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English only

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****Tenth joint session**

Geneva, 9–13 September 2024

Item 2 of the provisional agenda

**Matters arising from recent meetings of the Executive Body
and its subsidiary bodies and activities of the Bureaux of
the Steering Body and the Working Group on Effects****Activities of the Bureaux of the Steering Body to the
Cooperative Programme for Monitoring and Evaluation of
the Long-range Transmission of Air Pollutants in Europe
and the Working Group on Effects****Note by the secretariat***Summary*

The present note provides information on the discussions at and outcomes of the meeting of the Extended Bureaux of the Steering Body to the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe and the Working Group on Effects held in hybrid format from 28 February to 1 March 2024.

I. Introduction

1. The present note details the activities of the Bureau (comprised of the Chair and the Vice-Chairs) of the Steering Body to the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP) and of the Bureau of the Working Group on Effects under the United Nations Economic Commission for Europe (ECE) Convention on Long-range Transboundary Air Pollution (Air Convention). The two Bureaux, together with the respective Extended Bureaux (comprised of the Chairs and Co-Chairs of centres and task forces), held their joint meeting from 28 February to 1 March, 2024 in hybrid mode in Geneva, Switzerland.

A. Attendance

2. List of Participants and meeting agenda are available online.¹

B. Organization of work

3. Ms. Laurence Rouil (France), Chair of the EMEP Steering Body, and Mr. Jesper Leth Bak (Denmark), Chair of the Working Group on Effects, co-chaired the session. Ms. Albena Karadjova, Secretary to the Convention on Long-range Transboundary Air Pollution provided opening remarks.

4. The key issues discussed were as follows:

(a) Progress in the implementation of the science part of the 2024–2025 workplan for the implementation of the Convention (ECE/EB.AIR/154/Add.1);

(b) Steering Body to EMEP and the Working Group on Effects inputs into the revision of the Gothenburg Protocol, as amended in 2012;

(c) Strategic discussions on biodiversity, intellectual property rights and emissions inventory review;

(d) Agenda and organization of the tenth joint session of the Steering Body to EMEP and the Working Group on Effects, to be held in Geneva, from 9 to 13 September 2024 (ECE/EB.AIR/GE.1/2024/1–ECE/EB.AIR/WG.1/2024/1).

II. Update on outcomes and follow-up to the decisions of forty-third session of the Executive Body (Geneva, 11–15 December 2023)

5. The Chair of the Executive Body briefed the participants on the decisions and outcomes of the forty-third session of the Executive Body that took place in Geneva on December 11-15, 2023. She has referred to the Decision 2023/1 whereby the Executive Body decided “to designate the Jožef Stefan Institute (JSI) in Ljubljana, Slovenia, as the host of Meteorological Synthesizing Centre-East (MSC-East), as of 1 January 2024”. She noted that the 2024 MSC-East budget will go directly to the JSI and the Executive Body has given six months for orderly conclusion of the MSC-East in Moscow. She also referred to the Decision 2023/5 on Launching a process to revise the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone, as amended in 2012, and to address other conclusions of its review. The Chair announced that initial discussions on this will take place at the sixty-second session of the Working Group on Strategies and Review (WGSR), Geneva, 27-31 May 2024. Further discussions will take place at the Informal Delegates meeting on October 21-22 in Brussels. She emphasized the importance of coordinating the process with the EMEP Steering Body and the Working Group on Effects to avoid any gaps on the scientific side.

¹ Available at <https://unece.org/info/Environmental-Policy/Air-Pollution/events/384919>

III. Strategic discussion: Working Group on Effects – 2025 and beyond, including Gothenburg Protocol revision

6. The Working Group on Effects Chair reflected that **biodiversity** has been asked for in the policy process, and there is a positive progress in work on biodiversity in most ICP's, including in supporting integrated assessment modelling. He also noted that a good connection with the Convention on Biological Diversity has been established. The Chair emphasized that it is important to look at what can be delivered now and what should be the future strategy and it is important to define how to integrate biodiversity into integrated assessment modelling. On the issue of optimized scenarios, he noted that scenarios aiming at reducing Average Accumulated Exceedance (AAE) on a country basis might not protect the most sensitive areas and another approach could be protecting biodiversity by focusing on the diversity, area and quality of habitat types. The Working Group on effects highlighted the fact that, as a supplement to optimizing for health and for reducing AAE on a country basis, one can optimize for reduction of AAE for protected ecosystem types. Three scenarios were envisioned: health, per country reduction and reduction per protected nature types (related to biodiversity).

7. A representative of the International Cooperative Programme on Integrated Monitoring of Air Pollution Effects on Ecosystems (ICP Integrated Monitoring) emphasized the importance of coordination with local and national work on biodiversity and harmonization with European Union legislation.

8. Participants agreed that it is important to include biodiversity as a part of the Gothenburg Protocol revision process. The Working Group on Effects Chair agreed to update a methodology that he has previously written, and which could be used in support of the revision process. He also noted that a small ad-hoc working group will be organized to work on scenarios for biodiversity, which will present results at the tenth joint EMEP Steering Body/Working Group on Effects session in September 2024, as well as make relevant interventions at the Executive Body Bureau meeting and at the upcoming WGSR session. ICP Integrated Monitoring representatives expressed interest to participate in the expert group on biodiversity as part of the work on the revision of the Gothenburg Protocol.

9. On **nature restoration**, the Working Group on Effects Chair emphasized that many ecosystems are degraded and deposition levels are still too high, so even with further emission reductions, legacy effects of earlier pollution mean that recovery cannot be expected in a foreseeable future. He noted that the focus in nature policies is shifting from nature protection to nature restoration and the Working Group on Effects should start thinking about how this can be reflected in effect assessment and support for air pollution policies. He also noted that the forthcoming European Union Nature Restoration Law will bring this topic forward. Participants welcomed inclusion of nature restoration into work under the Convention and noted that many ICPs have data and experience to contribute. The participants discussed perspectives of using dynamic modelling to analyse scenarios for nature restoration - including possibilities, means and timeframe for restoration and possibilities for the ICPs to deliver on this. It was agreed that ICPs will internally discuss potential focus areas and timeframes for delivering results and will report back at the tenth joint session.

10. The Working Group on Effects Chair emphasized that **climate change** impacts and mitigation and its interaction with air pollution effects and policies will be increasingly important. The International Cooperative Programme on Assessment and Monitoring of Air Pollution Effects on Forests (ICP Forests) representative noted that climate change is having overwhelming impact on forests, and they already observe reduced potential of forest to contribute to climate targets. The ICP Integrated Monitoring representative noted that time series are now long enough that one can see effects of climate change, for example the vegetation period at SE04 (Gårdsjön) has increased by around a month since 1995.

11. All the participants expressed concern that the timeline for the **revision of the Gothenburg Protocol** is rather ambitious. They discussed that the current revision should include effects on nature, environment, materials and vegetation based on results from optimized scenarios. In conclusion, the participants agreed to continue work on developing

scenarios for reduction of air pollution pressure on biodiversity on a regional scale. The Working Group on Effects Chair concluded that the Task Force on Integrated Assessment Modelling (TFIAM) and the Centre for Integrated Assessment Modelling (CIAM) will lead the process and will work with the Coordination Centre for Effects (CCE) to link the UNECE receptor map with the recently revised Empirical Critical Loads and to integrate it in the GAINS modelling framework for scenario analyses.

12. The Working Group on Effects Chair also brought attention of participants to the issue of **scale** – initially the focus of the Convention was on the regional scale. Later, e.g. through the Task Force on Hemispheric Transport of Air Pollution (TFHTAP), the Expert Panel on Clean Air in Cities, and the work in ICP Integrated Monitoring, more attention was given to connecting to local and global scale. He concluded that while multi-scale approaches makes sense, it is important to reflect on how far the Convention should go in this direction. Participants agreed that this is an important issue that should be further addressed.

13. Isaura Rabago presented a concept for a **joint report on effects** based on the ICPs' and Task Forces' inputs into the Gothenburg Protocol review, which will disseminate information and serve as a basis for policy making, targeting those who are not so familiar with the Convention. It will be organized by effect: acidification (International Cooperative Programme on Assessment and Monitoring of the Effects of Air Pollution on Rivers and Lakes (ICP Waters), ICP Integrated Monitoring, International Cooperative Programme on Modelling and Mapping of Critical Levels and Loads and Air Pollution Effects, Risks and Trends (ICP Modelling and Mapping)); nutrient nitrogen (ICP Waters, ICP Integrated Monitoring, ICP Forests, ICP Modelling and Mapping); ozone (ICP Forests, International Cooperative Programme on Effects of Air Pollution on Natural Vegetation and Crops (ICP Vegetation)); impacts on materials; Health ; Biodiversity; Monitoring. It remains to be seen if ex-post analysis can be included into the report, largely depending on the progress of CIAM. A draft report will be ready in September 2024 and final report in 2025. The participants welcomed the concept of the report and agreed that work on the preparation of the report should continue.

IV. Progress in the implementation of the 2024–2025 workplan

A. Working Group on Effects

(i). The Joint Task Force on the Health Aspects of Air Pollution

14. The Chair of the Joint Task Force on the Health Aspects of Air Pollution (TF Health) reported on the progress in the implementation of 2024-2025 workplan and informed participants about the dates of the annual TF Health meeting (22-23 May 2024, Bonn, Germany). She provided an overview of ongoing activities under the task force: consolidating evidence on health effects of air pollution; supporting the implementation of the WHO air quality guidelines (AQGs); updating methods for health risk/impact assessment of air pollution (an update of the HRAPIE project), with focus on long-term mortality effect attributable to PM_{2.5}, PM₁₀, NO₂, ozone, and the WHO European Region (in coordination with a WHO project on Estimation of Morbidity from Air Pollution and its Economic Costs (EMAPEC)); elaborating tools for quantification of the health impacts of air pollution, including links to the climate agenda. The Chair also reported that the Spanish language version of the WHO AirQ+ software was released, and the WHO Climate Mitigation, Air Quality and Health (CLIMAQ-H) software was published in Q4 2023. She mentioned a capacity building workshop to increase the knowledge of the health effects of air pollution and improve ability to assess the related health risks that was held in Bishkek, Kyrgyzstan, 4-8 December 2023, for 30 environmental and public health experts from Kazakhstan and Kyrgyzstan. Finally, she shared information about the reference of TF Health in the Budapest Declaration from the Seventh Ministerial Conference on Environment and Health.

(ii). International Cooperative Programme on Effects of Air Pollution on Materials, including Historic and Cultural Monuments

15. The Co-Chairs of the International Cooperative Programme on Effects of Air Pollution on Materials, including Historic and Cultural Monuments (ICP Materials) reported on developments and outcomes of activities including an update on the upcoming trend exposure and status on the case studies on UNESCO cultural heritage sites, noting that all work plan items for 2024-2025 are on track.

16. The Co-Chairs also reported that: i) the latest four-year trend exposure of zinc indicates the need of updating its dose-response function in the multi-pollutant situation; ii) a new trend exposure is planned to begin in October 2024, with trends for selected materials; iii) particulate matter is proposed to be the upcoming focus for the work regarding its effects on the corrosion and soiling of material; and iv) synergies with other ICPs (for example TF Health) would benefit the work.

17. Finally, the Co-Chairs noted that the recession rates for UNESCO sites modelled with national input maps are higher than those based on EMEP01 maps (around 20%). They concluded that the major outcome of this study is that using a model with a resolution at urban scale can result in a more realistic estimation of the effect of air pollutants on cultural object.

(iii). International Cooperative Programme on Assessment and Monitoring of the Effects of Air Pollution on Rivers and Lakes

18. A representative of the ICP Waters reported that the report on trends and patterns in surface water chemistry, with a particular focus on calcium, has now been published (Vogt et al. 2024). She also reported that in 2024, ICP Waters will present an updated manual, while the thematic report for 2025 will be devoted to dose-response relationships between biological change and water chemistry and, among others, existing thresholds for water chemistry will be tested for benthic invertebrates in data-rich case studies.

19. A representative of the ICP Waters noted that the ICP has already contributed to the planned joint Working Group on Effects report (1.1.1.34 workplan item) through a trend analysis of water chemistry (which will be updated to include data until 2020), and of projections of future water quality using the baseline, MFR and LOW scenarios for 2015, 2030 and 2050. Also, she noted that the ICP Waters will contribute to other joint activities relevant to the Gothenburg Protocol revision as deemed relevant, for instance through assessment of changes in biodiversity and climate change impacts on recovery.

(iv). International Cooperative Programme on Integrated Monitoring of Air Pollution Effects on Ecosystems

20. The Head of the Programme Centre of the ICP Integrated Monitoring presented the progress on the 2024-2025 workplan: (1) attempting to answer the question whether deposition can be linked to reduced vegetation community stability. The ICP statistically summarised community composition and tracked changes over time. Next step is to relate these changes to deposition, using data from more sites; (2) The ICP participated in the Mercury project led by Canada to test passive mercury samplers. Results will be published once more data are available; (3) Report on dynamic modelling of Swedish sites and biodiversity was elaborated. The ICP compared modelled and observed occurrence probabilities occurrence of species. It was found that the occurrence probability of mosses and lichens are often underestimated; (4) The ICP will ensure acknowledgement for IPR of open data by applying a licence (CC BY) and data paper; (5) The ICP is beginning a rolling revision process of the Manual with formation of working groups at ICP meetings; (6) a hybrid Task Force meeting took place in Prague, Czechia on 28-30 May 2024; (7) the ICP continued co-operation with eLTER according to letter of understanding.

(v). International Cooperative Programme on Effects of Air Pollution on Natural Vegetation and Crops

21. The Chair of the ICP Vegetation reported on the progress, including an overview of new information added to the Mapping Manual annex (Scientific Background Document B) on soil moisture index (led by CIEMAT, Spain), which will allow improved ozone uptake modelling in dry regions in current and future climates. She also presented information on the development of a nitrogen module for the DO₃SE model to investigate ozone impact on dietary protein in wheat. She further presented draft maps of metal content in mosses from

the 2020 survey, together with some preliminary results from the pilot study on airborne deposition to microplastics (MADAME), which revealed microplastic deposition to mosses across the survey region, including remote regions of Scandinavia and western Ireland. She noted that recent outreach work by the ICP Vegetation includes two new reports published with the World Meteorological Organisation, mapping of ozone impacts on African crops, an [online course on ozone and tropical agriculture](#), a [YouTube video](#), webinar and leaflets/brochures and that additional outreach work is planned in support of preparations for the 2025 moss survey. Finally, she reported that a successful in-person Task Force Meeting was held in Lithuania, hosted by the Lithuanian Research Centre for Agriculture and Forestry (19-21 February, 2024, Kaunas).

22. The Chair of the ICP Vegetation further noted that for the Gothenburg Protocol revision, ICP Vegetation has already calculated percentage yield loss for wheat and production loss due to ozone (using the POD_3IAM metric) and percentage losses in forest biomass increment for deciduous forest (using the POD_1IAM metric). Analyses were made for the baseline, MFR and LOW scenarios for 2015, 2030 and 2050. She offered that similar analysis could also be carried out for any other policy relevant scenarios as required. She further mentioned that there is also the potential to look at % biomass and flower number losses using the POD_1IAM ozone metric for grasslands, which could be linked to biodiversity impacts. Lastly, she reported that the ICP Vegetation is planning to use the methane model runs from MSC-West, which alter background methane concentrations under the various Gothenburg Protocol review scenarios, to investigate how ozone impacts (e.g. crop losses, forest biomass increment losses) vary with differing methane levels.

(vi). International Cooperative Programme on Assessment and Monitoring of Air Pollution Effects on Forests

23. The Head of the Programme Co-ordinating Centre informed the audience about the progress of ICP Forests with regard to the work plan. He gave an overview about (i) the reports published by ICP Forests in 2023/24 and (ii) meetings of ICP Forests that have already taken place or are in planning, including the Task Force Meeting and the scientific conference of ICP Forests (FORECOMON) that will take place in Prague from June 10 to 14, 2024. He also presented the status of the implementation of the Convention's workplan and highlighted publications which might be relevant for the Convention. Finally, he showed how ICP Forests is investigating the linkages between air pollution and climate change.

(vii). International Cooperative Programme on Modelling and Mapping of Critical Levels and Loads and Air Pollution Effects, Risks and Trends

24. A representative of the Coordination Centre for Effects (CCE) provided an update on communication actions towards National Focal Centres, including the upcoming 2024 annual meeting in April (Oslo, Norway) and the newsletter published twice a year since 2019. He also briefed on the main achievements along the 2022-2023 workplan. He highlighted the advanced progress on the update of the European receptor map and how this links to the 2024-2025 workplan for the mapping and the risk assessment with Empirical Critical Loads (CL_{empN}). He informed that CL_{empN} -data will be exported for CIAM to integrate those indicators in the integrated assessment modelling to calculate pressure on biodiversity. Furthermore, he mentioned the ongoing work on the review of critical limits for eutrophication and acidification to be published in a report in 2024. Finally, he presented on the engagement with other groups inside and outside the Convention including the IUFRO and the EANET Networks.

25. The Head of the Centre for Dynamic Modelling (CDM) briefed on main achievements in implementation of the current workplan. He reported that modelling biodiversity change has been addressed in six previous Calls for Data and changes in species compositions due to deposition of sulphur and nitrogen is also the scientific rationale for setting the empirical critical loads. He emphasized that the potential of modelling the impact of air pollution on biodiversity with process oriented dynamic models is not only in setting the critical loads, but the models are capable to deliver ex post analysis and other types of scenario analysis, and to provide additional ways to demonstrate damage to biodiversity and benefits of air pollution abatement. He concluded that addressing the issue of nature restoration might require other tools than critical loads assessments such as dynamic models.

B. Highlights of the 2023–2024 workplan - Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe activities

(i). Task Force on Emission Inventories and Projections (TFEIP)

26. The Co-Chair of the TFEIP presented progress on workplan activities. The annual TFEIP meeting took place in Germany on 14-16 May, and discussions included the tasks required to support the revision of the Gothenburg Protocol. He provided an overview of these tasks, including further developing the guidance on estimating black carbon (BC) emissions, supporting improved reporting of condensable PM emissions, and assessing revisions to emissions inventory reporting (in particular the addition of methane (CH₄)). He reported that there is a planning ongoing for the next EMEP/EEA Guidebook update, which is scheduled for completion in 2027. He also noted that priorities for the topics that will be reviewed and updated should be established (e.g. representativeness of emission factors, metrology-driven activities, NMVOC speciation profiles, black carbon, condensable in particulate matter, etc). He highlighted the need to secure some funding to support those developments. New topics may require specific attention in the future: hydrogen combustion processes, use of ammonia as fuel, satellite measurements, new abatement technologies. Finally, he talked about recent TFEIP meetings with the USEPA, which led to identification of areas of common interest and opportunities for collaboration.

(ii). Centre on Emission Inventories and Projections (CEIP)

27. The Head of CEIP reported that by the end of February, CEIP had received 46 out of 51 air emission inventory submissions. She also reported that adjustment applications have been submitted by Czechia, Denmark, France, the Netherlands, and the United Kingdom of Great Britain and Northern Ireland, with two of these applications being submitted for the first time in 2024. She noted that the reporting of condensable emissions for residential heating and road transport is well understood and taken into account by the Parties, while for other sectors (e.g. Industry and aviation) it is less clear if the condensable component is included in the reported emission data. She recommended to investigate these sectors in the future to get a consistent overview of the situation regarding reporting of the condensable part of organic particulate matter.

28. The Head of CEIP recalled that in 2024, the in-depth review of air emission inventories will focus on the Industrial Processes and Product Use (IPPU) solvent sector, while for the years 2025 and 2026, the review of projected emission data and the sector transport is planned respectively (as approved by the Steering Body in September 2023). She highlighted that for future years, it may be worth considering whether a few rounds of review could be focused on air emission inventories that require substantial improvements as some countries in the Western Balkan and ECCAA regions have shown significant areas for improvement and show little implementation of the recommendations of the expert review. She requested advice from the EMEP Steering Body, UNECE Secretariat and the Implementation Committee on how to plan for the long term to help improve this situation. The chair of the EMEP Steering Body reminded that in-depth reviews should not substitute to capacity building activities. Finally, the Head of CEIP confirmed that the center will continue to work on the items listed in the work plan, e.g. work on condensables, practicalities required for including CH₄ in annual emissions inventory reporting, black carbon emissions and work on improving spatial distribution of gridded data (with a special focus on the ECCAA region).

(iii). Task Force on Measurements and modelling (TFMM)

29. The Co-Chair of the Task force on Measurements and Modelling focused her presentation on the work plan for the period 2024-2025 and the possible interaction with other Task Forces and centres. She noted that identification of the processes contributing to high ozone episodes will be studied in the scope of the modelling exercise set up to interpret the Volatile organic compounds (VOC)-oriented measurement campaign of July 2022 and that the outcome from the study will help identify major gaps in the understanding of ozone formation processes during heat wave episodes including the relative importance of

anthropogenic versus biogenic VOC emissions. She also noted that several work plan items refer to the description of chemical composition of aerosols in the models - this includes OC/BC and secondary formation of aerosol, as well as the role of the treatment of condensable emission in the model. She announced that in collaboration with TFIAM and TF Health, TFMM will undertake new activities aiming to analyse how modelling results related to BaP results issued from the completed Eurodelta BaP and country case studies, could be used in the integrated assessment of BaP human health effects.

30. She concluded that as a contribution to the revision of the Gothenburg Protocol, TFMM aims to provide an insight into the contribution of natural (no control) versus anthropogenic (control) emissions to the observed levels and trends of O₃, PM₁₀, PM_{2.5} and BC and to assess the uncertainties. Finally, she noted that in terms of health assessment an attempt will be made to establish a protocol for testing TF Health's tools and providing health exposure parameters to TFIAM.

(iv). Meteorological Synthesizing Centre-East (MSC-East)

31. A representative of MSC-E presented the current status of capacity building of the Centre at the Jožef Stefan Institute (Ljubljana, Slovenia), ongoing research and development activities, as well as plans for the current year. He outlined the efforts undertaken to operationalize the Centre, including the engagement of research staff, development of a new website, preparatory work for operational modelling and pilot simulations. Additionally, he highlighted research activities conducted in collaboration TF HTAP, Working Group on Effects/ICP Forests and other international organizations (Minamata Convention). Finally, he articulated the Centre's priorities for contributing to the bi-annual workplan for the implementation of the Convention in 2024. The Chair of the EMEP Steering Body welcomed this presentation and highlighted the fact that the new MSC-East managed in a very short time to take over a large part of the former center's activities, and to ensure the continuity of the service as requested by the Executive Body.

(iv). Chemical Co-ordinating Centre of EMEP (CCC)

32. A representative from the CCC announced that most of the EMEP data for 2022 to be reported this year are now available in EBAS (<https://ebas.nilu.no>), except for a couple of pending Parties. She informed participants about the status of the intensive measurement campaign organized in summer 2022 to study the role of VOCs during high ozone episodes. She announced that there will be a follow up campaign on VOC in 2024 in collaboration with the RI-Urban and ACTRIS projects to include urban sites. She informed of the outcome from the workshop on field and measurement techniques for chemicals of emerging concern (CECs) held in November 2023, and she noted that a report with the conclusion is under preparation and will be presented at the TFMM meeting in May. Further she announced that the implementation of connecting the EMEP data with DOIs is ready, including their associated landing pages. She informed of the newly published peer reviewed paper [Trends in Air Pollution in Europe 2000-2019](#), that is a result of the work on the revision of the Gothenburg Protocol.

(v). Meteorological Synthesizing Centre-West (MSC-West)

33. The Head of MSC-W presented progress on the 2024-2025 workplan, including the following items: (i) work on modelling of VOCs and its effect on ozone in the perspective of the EMEP summer 2022 campaign has resulted in the submission of a peer review paper; (ii) work on CH₄ and O₃ has been updated with results on POD₃ on crops, and new model calculations using revised emissions from CIAM and a MFR scenario are being performed; (iii) work on preparing for the inclusion of updated O₃ results into GAINS is in progress in the perspective of the revision of the Gothenburg Protocol; (iv) evaluation and improvement of modelling in West Balkan, EECCA and Türkiye is ongoing using satellite data and observations from national monitoring in collaboration with the Norwegian Space Agency; (v) implementation of a new source/receptor method, the local fraction method which could be an interesting alternative to the usual brute force one; (vi) work on modelling condensable part of PM continued thanks to field campaigns and additional modelling work on organic carbon and elemental carbon carried out in various research projects.

(vi). Task Force on Integrated Assessment Modelling (TFIAM) and Centre for Integrated Assessment Modelling (CIAM)

34. The co-chair of the TFIAM reported on plans, progress and requests related to the 2024-2025 workplan, including the following: (i) work on the [policy brief](#) on potential implications of introducing collective risk-based targets for the UNECE region to address air pollution impacts on health and ecosystems which will be updated throughout the revision process. An updated version of the policy brief accounting for the feedbacks received will be circulated before the WGSR meeting in May 2024; (ii) related modelling work by CIAM for which information on scenario priorities from the policy bodies is crucial; (iii) guidance documents on non-technical measures and policy instruments; and (iv) the EPCAC position paper on tools and experiences to improve urban air quality. She insisted on the tight timeline and the need to quickly agree on the assumptions to set-up the IAM framework to run optimised scenarios for the Gothenburg Protocol revision. She reminded participants that the annual meeting will take place in April in Paris and would benefit from involvement of experts from EECCA, Türkiye and West Balkans. She emphasized that an exchange with TFMM on whether and how to correct systematic biases in using gridded modelling results to assess average exposure would be valuable.

35. A representative from the CIAM presented the modelling plans focussing in 2024 on updating the baseline scenario, optimization of health targets for intermediate years (2035, 2040), exploring scenarios informing staged/phased approaches for non-parties and exploring options for optimizing for biodiversity protection, and in 2025 on optimisation for multiple health targets and for environmental impacts from ozone. He also listed inputs that are key to the work: to receive the EMAPEC and HRAPIE II results from TF on Health; to receive the necessary input data for optimising for biodiversity targets from WGE/CCE; to get information on the feasibility of implementing abatement technologies in the EECCA region from TFTEI; to receive updated information on emission inventories from TFEIP/CEIP.

(vii). Task Force on Hemispheric Transport of Air Pollution

36. The Co-Chair of TFHTAP presented a summary of the status of work in the 2024-2025 workplan and noted that the various work plan items are categorized into five different streams: global mosaic inventories; modelling of mercury; modelling of wildfire impacts on air pollution; modelling in support of the revision of the Gothenburg Protocol and input to decision support tools. He reported that for global mosaic inventories, there will be an update to the HTAPv3 inventory including an extension of the time span (now 2000-2020), updated emissions from global and regional partners, and inclusion of the MEIC emissions for China. He also reported that for the work on mercury, modelling groups are currently performing the work in cooperation with the Open-Ended Science Group of the Minamata Convention and will continue this under the framework of the LRTAP convention, while the work on the modelling of fire impacts is still in the planning stage and is being conducted in cooperation with the International Global Atmospheric Chemistry (IGAC) Project BBurned initiative.

37. He informed the participants that for the modelling in support of the Gothenburg Protocol, TFHTAP is organizing multi-model experiments based on the GAINS scenarios with a focus on methane and ozone. He emphasized that the scenarios used by TFHTAP should be consistent with scenarios used by other convention bodies in their work in support of the revision of the Gothenburg Protocol. He noted that results from these model runs should be expected by September 2025 at the earliest. He further noted that inputs to the Gothenburg Protocol revision process will include an assessment of future air pollution and its impacts in the UNECE region under the GAINS scenarios, as well as a quantification of the contributions of methane and emissions of Gothenburg pollutants inside and outside the UNECE region and work on input to decision support tools will focus on making the results of the Gothenburg Protocol runs available to a wide range of decision support tools.

VI. Discussion on Open data

38. The secretariat informed the participants on the results of the pre-meeting survey on open data and intellectual property rights. Ten answers were received. The secretariat also

brought attention of the participants to the fact that the centre's contracts with UNECE may contain clauses on data ownership and recommended that all the centres review their contracts, particularly when looking into data ownership and intellectual property rights issues.

39. The Head of CEIP noted that they are currently using the CC BY 4.0 license, but would like to get better guidance on citation for publication based on emission data from the parties. She also requested guidance on the maps to be used for gridded data, particularly whether UN maps could be made available to CEIP.

40. The Chair of ICP Forests informed participants of their Intellectual property and publication policy, which is a part of the Manual on methods and criteria for harmonized sampling, assessment, monitoring and analysis of the effects of air pollution on forests.

41. The Chair of ICP Integrated Monitoring noted that the ICP is in the process of moving from the traditional "by request" model of data provision to open data publication according to the FAIR principles (Findable, Accessible, Interoperable and Reusable) and that participating countries will be asked to formally consent to publishing data under a Creative Commons by-attribution licence at the 2024 Task Force meeting. He further noted that after this, the Programme Centre will make the database available online, and a data paper describing the monitoring programme and the available data will be published to facilitate attribution and provide citations when the data are used; this process is expected to be completed in 2024-2025.

42. A representative of European Environment Agency (EEA) noted that some organizations are highly regulated in this area, and this includes his organization, which is under European law on access to environmental information, and operates under the Creative Commons attribution License. He suggested to map the requirements from different teams and possibly to develop a minimum requirements guidance.

43. A representative of the European Commission referred to the Aarhus Convention, which mandates free access to all environmental data and also to data access initiatives of the European Commission.

44. The EMEP Steering Body Chair emphasized that as the work of the centres is funded by the contributions, it is important for Parties to see that the data is collected, used and is useful and relevant for everyone. She further noted that monitoring data, as environmental data, falls under the Aarhus convention, but for models produced by the centres copyright issue would be applicable. She proposed to have a review on an annual basis of how many papers were published and where and on which topics and what is the status of data sets. She suggested that this information could be shared on the Convention website, including links to the papers and to the data sets, to promote the ongoing work and increase visibility. The participants were encouraged to include this information into their updates for the EMEP Steering Body/Working Group on Effects annual joint session.

45. The EMEP Steering Body Chair and the Working Group on Effects Chair requested the participants to discuss open data and IPRs at their upcoming meetings and report on this at the tenth joint EMEP Steering Body/Working Group on Effects session in September. In particular, the Working Group on Effects Chair requested the teams to develop a clear timeline on what and when will be available and present those plans and timeline at the September meeting. The EMEP Steering Body Chair noted that it is important to further investigate the licensing process to encourage groups to use open data license and share experience from the teams.

VI. Financial and budgetary matters

46. The secretariat informed participants on the following financial and budgetary matters: (i) funding to the EMEP centres was approved as recommended by the ninth joint EMEP SB/WGE meeting, which means it remains at the same level as in 2023 with JSI receiving full MSC-E budget of USD 459,000; (ii) the Executive Body decided to reinstate the funding paused in 2023 and requested the secretariat to utilise the amount necessary to cover the expenses associated with the orderly transition of MSC-E Moscow to the JSI until

30 June 2024; (iii) one third of the reinstated 2023 budget of MSC-E of EMEP will be shared amongst CEIP and CIAM in line with workplan for the implementation of the Convention for 2024-2025; (iv) the Executive Body approved the essential international coordination costs for financing the core activities of the Convention and its protocols, other than those covered by the EMEP Protocol, at \$2,358,700 in 2024; (v) the distribution among the ICPs and TF Health were presented as outlined in the Table below.

ICPs/WHO	Earmarked	Non-earmarked	Total
ICP Forests	66,700	66,200	132,900
ICP Waters	46,500	66,200	112,700
CIAM	44,100	66,200	110,300
ICP M	-	66,200	66,200
ICP V	-	66,200	66,200
ICP IM	-	66,200	66,200
ICP M & M\CCE	-	66,200	66,200
ICP M & M\CDM	-	66,200	66,200
Health	-	66,200	66,200
TOTAL	157,300	595,800	753,100

47. The participants returned to a previously discussed issue of modifying tables 8 and 10 of the document Financial requirements for the implementation of the Convention. No conclusion was reached and it was agreed that a smaller group comprised of representatives of ICPs and of the secretariat will make a proposal to be presented at the tenth joint session.

48. The secretariat also informed participants that in December 2023, the Executive Body Bureau discussed an issue of alignment of the EMEP mandatory contributions for 2025 and 2026. A representative of the secretariat highlighted that the Article 5 of the EMEP Protocol specifies that “an annual budget for EMEP shall be drawn by the Steering Body of EMEP, and shall be adopted by the Executive Body not later than one year in advance of the financial year to which it applies”. She further noted that currently an annual budget is being adopted by the Executive Body in December of each year for the following financial year, therefore there is a need to align with this provision of the Protocol. She then presented a proposal whereby Parties would make mandatory contributions for both 2025 and 2026 in 2025 and for 2027 in 2026. The EMEP SB Bureau supported the alignment and agreed that the proposal be presented at the 10th joint EMEP SB/WGE session.

49. Mike Holland made a presentation on Green Bonds as potential new and innovative funding sources for the Convention work. The secretariat was requested to look into a possibility of accepting funds from such innovative sources.

VII. Preparation for the 10th joint EMEP SB/WGE session

50. The secretariat informed participants that the Executive Body at the forty-third session agreed on the revised list of documents for the sessions of the Executive Body and its main subsidiary bodies in 2024 and there will be five official documents for the tenth EMEP Steering Body/Working Group on Effects joint session.

51. Participants were requested the following:

(a) to submit inputs into Joint report by the EMEP Steering Body and the Working Group on Effects by May 10;

(b) to submit informal documents/technical reports by June 30;

(c) to submit draft decisions, inputs into report and presentations to the secretariat by September 2, 2024 or earlier;

(d) CEIP to submit document Present state of emission data, review process and data for modellers by May 30.

52. It was agreed that two thematic sessions will be organized at the 10th joint EMEP SB/WGE meeting in September - on Nature restoration and air pollution and Managing uncertainties. There will be also a thematic discussion on Impacts of climate change policies on air pollution.

53. The participants were reminded that at the elections held at the ninth joint session of the Working Group on Effects and the EMEP Steering Body, the Working Group on Effects elected Ms. Zita Ferenczi (Hungary) as Vice-Chair for a term of one year and no candidates had been nominated for the EMEP Steering Body Vice-chair. Therefore, there will be elections of the Vice-Chairs for both bodies at the 10th joint session. Respective communication will be sent to the Parties in due time.

54. The secretariat informed participants that effective 22 January 2024 the United Nations Office at Geneva (UNOG) has ceased servicing all hybrid or virtual meetings on any platform, system, or tool (e.g., Zoom, Interprefy, Webex, etc.). Therefore, the tenth joint session will be an in-person only event. In case the event will change its status from private to public, it will be possible to broadcast it. The Executive Body Chair proposed to discuss this issue at the Executive Body Bureau.

VIII. Communication and e-learning

55. The secretariat presented a concept of E-learning course on air pollution effects work under the Convention, which is being developed with CCE. The secretariat also reminded the participants that for meetings organized by ICPs/TFs/Centres, it is possible to upload agenda and registration link on the UNECE meeting webpage and to prepare a web-article for the Convention website.

IX. Conclusion and follow-up actions

56. At the invitation of Milena Horvat, Head of the Department of Environmental Sciences, Jožef Stefan Institute, the next meeting of the Extended Bureaux of the Steering Body to the EMEP and the Working Group on Effects will take place in mid-March 2025 in Ljubljana, Slovenia.

57. In conclusion, the Working Group on Effects Chair highlighted a number of issues discussed at the meeting, including the scale of assessments; incorporating more data on nature and biodiversity into integrated assessment modelling; interlinkages between air pollution and climate change, including mitigation; and air pollution in relationship to nature restoration. He also emphasized that the Working Group on Effects programmes are not only data collection programmes, but scientific programmes, and this should be flagged up to the countries to secure participation from knowledge institutions in the work. The Working Group on Effects Chair also referred to the IPR discussion noting that it will be important to set a timetable for reaching the goal of free data and data sharing.

58. With regards to the Gothenburg Protocol revision, the Working Group on Effects Chair reported that in addition to optimized scenarios for health and for ecosystems area protection, there is an agreement to also develop optimized scenarios for biodiversity protection. He concluded that the Working Group on Effects will continue to facilitate the discussion on biodiversity between TFIAM, CIAM, CCE, CDM, ICP Integrated Monitoring and invited MSC-W to join. He also recalled an ad-hoc group on monetization of benefits and proposed to re-establish it as it would be important to include costs of nature restoration.

59. In her concluding remarks, the EMEP Chair noted that there will be a meeting of an ad-hoc group on condensables, which will be organized shortly. She requested the secretariat to compile together information on what is done/planned to support revision of the

Gothenburg Protocol. She further emphasized importance of promoting the work of the Convention through scientific publications. She also appreciated the progress made by the MSC-E since January 2024 and welcomed Joanna Strużewska, Daniel Montalvo and Simone Schucht as this was their first meeting as a Co-Chairs of TFMM, TFEIP and TFIAM respectively.

60. In addition to the Chair's concluding remarks above, the following follow-up actions were agreed by participants:

(i) At the tenth joint EMEP Steering Body/Working Group on Effects session to consider a decision on making joint sessions public events to enable remote following of the sessions;

(ii) Organize a discussion on tables 8 and 10 and present conclusions at the 10th joint session (secretariat and ICP Waters);

(iii) Prepare draft Effects joint report based on the ICPs' and Task Forces' inputs into the Gothenburg Protocol review and present at the 10th joint session (Isaura Rabago). Final version of the report will be ready in 2025;

(iv) Follow-up with UNECE Executive Office on green bonds (secretariat);

(v) Organize further discussion and sharing practices on open data and IPRs, considering a need for a minimum requirements guidance.