tool they preferred, or whether they preferred their own tier 3 method. There was broad support for continuing to maintain and develop both tools. Since both the requirements of the Parties and the capabilities of the tools would change over time, going forward, the Task

² Available at www.mile21.eu/choose-your-country.

³ See ECE/EB.AIR/GE.1/2021/6–ECE/EB.AIR/WG.1/2021/17, para. 21

Force would continue to monitor the needs of the inventory community with respect to software tools.

23. The Expert Panel noted that the chapters in the Guidebook on natural sources had not been updated for several years. Little attention was given to those chapters because Parties did not have commitments relating to the control of natural emissions, and the modelling community typically did not use the data reported by Parties for those sources. The Expert Panel decided to retain the name “Agriculture and Nature” but agreed not to prioritize updating the “Natural sources” chapters in the Guidebook.

24. The Expert Panel agreed on its 2022–2023 workplan, which primarily consisted of tasks to update Guidebook chapters, but also included collaboration with other technical groups in the Convention.

I. Expert Panel on Combustion and Industry

25. The Expert Panel on Combustion and Industry (11 May) was attended by over 150 participants, and Ms. Kristina Juhlich (Germany) attended as new Co-Chair. Presentations were given on several topics, including: residential wood heating; PM emissions with condensables from small combustion; evaluation of emissions from new biomass combustion equipment; the recently updated guidance on emissions from solvent use; non-methane volatile organic compounds per capita emissions from the domestic use of solvents; and several proposed updates to the Guidebook.

26. The Expert Panel compiled an extensive list of priority updates for Guidebook chapters as part of its 2022–2023 workplan. The extent to which those updates could be delivered would depend on Parties voluntarily providing resources to support the work.

J. User engagement

27. Mr. Kuenen (Netherlands) presented his new role in the Task Force as the coordinator of activities on the topics of user engagement and spatial mapping. That would provide a much-improved link between the emissions inventory community and the range of users of the emissions data, including the EMEP and international modelling community. Importantly it would ensure that progress was made in key technical areas that had sometimes been somewhat neglected due to a lack of resources. Recent work on condensable PM was presented as an example of identifying that the needs of the modelling community were not being met by outputs from the emissions inventory community and agreeing practical steps to address the issue.

K. New science

28. Presentations were given on: the use of uncertainty analysis as a tool to prioritize inventory improvement; emissions derived from satellite observations; and how updated emission estimates from non-road mobile machinery were being used to support policy development in the United Kingdom of Great Britain and Northern Ireland.

29. Representatives of the Task Force on Hemispheric Transport of Air Pollution showed the latest developments in compiling their global emission mosaic (Emissions Database for Global Atmospheric Research-Hemispheric Transport of Air Pollution version 3). The Task Force on Emission Inventories and Projections Co-Chairs encouraged attendees to support the work of the Task Force on Hemispheric Transport of Air Pollution.

30. One of the Co-Chairs of the Task Force on Emission Inventories and Projections outlined some discrepancies between the NO_x trends derived from measurements and from models that used emissions inventories as input data. More work was needed to identify the origin of the discrepancy, but it had initially been suggested that emission estimates for road transport might have been overestimating emission reductions in recent years. The Task Force would, to the extent that resources allowed, liaise with the EMEP modelling groups to more clearly identify the underlying issue.

L. Other business

31. The Co-Chairs led a discussion about the future of emissions inventories and reporting under the Convention, the intention being to collect input into a technical working paper that the Task Force could be provided to EMEP to support future discussions of the review of the Gothenburg Protocol. The Task Force agreed to form an ad hoc group to compile the views expressed and draft the technical working paper.

32. Ms. Schindlbacher (Centre on Emissions Inventories and Projections) announced the winners of the informal annual awards for emissions inventories and informative inventory reports. The Task Force also thanked Ms. Katarina Mareckova (formerly of the Centre on Emissions Inventories and Projections) for her many years of contribution to the Convention and wished her well in her retirement.

33. The Task Force appointed Ms. Kristina Juhrich (Germany) as Co-Chair of the Expert Panel on Combustion and Industry, agreed to form a new Expert Panel on Waste, and appointed Ms. Guéguen (France) as the Panel's Chair. The Task Force appointed Mr. Kuenen (Netherlands) as coordinator for user engagement activities. The Task Force noted changes to the Task Force secretariat, thanking the outgoing Ms. Justine Raoult (United Kingdom of Great Britain and Northern Ireland) for her contributions, and welcoming Ms. Annie Thornton (United Kingdom of Great Britain and Northern Ireland).

34. The Task Force Co-Chairs reflected on the work to update the Guidebook identified in the Expert Panels. Recognizing that no support would be provided by EMEP, the Co-Chairs agreed to approach Parties to support that work.

35. The Task Force also agreed to continue to support the review of the Gothenburg Protocol, the work of the EMEP ad hoc group on condensable PM, other technical groups within and outside the Convention, and also to support the forum for international cooperation on air pollution.

36. The Task Force thanked Parties, and in particular the European Union (through EEA), for supporting its work. The meeting was then closed.
