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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

Third joint session
Geneva, 11–15 September 2017
Agenda item 8 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 and the Working Group on Effects

Note by the secretariat

Summary

The present note provides a report of the discussions at and outcomes of the meeting of the Bureaux and 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 from 20 to 23 March 2017 in Geneva, Switzerland.

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Introduction

1. The present note details the activities of the Bureau 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, reporting the results of the joint meeting of the respective Bureaux and the Extended Bureaux held from 20–23 March 2017 in Geneva, Switzerland.

A. Attendance

2. The following EMEP Steering Body Bureau members attended the meeting: Ms. Laurence Rouïl (France), Chair of the Steering Body; Ms. Sonja Vidič (Croatia), Mr. Xavier Querol (Spain) and Mr. Rudolf Weber (Switzerland). All the members of the Working Group on Effects Bureau attended the meeting: Ms. Isaura Rabago (Spain), Chair of the Working Group on Effects, Ms. Sabine Augustin (Switzerland), Mr. Jesper Bak (Denmark), Mr. Thomas Dirnböck (Austria) and Ms. Gudrun Schuetze (Germany). Ms. Anna Engleryd (Sweden), Chair of the Executive Body to the Convention and Mr. Peter Meulepas (Belgium), the European Commission, also attended.

3. The meeting was attended by representatives from the five EMEP Centres: the Meteorological Synthesizing Centre-East (MSC-E); the Meteorological Synthesizing Centre-West (MSC-W); the Chemical Coordinating Centre (CCC); the Centre for Integrated Assessment Modelling (CIAM) and the Centre on Emission Inventories and Projections (CEIP). Also attended representatives of all the Working Group on Effects Centres: the Programme Co-ordinating Centre of the International Co-operative Programme (ICP) on Assessment and Monitoring of Air Pollution Effects on Forests (ICP Forests), the Programme Centre of the ICP on Assessment and Monitoring of the Effects of Air Pollution on Rivers and Lakes (ICP Waters), the Programme Centre of the ICP on Effects of Air Pollution on Materials, including Historic and Cultural Monuments (ICP Materials), the Programme Centre of the ICP on Effects of Air Pollution on Natural Vegetation and Crops (ICP Vegetation), the Programme Centre of the ICP on Integrated Monitoring of Air Pollution Effects on Ecosystems (ICP Integrated Monitoring), the Coordination Centre for Effects (CCE), the ICP on Modelling and Mapping of Critical Levels and Loads and Air Pollution Effects, Risks and Trends (ICP Modelling and Mapping), and the Joint Task Force on the Health Aspects of Air Pollution (Task Force on Health). Mr. Martin Adams (European Environment Agency), co-Chair of the Task Force on Emission inventories and Projections, Mr. Rob Maas (the Netherlands) and Mr. Stefan Åström (Sweden), co-Chairs of the Task Force on Integrated Assessment Modelling, Mr. Augustin Colette (France), co-Chair of the Task Force on Measurements and Modelling, Mr. Filip Moldan, Chair of the Joint Expert Group on Dynamic Modelling (JEG Dynamic Modelling), also participated in the meeting as well as the secretariat of the United Nations Economic Commission for Europe (ECE).

4. Mr. Terry Keating (United States of America) and Mr. Frank Dentener (the Netherlands, co-Chairs of the Task Force on Hemispheric Transport of Air Pollution, contributed to the meeting via telephone and web connections.

B. Organization of work

5. The Bureaux took note of the oral reports from: the EMEP Centres and Task Forces, Working Group on Effects Centres, JEG Dynamic Modelling and the Task Force on Health, on the progress made in implementing the key activities in the 2016–2017 workplan (ECE/EB.AIR/133/Add.1).

I. Matters arising from the thirty-sixth session of the Executive Body, the second joint session of the Steering Body and the Working Group on Effects

6. The Chair of the Executive Body, drew attention to the major outcomes of the thirty-sixth session of the Executive Body for the Convention and, in particular, on the preliminary results – related to scientific work under the Convention - presented by an ad hoc policy review group of experts to develop a policy response to the *Towards Cleaner Air: Scientific Assessment Report 2016* (2016 Assessment Report).[1] She also reported on the two panel discussions held at the session: on Sustainable Development Goals and on implementation of voluntary actions under the Batumi Action for Cleaner Air (BACA) initiative (ECE/BATUMI.CONF/2016/7), launched at the Eighth Environment for Europe Ministerial Conference (Batumi, Georgia, 8–10 June 2016).

7. The Chair of the EMEP Steering Body and the Chair of the Working Group on Effects summarized the outcomes of the second joint session of the EMEP Steering Body and the Working Group on Effects. The main issues discussed included: the thematic sessions on:

(a) Linkages between air pollution and climate change;

(b) Benzo(a)pyrene and wood burning;

(c) Ozone issues.

About 20 presentations were delivered followed by in-depth discussions and recommendations. Other highlights of the joint session included: emerging issues related to emissions (e.g. condensables and semi-volatile organic compounds), EMEP monitoring, support to Parties, reduced funding for CCE and the efforts of the Working Group on Effects community to implement the recommendations from the 2013 ICP review and information sharing with Asia Center for Air Pollution Research, the Climate and Clean Air Coalition, Stockholm and Minamata Conventions, World Health Organization, World Meteorological Organization, United Nations Environmental Program, OSPAR Commission and the Copernicus Atmospheric Monitoring Service.

8. The secretariat provided an update on cooperation opportunities for the Convention with various international mechanisms on transboundary air pollution including the Climate and Clean Air Coalition and subregional efforts in Asia (e.g. Acid Deposition Monitoring Network in East Asia).

II. Progress of work

A. Emission inventories

9. The representative of CEIP presented the status of emission data reporting in 2016 and 2017, as well as various tasks of CEIP in relation to national emission inventories. The co-Chair of the Task Force on Emission Inventories and Projections presented the main outcomes of the 2016 Task Force meeting and the planned activities in 2017. A

[1] Rob Maas and Peringe Grennfelt, eds. (Oslo, 2016), available from http://www.unece.org/environmental-policy/conventions/envlrtapwelcome/publications.html. There is a separate report for North America by the United States Environmental Protection Agency and Environment and Climate Change Canada *Towards Cleaner Air: Scientific Assessment Report 2016 — North America* (2016, online report).

representative of the European Commission presented information about the planned review of national inventories under the recently updated European Union National Emission Ceilings Directive.[2]

10. The Bureaux welcomed the progress made by CEIP and the Task Force on Emission Inventories and Projections and, in particular:

(a) Welcomed the information by CEIP that the 0.1° x 0.1° grid system (longitude-latitude) for the EMEP domain is implemented and the spatial distribution of emissions is harmonized with Emissions Database for Global Atmospheric Research (EDGAR) database;[3] however, the redistribution of historical years in the new 0.1° x 0.1° grid system remains challenging; the 2015 data for modellers will be provided in both new and old grid (50 x 50 km^2) systems;

(b) Noted significant recalculations and resubmissions of reported emissions by several Parties;

(c) Noted insufficient information, provided so far by the countries concerned in 2017 by the stage 3 reviews; noted the opportunities and challenges - for the review under the Convention - by the 2017 review of national inventories under the European Union National Emission Ceilings Directive; coordination and harmonization (to the extent possible) of the two review processes is essential and should be further explored;

(d) Noted that reporting of inventories to EMEP slightly improved, particularly from Parties in Eastern Europe, the Caucasus and Central Asia; the capacity building activities organized by the ECE secretariat seem to motivate countries to improve their data; continuation of such activities would be welcomed;

(e) Welcomed the cooperation between CEIP and Aether[4] on improvement of emission factors for estimation of particulate matter emissions to assess the way condensable part is reported (or not);

(f) Welcomed the questionnaire distributed among Parties on the use of emission factors in estimation of PM emission with a focus on accounting (or not) condensables and semi-volatile organic compound; regretted that CEIP and TFEIP did not manage to provide a short synthesis of the answers collected from the 44 Parties; noted the need for further work on this issue and the need for both short-term actions and some longer-term aims to ensure that the reporting of PM emissions can better serve the modelling community and Parties;

(g) Noted the outcome of the study funded by the United Kingdom on the visualization of the workplan and related EMEP budget.

B. Adjustments of emission inventories

11. The representative of CEIP and the Task Force on Emission Inventories and Projections - on behalf of expert review team (ERT) - presented information about the review of new applications by seven Parties for adjustments of emission inventories under the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (Gothenburg Protocol) submitted in 2017. A check by CEIP confirmed one new application (Spain). Furthermore, the reviewers will have to check also the 28 applications submitted in 2017 related to adjustments approved in the years 2014–2016. CEIP developed an online

[2] Directive 2016/2284.
[3] See http://edgar.jrc.ec.europa.eu/.
[4] See http://www.aether-uk.com/.

database system[5] which allows online calculation of differences between emission data approved earlier (2014–2016), and latest reporting in 2017 (Annex VII), respectively. The reviews of the applications will be carried out by CEIP and the ERT between April and June 2017. The review coordination meeting will be held in Copenhagen in June in parallel with the stage 3 review (for 10 Parties). The summary report on the outcome of the review will be an official document for the third joint session of the Steering Body and the Working Group on Effects in September 2017, while the country review reports will be informal documents for the session.

12. The Bureaux welcomed the provided information and:

(a) Expressed concern due to apparently insufficient number of reviewers supported by Parties and the fact that some stage 3 reviews could have to be postponed if the ERT is not complete;

(b) Supported a request by CEIP to Parties to declare – in their submissions - that there are no significant changes in criteria and methods, respectively or explain reasons if there are minor differences in calculated emissions. If all Parties continue to provide the requested information, the review of adjustments approved in 2014–2016 should be significantly less resource demanding.

C. Atmospheric monitoring

13. A representative of CCC presented an update on quality assurance and quality control activities, including a specific workshop organized in fall of 2016 related to data documentation and reporting and the use of a submission tool. The meeting discussed and agreed on new date quality objectives to be introduced. The use of EMEP data is continuously increasing, and is in the order of 1000 unique individual users each month. The services to data users are also continuously developed, and a presentation was given on the EMEP near-real-time data showcase - a user friendly portal to access on-line data from EMEP sites. This service will form the basis also for the data provision to Copernicus Atmospheric Monitoring Service. The CCC introduced also the new World Meteorological Organization Global Atmosphere Watch (GAW) Implementation Plan – based on a federation of networks, which represents a new approach as compared to "contributing network". As many EMEP sites are also GAW sites and use the same database for observations (EBAS[6] database hosted by NILU), now only metadata need to be made available. Data will be preserved and labelled as EMEP data even if accessed through GAW Station Information System (GAWSIS). Finally, CCC presented the process needed in revising the EMEP monitoring strategy (ECE/EB.AIR/2009/16/Rev.1) beyond 2020.

14. A co-chair of the Task Force on Measurements and Modelling updated on the progress in implementing the 2016–2017 focusing on improving the tools (role of condensables, impacts on the evaluation of future emissions control strategies), support to Parties (chemical analysis related to EMEP observations, intensive measurement campaigns, assessment of heavy metals and persistent organic pollutant levels with fine spatial resolution) and cooperation with other projects and bodies (e.g. between EMEP and Copernicus Atmosphere Monitoring Service).

15. The Co-Chair also informed about the experiences gained with twin urban and remote supersites to investigate the contributions of local and regional air pollution and the performance of related models. A consistent analysis for several European sites (France,

[5] See webdab.umweltbundesamt.at/adjustments.
[6] See http://ebas.nilu.no/.

Spain and Switzerland) is ongoing and the results will be presented during the annual Task Force on Measurements and Modelling meeting in May 2017.

16. The Bureaux welcomed the progress made by CCC and the Task Force and:

(a) Encouraged CCC to seek ways to maintain and extend relations with partner organizations and relevant research projects - Global Atmosphere Watch in particular - to promote the work of EMEP and the widespread use of EMEP data and assessments;

(b) Stressed the need for an update to the EMEP monitoring strategy; several aspect should be considered: new monitoring methods, linkages between urban, regional and global scales, need to preserve key long term series, quality assurance and linkages with infrastructures like the Aerosols, Clouds, and Trace gases Research InfraStructure (ACTRIS)-2 project;

(c) Welcomed and encouraged further work with twin urban and remote supersites to investigate the contributions of local and regional air pollution to seek ways to maintain and extend relations with partner organizations, conventions and relevant research projects;

(d) Recommended to the Task Force and CCC to prepare a draft statement on the applicability and usefulness of low cost air pollution sensors that are increasingly introduced and promoted in and outside the ECE region as an alternative to establishment of air pollutant monitoring network, especially for health exposure assessments;

(e) Recommended to the Task Force and CCC to close discussion about future coordinated field campaigns, if needed, in collaboration with ACTRIS.

D. Atmospheric modelling, hemispheric transport of air pollution and integrated assessment modelling

17. A representative of MSC-E reported on recent activities in the field of heavy metal and persistent organic pollutant assessment (POP). The modeling results on the new EMEP grid demonstrate good agreement with both observations and simulations results on the old grid. Besides, the Global EMEP Multi-media Modeling System (GLEMOS) model is being prepared for public distribution as open-source software. MSC-E together with CEIP prepared a joint report on review and improvement of heavy metal and POP emissions data for modelling. The report is aimed to support development of a strategy to improve emission inventories. The Centre also continued co-operation with national experts in the field of assessment of national-scale pollution levels. In particular, cadmium levels in Poland and benzo(a)pyrene in Spain were analyzed jointly by MSC-E and national experts based on pilot modelling results and national monitoring and emission data. Besides, MSC-E calculated pollution levels of the second priority metals (arsenic, chromium, copper nickel, selenium and zinc) in the EMEP domain in order to provide the boundary concentrations to s national model in Italy. MSC-E also started collaborative work with the United Nations Environmental Program and the Arctic Monitoring and Assessment Program on preparation of the Global Mercury Assessment 2018. Finally, main directions of future work were proposed.

18. A representative from MSC-W presented the progress of the 2016–2017 workplan and highlighted some items for discussion. The EMEP/MSC-W model had been run using a test set of 0.1 x 0.1^0 emissions from CEIP (4 countries had reported gridded data, the rest was based on proxy data), and the results showed that in order to get improved results at 0.1 x 0.1^0 resolution, the quality of the fine scale emissions is prime importance. For the first time this year, Parties have been requested to report emissions in finer resolution, but it is unclear how many will do so and what will be the quality of submitted data. CEIP will only be able to deliver the first set of emissions to MSC-W by June, and there will be little time

for quality control if source receptor matrices are to be run and presented to the Steering Body in September. It was decided that instead of source receptor matrices, the Center resources should be devoted to other issues, e.g. evaluation of the new fine resolution emission data set. MSC-W also presented an approach for downscaling EMEP results to local scale - the uEMEP concept, and proposed to invite Parties to co-operate on downscaling of EMEP/MSC-W model results in their countries.

19. The co-chair of the Task Force on Measurements and Modelling recalled the main achievement in the 2016-2017 workplan, namely the 2016 report on observed air pollution trends between 1990 and 2010 in the EMEP region for ozone, sulfur and nitrogen compounds, particulate matter, heavy metals and persistent organic pollutants.[7] This trend assessment was complemented by the Eurodelta-Trends model intercomparison exercise that started to yield the first results in relation with model performance and attribution of air pollution changes due to (i) European emission reduction strategies, (ii) intercontinental transport, and (iii) meteorological variability. In addition, he reported on progress related to heavy metal and POP modelling national case studies, validation of modelled deposition fluxes, a scientific review on semi-volatile organic compounds (condensables).

20. The co-chairs of the Task Force on Hemispheric Transport of Air Pollution reported on progress in all of their tasks but recognized that several aspects of their work have taken longer than expected and outlined in the 2016–2017 workplan. The co-chairs discussed plans for a workshop to be organized in North Carolina on 3–6 April 2017 in conjunction with the United States Environmental Protection Agency. The workshop will help to complete a summary report on policy relevant messages from recent global and regional modeling studies. The Task Force is in the process of shifting the emphasis of its work from source-receptor modeling and model evaluation to assessing future strategies and impacts. The chair of the EMEP Steering Body suggested that the Task Force should place a high priority on its plans to develop a version of the Joint Research Centre's Fast Scenario Tool (FASST)[8] screening model using HTAP2 results, to help communicate the results of the Task Force's modeling experiments and assist policy makers in exploring different future scenarios. The chair of ICP Vegetation noted interest in using the Task Force results to assess global impacts of ozone on vegetation.

21. A representatives of the Task Force on Integrated Assessment Modelling presented the recent progress in the integrated assessment modelling focusing on local strategies to reduce air pollution and their cost-effectiveness, links between local, regional and hemispheric scales and the need for integrated approach to avoid antagonistic effects of climate protection measures (e.g. wood burning, diesel fuels and biodigestion).

22. The Bureaux welcomed the progress made by MSC-E, MSC-W, the Task Force on Measurements and Modelling, the Task Force on Hemispheric Transport of Air Pollution and the Task Force on Integrated Assessment Modelling and:

(a) Acknowledged and supported MSC-E continued extensive collaboration with the Parties (country studies in collaboration with Poland and Spain) and with a number of international programmes and organizations, such as United Nations Environment Programme and its Global Mercury Assessment 2018);

(b) Welcomed MSC-W's approach for downscaling EMEP results to local scale (uEMEP concept) and decided to encourage the Steering Body to invite Parties in expressing their interest for using downscaled EMEP/MSC-W model results for a better

[7] See 'Air pollution trends in the EMEP region between 1990 and 2012' available from http://www.unece.org/index.php?id=42906.

[8] See http://tm5-fasst.jrc.ec.europa.eu/index.html.

assessment of the contribution of long range fluxes to air pollution in their countries and cities;

(c) Recommended the continuation of the joint work of the Task Force on Emission Inventories and Projections and the Task Force on Measurements and Modelling on condensables and semi-volatile organic compound emissions and their handling in both emission inventories and air pollution transport models;

(d) Welcomed the work of the Task Force on Hemispheric Transport of Air Pollution, the Task Force on Integrated Assessment Modeling and the Task Force on Measurements and Modelling, on linking the hemispheric through regional to local scales and the importance of their future work on assessing mitigation strategies and their impacts;

(e) Expressed concern about the uncertainty of future financial support for Task Force on Hemispheric Transport of air Pollution activities from the United States and European Commission; Stressed the key role played by the Task Force for the Convention in scientific outreach beyond the ECE region, in particular in Asia;

(f) Reiterated the need for long-term air pollutant emission reductions through the ratification and implementation of Convention protocols to reduce the background air pollutant concentration levels and to reduce the risk of prolonged episodes of high PM and ozone peaks;

E. Critical Loads and the activities of the Coordination Centre for Effects

23. A representative of CCE presented preliminary results of the call for data to National Focal Centres of the International Cooperative Programme on Modelling and Mapping. The Working Group on Effects requested the CCE to issue the call for data in 2015 with a deadline in 2017. Thirteen countries submitted updates of the critical loads for eutrophication and for acidification. Among these, six Parties submitted data on critical loads of biodiversity. The CCE background database was applied to compute and map critical loads for Parties that did not submit data. Results will be reviewed at the thirty-third Task Force meeting of the ICP Modelling and Mapping (Wallingford, 4–6 April 2017) where recommendations will be prepared for the third joint session of EMEP Steering Body and the Working Group on Effects. Together with the CCE, ICP Modelling and Mapping will conclude in 2017 the call of data initiated in 2015 on biodiversity critical loads.

24. A representative of ICP Modelling and Mapping provided an update on its recent activities. The update of the Manual on Methodologies and Criteria for Modelling and Mapping Critical Loads and Levels and Air Pollution Effects, Risks and Trends is almost finished (Mapping Manual). A workshop on nitrogen immobilization produced a proposal text to improve the methodology presented in chapter 5 (section 3.1.3.1) of the Manual. This will be submitted to the Task Force for approval. Meanwhile, the process towards the translation of the Mapping Manual into Russian has been initiated. Collaborations with other groups under the Convention and beyond have been on-going. This includes collaborations with “monitoring” ICPs to carry out modelling on sites specific data, with integrated assessment modelling to assess synergies between air pollution and climate change, and therefore provide policy support information. Challenges for the future are set in the context of CCE progressive closing down. In that context, it will be important to maintain National Focal Centres activities by proposing actions to continue work on critical loads such as verification of national data, or calculation of exceedances at national level. The Chair of the Executive Body added that efforts have been undertaken to finance the CCE in 2017 and that discussions were held to identify a new lead country for the ICP Modelling and Mapping Programme Centre.

25. The Bureaux discussed the financial situation of CCE. In response to the request of the EMEP Steering Body, Working Group on Effects and the Executive Body, a number of

Parties and organizations (notably the Nordic Council of Ministers) provided the necessary funding for CCE to continue its activities (with significantly reduced scope) in 2017. The Bureaux also:

(a) Reiterated the key role of CCE in the development of integrated approaches to consider air pollution effects and climate change effects on ecosystems and biodiversity;

(b) Stressed that the organization of ICP Modelling and Mapping/CCE Task Force meetings and related workshops provides a necessary platform to link science with policy;

(c) Stressed the need to find both a short and long-term solutions to the functioning of CCE.

26. The discussion among Parties about the CCE funding situation and possible solutions will continue during the third joint session of EMEP Steering Body and the Working Group on Effects.

F. Air pollution effects on health

27. Ms Marie-Eve Heroux introduced Ms. Hanna Young – as new Chair of Task Force on Health provided the update on Task Force main activities during 2016–2017, including the further development of methodologies for assessment and quantification of direct and indirect effects of long-range transboundary air pollution on human health. She informed about the ongoing update of the World Health Organization (WHO) Global Air Quality Guidelines. The update is expected to be completed in 2019. She also noted the official launch of the WHO software AirQ+ to quantify the health impacts of air pollution. The AirQ+ software has been developed to support experts, policy makers and a variety of stakeholders. She briefed about the planned capacity building and training workshops scheduled at regional and sub-regional scales for 2017–2018. The Task Force discussed and assessed the practices for communication of health risks associated with air pollution exposure. The assessment was based on the WHO survey on communication strategies and systems in various Parties to the Convention.

G. Air pollution effects on ecosystems, materials and crops

28. The representatives of ICP Forests, Waters, Integrated Modelling, Materials Vegetation and JEG Dynamic Modelling informed the Bureaux about the implementation of the 2016–2017 workplan focusing on the key developments and major outputs.

29. A representative of ICP Forests reported on recent activities, in particular on content of the Technical Report 2016, update to the ICP Forests manual,[9] recent and forthcoming publications, journal papers and reports, trainings (e.g. on ozone injury) and contributions of ICP Forests to meetings of other ICPs. He informed about the ongoing project between ICP Forests and MSC-W on the assessment of the air pollutant deposition monitoring and information exchange with ICP Integrated Monitoring. Germany - ICP Forest host country nominated Mr. Marco Ferretti (Swiss Federal Research Institute) as new Chair of ICP Forests Task Force.

30. A representative of ICP Waters reported on recent activities and reports. The report on mercury in fish (2017) presents an analysis of data records from Fennoscandia (Finland Norway, Sweden and Kola Peninsula in the Russian Federation) from the 1970s–2015. The aim is to investigate spatial patterns and temporal trends, and exclude sites where the most

[9] See http://icp-forests.net/page/icp-forests-manual.

likely source of mercury pollution is local. The 2018 report on regional assessment of acidification will be a policy-friendly add-on to critical loads of acidity, focusing on the current status of acidified surface waters. The respective website[10] has received a make-over, and contains now a data-exploration page that shows a map with annual water chemical records for all parameters,[11] which is expected to be useful as a showcase for the ICP Waters database, in addition to being useful tool for quality assurance. ICP Waters answered an enquiry on the European Union National Emission Ceilings Directive. ICP Waters is the best source on data and information on air pollution effects on surface waters in Europe, and has methods, experts and data that are highly relevant for member States to meet possible obligations under the directive. The 2018 report will be a regional assessment of acidification. The next Task Force meeting of ICP Waters will be organized jointly with ICP Integrated Monitoring for the second year in succession, in Uppsala, Sweden from 9 to 11 May 2017.

31. A representative of ICP Integrated Monitoring updated on the progress on priority work items (biodiversity indicators and issues related to critical loads; work on heavy metals baselines, budgets and critical loads; maintenance and development of databases) and collaboration with a number of European Union projects (e.g. Long-Term Ecosystem Research (LTER) Europe). He introduced the recent and forthcoming scientific papers (e.g. on assessing long-term trends of sulphur and nitrogen effects) and reports (e.g. on connections between calculated critical loads exceedances and observed impacts of nitrogen). He also briefed about the cooperation with other ICPs as the cooperation with ICP Waters on mercury, with ICP Modelling and Mapping and JEG on dynamic modelling and with ICP Forests on potential cause effect analysis.

32. A representative of ICP Materials provided an update on the Call for data on "Inventory and condition of stock of materials at the United Nations Educational, Scientific and Cultural Organization (UNESCO) cultural World heritage sites" launched in October 2015. Six Parties confirmed their participation in the call: Croatia, Germany, Italy, Norway, Sweden and Switzerland. The submitted contributions are compiled in an interim report available on a dedicated website.[12] He also presented the outcome of the main activities as the results of the trend analysis of the 2014-2015 exposure of carbon steel, zinc, copper, limestone and modern glass. A new exposure study will be initiated in 2017.

33. A representative of ICP Vegetation updated on the main achievements and outputs in the 2016-2017 period including: revision of Chapter 3 of the Mapping Manual[13] ; and updated of species-specific and vegetation type-specific flux based critical levels for ozone (POD_YSPEC and POD_YIAM); field evidence of ozone impacts on vegetation links to ecosystem monitoring under the framework of the European Union Directive on the reduction of national emissions of certain atmospheric pollutants[14], global risks of ozone impacts on biodiversity. He informed about the progress of the 2015/2016 moss survey coordinated by the Nuclear Physics Institute in Dubna, Russian Federation. A recent survey carried out by ICP Vegetation (115 responses from 41 Parties) showed a widespread use of the ICP Vegetation outputs (data, maps, manual, reports, website and brochures). ICP Vegetation has contributed to the Tropospheric Ozone Assessment Report: Global metrics for climate change, human health and crop/ecosystem research – a joint effort of the Convention, GAW, the National Oceanic and Atmospheric Administration, WHO and the

[10] See www.icp-waters.no.
[11] See http://www.icp-waters.no/data/explore-data/.
[12] See http://www.corr-institute.se/icp-materials/web/page.aspx?refid=20.
[13] Manual on Methodologies and Criteria for Modelling and Mapping Critical Loads and Levels; and Air Pollution Effects, Risks and Trends available from http://www.rivm.nl/en/Topics/I/ICP_M_M/Mapping_Manual.
[14] See http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32016L2284.

World Meteorological Organization. He also informed about a co-operation with MSC-W on ozone modelling with the aim to improve and validate the soil moisture index used in the EMEP model. Finally, he briefed about the proposed activities in the 2018–2020 period.

34. A representative of JEG Dynamic Modelling informed about the outcomes of the Task Force meeting held in Sitges, Spain in October 2016 (there was no meeting in 2015) with 18 experts participating from 13 Parties. The main issues discussed were: nitrogen cycling and impacts (opportunity to collaborate with the Task Force on Reactive Nitrogen), ozone, heavy metal modelling, biodiversity, interactions (nitrogen-phosphorous-carbon; climate change and land use) and the extreme air pollution events. The next meeting of the Task Force to be hosted by the Swedish Environmental Protection Agency, is scheduled for October 2017.

35. The Bureaux welcomed the key developments and progress made in the implementation of the 2016-2017 workplan by ICP Forests, Materials, Waters, Integrated Modelling, Vegetation and JEG Dynamic Modelling and in particular:

(a) Noted the recent and forthcoming journal papers and other scientific reports, and trainings; noted the ongoing project between ICP Forests and MSC-W on the assessment of the air pollutant deposition monitoring; encouraged further information exchange with ICP Integrated Monitoring and with other ICPs;

(b) Welcomed the progress made by ICP Waters in the assessment of mercury pollution in fish in Fennoscandia; recommended to disseminate the outcomes of the study at various international fora including the Minamata Convention on Mercury; [15]

(c) Welcomed a closer cooperation of ICP Waters with ICP Integrated Monitoring and recommended the continuation of holding joint meetings of the two programmes in the coming years;

(d) Noted the progress made by ICP Materials on Call for data on “Inventory and condition of stock of materials at UNESCO cultural World heritage sites” and encouraged Parties that have not yet responded to the call to consider the participation in this project;

(e) Supported ICP Vegetation collaboration with MSC-W regarding further development of the ozone critical levels methodology for vegetation and mapping vegetation at risk; noted the contribution of ICP Vegetation to the Tropospheric Ozone Assessment in 2017;

(f) Supported the dynamic modelling work of JEG Dynamic Modelling especially related to ecosystem services and recommended the continuation of JEG Dynamic Modelling work for the 2018–2019 biennium.

H. Follow up on review of International Cooperative Programmes

36. The Chair of the ICP Forests Programme Coordinating Centre informed about the implementation of the recommendations from the ICP review. In order to increase the credibility of the scientific work, an effort should be made to streamline the publications and reports to meet the expectations of both the national funding institutions and the Parties of the Convention e.g. in form of thematic briefs, synthesis papers, journal papers and brochures addressed to the public and to policymakers. Also, further efforts need to be made to increase the participation in the ICP activities by scientists from outside of the community. Like in 2016, ICP Integrated Monitoring and ICP Waters will hold a joint

[15] See http://mercuryconvention.org/.

annual meeting in 2017. Other ICPs should also explore possibilities for joint workshops and joint activities.

37. The Chair of the ICP Forests Programme Coordinating Centre informed supported by Mr. Jesper Bak (Denmark) and JEG Dynamic Modelling, updated on efforts to set up a common Working Group on Effects webpage portal similar to the one for EMEP. The portal should, inter alia, help to improve the visibility of the effects oriented work and should provide an overview of all information available under the effects programme. The portal should also provide a common one-point access to the data. All six ICPs and Task for on Health are now linked from the Working Group on Effects home page (JEG Dynamic Modelling has no webpage). The web pages of different ICPs vary in all aspects and there are relatively few common denominators. Further development of the portal will be stepwise and with generally low ambition level with respect to its content, layout and accessibility (e.g. no options for iPads and smart phones are foreseen). Another update on this issue is scheduled for third joint session.

I. Update of the mandates for centres and task forces

38. The Chair of the Steering Body to EMEP supported by the secretariat described the process for the development of updated mandates of centres and task forces under EMEP and the Working Group on Effects. The updated mandates should specify the main functions and obligations for centres and task forces and should include some key elements common to all scientific activities under the Convention e.g. support to Parties, in particular, to countries in Eastern Europe, the Caucasus and Central Europe and cooperation with internal (within the Convention) and external partners. By 20 May 2017, centres and task forces are requested to fill in the templates following their annual task force meetings. The draft mandates should be forwarded to the Chairs of the Steering Body and the Working Group on Effects, respectively. The draft mandates would then be submitted to the Steering Body and the Working Group on Effects for their consideration during the third joint session. The third joint session may decide to submit the draft mandates for consideration and approval by the Executive Body at its thirty-seventh session in December 2017

J. An updated brochure promoting the effects-oriented work

39. Following the recommendation by the Bureau of the Executive Body, the Bureau of the Working Group on Effects decided to elaborate an updated version of a brochure on the effects-oriented activities. The original brochure was prepared in 2008 and had been distributed among Parties as an annex to the letter by the secretariat calling for voluntary contributions to the ECE Trust Fund to help co-fund the centres under the Working Group on Effects. A draft of the updated brochure should be presented for consideration and approval by the Working Group on Effects at the third joint session. Once it is approved the brochure will be disseminated to promote the effects-oriented activities among Parties and other stakeholders.

III. Policy response to 2016 assessment report

40. Chairs of the Steering Body and the Working Group on Effects introduced the draft science related outcome of work by the ad hoc policy review group of experts on the 2016 scientific assessment of the Convention, established by the Executive Body for the Convention at its thirty-fifth session. The group proposed a number of recommendations directed to the scientific work under the Convention (see ECE/EB.AIR/WG.5/2017/3 and informal document No. 2 Recommendations - Report of the ad hoc policy review group of

experts).[16] The science related recommendations will be further discussed at the third joint session in the context of the draft 2018–2019 workplan for the implementation of the Convention and the mandates for centres and task forces (see chapters II.I. and IV).

IV. Implementation of the 2016–2017 and preparation of a draft 2018–2019 workplan for the implementation of the Convention

41. The Bureaux discussed and highly acknowledged the implementation of the science part of the 2016–2017 workplan as reported by centres, task force and expert groups. The Bureaux also discussed the priorities for science in the 2018–2019 workplan. Several areas of research have been identified as key ones:

(a) Support to Parties e.g. with respect to national research (emissions, monitoring, local and sub-regional modelling, effects work); access to data, development of tools etc.;

(b) Depending on particular national needs, continuation and where needed extension of the technical support to countries in Eastern Europe, the Caucasus and Central Asia;

(c) Further work on condensables and semi volatile components of particle matter; improvement of the emission data with a focus on particulate matter, black carbon and elemental carbon (consistency, completeness, reasons for recalculations, review process, stage 3 review);

(d) Cooperation with internal and external partners beyond the ECE region.

42. The scientific workplan items and priorities within EMEP and the Working Group on Effects will be discussed during the task force meetings between March and June 2017 and will be reported during the third joint session.

43. All centres and task forces were requested to provide the inputs to the draft 2018–2019 workplan for the implementation of the Convention by 31 May 2017. The inputs should be forwarded to the Chairs of the Steering Body and the Working Group on Effects. The Chairs, supported by the secretariat will prepare a draft – science related part – of the 2018–2019 workplan for the consideration at the third joint session of the EMEP Steering Body and the Working Group on Effects.

V. Cooperation with other bodies, outreach and sharing information with other regions

44. Several of the Convention centres and task forces (MSC-E, MSC-W, CCC, CIAM, the Task Force on Measurements and Modelling, the Task Force on Hemispheric Transport of Air Pollution, various ICPs and the Task Force on Health) informed the Bureaux about ongoing and planned activities with other international projects, bodies and mechanisms within (e.g. European Union research projects) and beyond ECE region. Several opportunities for increased cooperation were mentioned, in particular, in relation to work on:

(a) Persistent organic pollutants and mercury (Stockholm and Minamata Conventions);

[16] See http://www.unece.org/index.php?id=43511#/.

(b) Black carbon emission inventories (the Arctic Council/Arctic Monitoring and Assessment Program);

(c) Hemispheric and global air pollution assessments (South and South-East Asia);

(d) Climate change and biodiversity (Climate and Clean Air Coalition, United Nations Framework Convention on Climate Change, European Union Habitats Directive).[17]

45. The secretariat highlighted a number of outreach events and cooperation opportunities. She mentioned cooperation with WHO, the United Nations Environment Programme and the Climate and Clean Air Coalition for side-events at the Eighth Environment for Europe Ministerial Conference in Batumi, Georgia (8–10 June 2018) and at the twenty-second session of the Conference to the Parties to the United Nations Framework Convention on Climate Change in Marrakech (7–18 November 2016). To position the Convention in relation to the global processes initiated by the United Nations Environment Program and WHO, ECE continued to organize interagency meetings on air quality. ECE also attended the Third Meeting of the Global Platform on Air Quality and Health (7–9 March 2017), where the secretariat gave a presentation together with the Chair of the Task Force on Measurements and Modelling. To further promote the Batumi Action for Cleaner Air initiative, ECE will organize an event on the margins of the ECE Commission session (26–27 April 2017). ECE will also contribute to the upcoming Conference of the Parties to the Basel, Rotterdam and Stockholm Conventions in Geneva (24 April–5 May 2017) as well as to the Sixth Environment and Health Ministerial Conference in Ostrava, Czechia (13–15 June 2017). The first conference of the Parties to the Minamata Convention on Mercury (24–29 September 2017) and the third session of the United Nations Environment Assembly (4–6 December 2017) on the topic of pollution will also constitute opportunities for cooperation and outreach. To enhance the visibility of the Convention, the secretariat highlighted numerous press articles. She encouraged the Working Group on Effects and EMEP to contact the secretariat whenever an interesting opportunity to promote the Convention arises.

46. The Bureaux welcomed the various outreach activities and information sharing efforts and encouraged all the centres, task forces, groups and the secretariat to continue such actions pointing out to the need for activities at various levels (individual experts, research groups, task forces and bodies of the Convention). The Bureaux also noted that outreach activities should be beneficial for both sides.

VI. Capacity building in countries of Eastern Europe, the Caucasus and Central Asia

47. The secretariat informed about the capacity building activities led by the secretariat in countries of Eastern Europe, the Caucasus and Central Asia. The capacity building has been carried out since late 2014 thanks to generous contributions by the European Union, the Netherlands, Norway, the Russian Federation and Switzerland. The programme is needs driven i.e. the Parties in collaboration with the secretariat set the scope of activities and the priorities. Over the last three years, the activities were focused on national emission inventories and analysis of air quality related national legislation. In 2016, the following activities were carried out:

(a) Analysis of the national air quality assessment and management policies and legislation of Kyrgyzstan: a roundtable to discuss the results (April 2016);

[17] Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora.

(b) Workshop on emission inventories in Bishkek, Kyrgyzstan (April 2016);

(c) Support in the preparation of the BAT workshop with a focus on countries in Eastern Europe, the Caucasus and Central Asia in Berlin (April 2016);

(d) Elaboration of a glossy brochures on 'Clean Air' presented at the Eighth Environment for Europe Ministerial Conference held in Batumi, Georgia (June 2016);

(e) Analysis of the national air quality assessment and management policies and legislation of Kazakhstan: a roundtable (September 2016);

(f) Subregional workshop "Get your right to a healthy community" - organized in Minsk in cooperation with the secretariat to the Protocol on Pollutant Release and Transfer Registers to the Aarhus Convention and the Ministry of Natural Resources and Environmental Protection of Belarus (September 2016);

(g) Consultation meeting to provide support to national emission inventories (gridded data, preparation of informative inventory reports) in Yerevan, Armenia (October, 2016).

48. The Bureau welcomed the capacity building activities led by the secretariat and:

(a) Appreciated the capacity building activities since they help to generate complete and better quality emission data; in 2016, all countries in Eastern Europe, the Caucasus and Central Asia – for the first time- submitted their national inventories under the Convention;

(b) Noted that the priorities will shift from building national inventories to baseline data and projections in support of ratification of the amended Protocol to Abate Acidification, Eutrophication and Ground-level Ozone;

(c) Encouraged and supported these activities as increased involvement of countries in Eastern Europe, the Caucasus and Central Asia has been a priority for the Convention.

VII. Preparations for the third joint session of the Steering Body and the Working Group on Effects

49. The Bureaux discussed the agenda and the format for the third joint session of the Steering Body and the Working Group on Effects, to be held from 11–15 September 2016. Like the first two joint sessions of the two bodies in 2015 and 2016, the session in 2017 will be a joint session with a single agenda and a single session report. The draft session agenda will be developed by the secretariat in collaboration with the Chairs of the Steering Body and the Working Group on Effects. Working Group related issues will be taken at the beginning of the session, followed by joint (EMEP/Working Group) thematic session and by EMEP specific issues. The joint thematic sessions will include the following issues: lessons learnt from the second joint session, linking the special scales: from hemispheric to local and monitoring of ecosystems.

50. The Bureaux emphasized that the agenda item focused on information sharing by Parties on the implementation of EMEP and of effects oriented activities, should continue to be a regular item during the joint sessions. Parties would be invited to present their national experiences, successes and challenges (including scientific reports and publications), as well as their collaboration with EMEP and the Working Group on Effects Centres, task forces and expert groups. In particular, at the third joint session, Parties will be requested to share their experiences and challenges in reporting gridded emission and national research on linking transboundary air pollution with local scale.

VIII. Financial and budgetary matters

A. Status of mandatory and voluntary cash contributions

51. The secretariat reported on the status of cash contributions to the EMEP Trust Fund, stressing that 44 (out of 47) Parties to the 1984 Protocol on Long-term Financing of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe had paid at least part of their contributions for 2016. The total of contributions received in 2016 for the EMEP Trust Fund was $ 2,436,643 slightly above the $ 2,358,700 budgeted (several Parties paid their contributions for 2016 and earlier years). There had been no in-kind contributions by the Parties reported in 2015. The Bureaux welcomed the 2016 financial situation. More details on financial and budgetary issues can be found in the financial document for the third joint session (ECE/EB.AIR/GE.1/2017/19–ECE/EB.AIR/WG.1/2017/12).

52. Secretariat informed also about the status of contribution by Parties to the Convention's Trust Fund for effects-oriented activities in 2016 ($ 588,500 by 30 November 2016, tentative figure) and about the schedule of payments to centres for their work in 2016. The 2017 Appendices to the multi-year Memorandums of Understanding (MoUs) were being prepared and would be finalized later in 2017. The 2017 Appendices would include all the pending activities and deliverables as provided in the 2016–2017 workplan for the implementation of the Convention.

B. Use of resources in 2016 and the budget split among centres for 2018

53. The Bureaux considered the yearly financial statements of MSC-E, MSC-W and CCC for 2016. The Bureaux noted that the resources for 2016 had been used as budgeted, and noted the significant in-kind contributions by the host countries as presented in their financial statements: CCC $ 23,361, MSC-E $ 94,139 and MSC-W $ 627,666 including $ 155,516 from CIAM.

54. The Bureau, discussed the distribution of the EMEP budget for 2016–2017. It noted that the structure and distribution of the EMEP budget among the Centres corresponded to the current needs and priorities as set in the Long-term Strategy,[18] and the 2016–2017 workplan for the implementation of the Convention (ECE/EB.AIR/133/Add.1). The Bureaux discussed but did not conclude on the EMEP budget for 2018. The issue will be further discussed during the third joint session.

C. Contracts for centres in 2017

55. Like in 2016, the centers will be invited to provide to ECE the forecasts of the 2017 budget split (e.g. into personnel costs, travel, subcontracting etc.). The draft proposed budget splits (elaborated by the secretariat) would be based on reported expenditures in the 2016 financial statements submitted by the centres to ECE.

[18] ECE/EB.AIR/106/Add.1 Executive Body Decision 2010/18 on Long-term strategy for the Convention on Long-range Transboundary Air Pollution and Action Plan for Its Implementation (see ECE/EB.AIR/106/Add.1).

IX. Closing of the Bureaux meeting

56. The next joint meeting of the Bureaux and the Extended Bureaux of the EMEP Steering Body and the Working Group on Effects was tentatively scheduled to be held in the week 19 to 23 March 2018 in Geneva. The date for the meeting is chosen to avoid overlaps with winter holidays and the 2018 Geneva Motor Show which will be held between 8 and 18 March 2018.