

Economic Commission for Europe

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

Thirty-seventh session

Geneva, 11–14 December 2017

Item 7 of the provisional agenda

Draft 2018-2019 workplan for the implementation of the Convention

Draft revised mandates for scientific task force and centres under the Convention

Submitted by the secretariat

Summary

This document was prepared by the secretariat to the United Nations Economic Commission for Europe Convention on Long-range Transboundary Air Pollution for the consideration by the Parties of the Convention. It contains draft revised mandates (terms of reference) for scientific task forces and centres under the Convention. The draft revised mandates were prepared for the third joint session of the EMEP steering Body and the Working Group on Effects (Geneva, 11-15 September 2017) in form of a set of informal documents. For convenience, all the mandates are presented jointly below. For consistency purposes some minor modifications and additions have been introduced.

Contents

	<i>Page</i>
I. Task Forces and Centres under the Working Group on Effects	2
II. Task Forces and Centres under EMEP Steering Body	20

I. Task Forces and Centres under the Working Group on Effects

A. Revised mandate for the Task Force and the Programme Centre of the International Cooperative Programme on Assessment and Monitoring of the Effects of Air Pollution on Rivers and Lakes

1. The current terms of reference (mandates) for International Cooperative Programmes (ICPs) and the Task Force on the Health Aspects of Air Pollution had been specified in document *Future Development of Effects-Oriented Activities* (EB.AIR/WG.1/2000/4, Annexes II-VIII) approved by the Working Group on Effects (WGE) and the Executive Body in 2000. The mandates need to be revised and updated to make them consistent with the current provisions and priorities of the Convention and of WGE set in the following documents:

- (a) Long-term Strategy for the Convention on Long-range Transboundary Air Pollution (ECE/EB.AIR/106/Add.1);
- (b) The 2016 scientific assessment of the Convention;¹
- (c) Policy response to the 2016 scientific assessment of the Convention (ECE/EB.AIR/WG.5/2017/3, ECE/EB.AIR/WG.5/2017/3/Corr.1 and ECE/EB.AIR/2017/4 forthcoming);
- (d) Revised long-term strategy of the effects-oriented activities (ECE/EB.AIR/2009/17/Rev.1);
- (e) Guidelines for reporting on the monitoring and modelling of air pollution effects (ECE/EB.AIR/2008/11, ECE/EB.AIR/WG.1/2008/16/Rev.); and
- (f) Draft 2018-2019 workplan for the implementation of the Convention (ECE/EB.AIR/2017/1).

The revised mandates will include key objectives and functions of the task forces and centres. The mandates are expected to be in force for the next 5 to 10 years. Specific activities and related deliverables on a shorter timeframe will be included in the bi-annual workplans for the implementation of the Convention.

2. Highlights of achievements of the Task Force and Programme Centre of the International Cooperative Programme for assessment and monitoring of the effects of air pollution on rivers and lakes (ICP Waters) are:

- (a) The maintenance of a regionally extensive database on water chemistry and biology (aquatic macro-invertebrates) in areas in Europe and North America, that are sensitive to air pollution;
- (b) Developing and maintaining high data quality standards by developing and adhering to a manual of recommended methods, as well as undertaking an annual inter-calibration of chemical analyses and biological classifications;

¹ See Rob Maas and Peringe Grennfelt, eds., *Towards Cleaner Air: Scientific Assessment Report 2016* (Oslo, 2016) and United States Environmental Protection Agency and Environment and Climate Change Canada, *Towards Cleaner Air: Scientific Assessment Report 2016 – North America* (2016, online report).

(c) Documentation of widespread biological and chemical recovery of acid-sensitive waters as a response to reduced emissions of sulphur and nitrogen, through the periodic trend assessments in water chemistry and biology, providing evidence that air pollution policy has its intended effect, but also highlighting that many sensitive surface waters remain acidified;

(d) Documentation of increased aquatic biodiversity as a result of reduced sulphur emissions;

(e) Documentation of mercury in fish in northern, boreal lakes, at levels that exceed limits advised for human consumption; for lakes that are impacted by air pollution there is so far little evidence that levels of mercury in fish are declining, implying that mercury pollution remains a concern;

(f) Evidence that climate change may present a delay for chemical and biological recovery of surface waters.

Annex

Revised mandate for the Task Force and the Programme Centre of the International Cooperative Programme on Assessment and Monitoring of the Effects of Air Pollution on Rivers and Lakes (ICP Waters).

1. Norway leads the Task Force of ICP Waters. The Programme Centre (located at the Norwegian Institute for Water Research, Oslo) hosted by Norway, will be responsible for the detailed planning and coordination of the Programme.
2. The Centre will assume principal responsibility for coordinating the relevant activities under ICP Waters including development of technical projects, provision of deliverables according to the workplan (including annual reports and access to all relevant information and data), participation in the relevant task force meetings, organizing technical workshops and training workshops, and providing communication with and direct support to Parties.
3. The Centre will be responsible for the production and the provision of all information and data on air pollution impacts on surface waters, necessary for the implementation of the Convention and its Protocols by the Parties.
4. The Centre will report on its activities and deliverables to WGE and to other bodies of the Convention as needed.
5. Specific scientific and technical activities developed by the Centre should be discussed and approved by WGE and be included in the biannual workplan.
6. The functions of the Centre will be to:
 - (a) Plan and conduct its technical work to assess, using monitoring data and other sources of scientific evidence (i) the degree and geographic extent of the impact of atmospheric pollution, in particular acidification, on surface water chemistry and biology – including biodiversity-, and assess temporal trends and spatial patterns (ii) spatial patterns and temporal trends of heavy metals, most importantly mercury, in aquatic ecosystems, related to atmospheric pollution (iii) the impact of persistent organic pollutants in aquatic ecosystems, related to atmospheric pollution (iv) the impact of confounding factors relating to air pollution impacts on surface waters such as climate, climate change and land-use;
 - (b) Contribute to (i) assess air pollution impacts on aquatic ecosystems through collating and reviewing scientific literature (ii) update the *Manual on Methodologies and*

*Criteria for Modelling and Mapping Critical Loads and Levels and Air Pollution Effects, Risks and Trends*² and associate background documents with the latest relevant scientific knowledge;

(c) Promote international harmonization of monitoring practices by (i) maintaining and updating a manual for methods and operation (ii) conducting an annual chemical intercomparison and an annual biological intercalibration (iii) and compile a centralised database with data quality control and assessment capabilities;

(d) Support the Parties with the further development and implementation of methodologies described under (a) and (b), including requirements of the new European Union National Emissions Ceilings Directive (Directive (EU) 2016/2284); organise the annual Task Force meeting and invite Parties to attend, present their work related to the programme, and contribute to discussions and new developments;

(e) Support and encourage participation of countries in Eastern Europe, Caucasus and Central Asia in meetings and activities of the Task Force;

(f) Collaborate with (i) ICP on Integrated Monitoring of Air Pollution Effects on Ecosystems (ICP Integrated Monitoring) on organisation of meetings, and on assessing air pollution impacts on surface waters (ii) other bodies under the Convention (ICP on Modelling and Mapping of Critical Levels and Loads and Air Pollution Effects, Risks and Trends (ICP Modelling and Mapping), Coordination Centre for Effects, the Meteorological Synthesizing Centre-West) on thematic reports defined in the workplan;

(g) Collaborate with external partners, in particular, with the United Nations Environment Convention on Mercury (Minamata Convention) and the Arctic Monitoring and Assessment Programme of the Arctic Council on issues of common interest;

(h) Carry out other tasks assigned to it by Working Group on Effects and the Executive Body.

B. Revised mandate for the Task Force and the Programme Centre of the International Cooperative Programme on Assessment and Monitoring of Air Pollution Effects on Forests

1. The current terms of reference (mandates) for International Cooperative Programmes (ICPs) and the Task Force on the Health Aspects of Air Pollution had been specified in document *Future Development of Effects-Oriented Activities* (EB.AIR/WG.1/2000/4, Annexes II-VIII) approved by the Working Group on Effects (WGE) and the Executive Body in 2000. The mandates need to be revised and updated to make them consistent with the current provisions and priorities of the Convention and of WGE set in the following documents:

(a) Long-term Strategy for the Convention on Long-range Transboundary Air Pollution (ECE/EB.AIR/106/Add.1);

(b) The 2016 scientific assessment of the Convention;³

² A first version of the Mapping Manual was published in 1993. It has since been updated three times: in 1996, 2004 and again in 2016. The full text of the 2016 version is available as online, by chapter, from the website of the International Cooperative Programme on Modelling and Mapping of Critical Levels and Loads and Air Pollution Effects, Risks and Trends: http://icpmapping.org/Latest_update_Mapping_Manual.

³ See Rob Maas and Peringe Grennfelt, eds., *Towards Cleaner Air: Scientific Assessment Report 2016*

-
- (c) Policy response to the 2016 scientific assessment of the Convention (ECE/EB.AIR/WG.5/2017/3, ECE/EB.AIR/WG.5/2017/3/Corr.1 and ECE/EB.AIR/2017/4 forthcoming);
 - (d) Revised long-term strategy of the effects-oriented activities (ECE/EB.AIR/2009/17/Rev.1);
 - (e) Guidelines for reporting on the monitoring and modelling of air pollution effects (ECE/EB.AIR/2008/11, ECE/EB.AIR/WG.1/2008/16/Rev.); and
 - (f) Draft 2018-2019 workplan for the implementation of the Convention (ECE/EB.AIR/2017/1).

The revised mandates will include key objectives and functions of the task forces and centres. The mandates are expected to be in force for the next 5 to 10 years. Specific activities and related deliverables on a shorter timeframe will be included in the bi-annual workplans for the implementation of the Convention.

2. Highlights of achievements of the Task Force and Programme Centre of the International Cooperative Programme on Assessment and Monitoring of Air Pollution Effects on Forests (ICP Forests) are:

- (a) Continuous data collection from the two levels of the forest ecosystem monitoring and research infrastructure, installed by the member states, is maintained. Quality assurance measures in the field, in laboratories as well as quality control measures during data submission are constantly improved;
- (b) Various research activities in- and outside the convention were supported via adequate data dissemination and evaluation support activities;
- (c) Joint evaluation activities comparing EMEP modelling estimates and ICP Forests field measurements is ongoing with important outcomes for both sides. Various publications have been launched during the years relating observed effects and modelled EMEP estimates and own on-site measurement of environmental conditions as deposition, climatic variables and soil conditions;
- (d) Joint activities with the ICP on Integrated Monitoring of Air Pollution Effects on Ecosystems (ICP Integrated Monitoring; integrated study) and the ICP on Effects of Air Pollution on Natural Vegetation and Crops (ICP Vegetation; ozone symptoms) have in recent years been intensified. Further co-operation with the ICP on Modelling and Mapping of Critical Levels and Loads and Air Pollution Effects, Risks and Trends (ICP Modelling and Mapping; critical loads) is intended;
- (e) ICP Forests is increasingly concentrating on evaluations of long-term trends using data from its respective surveys (deposition, defoliation, meteorology, ozone concentrations, parameters from soil solution and foliar analyses, wood increment) under additional consideration of space;
- (f) Various studies on cause-effect relationship have been and are conducted and supported by the Programme Coordinating Centre;
- (g) Biodiversity aspects derived from ICP Forests field surveys have recently been evaluated with some positive result (influence of N deposition could be shown);

(Oslo, 2016) and United States Environmental Protection Agency and Environment and Climate Change Canada, *Towards Cleaner Air: Scientific Assessment Report 2016 – North America* (2016, online report).

(h) Other aspects relevant for forest ecosystems like climate change effects are incorporated or even focused at in many cause-effect studies;

(i) Popularised publications are issued annually; additionally a technical report is published annually and contributions to various scientific publications are made;

(j) Co-operation with the European Union has recently been reinforced: under the new European Union National Emissions Ceilings Directive (Directive (EU) 2016/2284) activities have been launched and will be continued further in cooperation with ICP Integrated Monitoring, ICP Vegetation, the ICP on Assessment and Monitoring of the Effects of Air Pollution on Rivers and Lakes (ICP Waters) and ICP Modelling and Mapping;

(k) The ICP Forests Manual⁴ was updated in 2016 and 2017.

Annex

Revised mandate for the Task Force and the Programme Centre of the International Cooperative Programme on Assessment and Monitoring of Air Pollution Effects on Forests (ICP Forests).

1. The Programme Coordinating Centre is hosted by the Johann Heinrich von Thünen Institute, Federal Research Institute for Rural Areas, Forestry and Fisheries, Braunschweig (Germany), will be responsible for the assessment and monitoring of air pollution effects on forests.

2. The Centre will assume principal responsibility for coordinating the relevant activities under ICP Forests including development of technical projects, provision of deliverables according to the workplan (including annual reports and access to all relevant information and data), participation in the relevant task force meetings, organizing or supporting technical workshops and training workshops, and providing communication with and direct support to Parties.

3. The Centre will be responsible for the production and the provision with respect to processes set by the WGE (in particular regarding time lines) of all information and data necessary for the implementation of the Convention and its Protocols by the Parties.

4. The Centre will report on its activities and deliverables to WGE and to other bodies of the Convention as needed.

5. Specific scientific and technical activities developed by the Programme Centre should be discussed and approved by the WGE and be included in the biannual workplan.

6. The functions of the Centre will be to:

(a) Support Parties in installing and operating its forest monitoring and research infrastructures by providing and constantly developing respective technical and analytical guidelines (e.g. by up-dating the ICP Forests Manual or organizing or supporting inter-comparison courses);

(b) Permanently update and further develop the ICP Forests collaborative database, carry out quality control and quality assurance measures on data submitted by Parties, and provide assistance to the Parties directly and via adequate documentations and foster dissemination of high quality data in- and outside of the Convention;

(c) Contribute to the work and publications of other international institutions (European Union, United Nations Food and Agriculture Organization (FAO)) and research

⁴ See <http://icp-forests.net/page/icp-forests-manual>.

institutes to promote the visibility of the Convention and its aims. Such activities secure at the same time the further development of evaluation techniques and strategies regarding possible cause-effect relationships;

(d) Description of specific activities to support the Parties (in general), organize annual Task Force meetings, workshops and related activities to exchange views, experiences and suggestion to further develop the monitoring and research activities of ICP Forests at all levels of its activities;

(e) Description of specific activities to support specifically the Parties in Eastern Europe, the Caucasus and Central Asia further encourage Parties in the region to intensify or build-up forests monitoring infrastructures following ICP Forests standards;

(f) Description of collaboration with internal (Convention) partners: further collaborate with thematically related ICPs (Integrated Monitoring, Modelling and Mapping and Vegetation) and EMEP bodies (the Meteorological Synthesizing Centre-West) by designing joint evaluations, organizing common scientific events and producing joint publications;

(g) Description of collaboration with external (non-Convention) partners: Contribute to the work and publications of other international institutions (European Union bodies, FAO) and research institutes to promote the visibility of the Convention and its aims. A long-lasting co-operation with the Acid Deposition Monitoring Network in East Asia (EANET) is maintained. Such activities secure at the same time the further development of evaluation techniques and strategies regarding possible cause-effect relationships;

(h) Carry out other tasks assigned to it by the Working Group on Effects and the Executive Body.

C. Revised mandate for the Task Force and the Programme Centre of the International Cooperative Programme on Effects of Air Pollution on Natural Vegetation and Crops

1. The current terms of reference (mandates) for International Cooperative Programmes (ICPs) and the Task Force on the Health Aspects of Air Pollution had been specified in document *Future Development of Effects-Oriented Activities* (EB.AIR/WG.1/2000/4, Annexes II-VIII) approved by the Working Group on Effects (WGE) and the Executive Body in 2000. The mandates need to be revised and updated to make them consistent with the current provisions and priorities of the Convention and of WGE set in the following documents:

(a) Long-term Strategy for the Convention on Long-range Transboundary Air Pollution (ECE/EB.AIR/106/Add.1);

(b) The 2016 scientific assessment of the Convention;⁵

(c) Policy response to the 2016 scientific assessment of the Convention (ECE/EB.AIR/WG.5/2017/3, ECE/EB.AIR/WG.5/2017/3/Corr.1 and ECE/EB.AIR/2017/4 forthcoming);

⁵ See Rob Maas and Peringe Grennfelt, eds., *Towards Cleaner Air: Scientific Assessment Report 2016* (Oslo, 2016) and United States Environmental Protection Agency and Environment and Climate Change Canada, *Towards Cleaner Air: Scientific Assessment Report 2016 – North America* (2016, online report).

(d) Revised long-term strategy of the effects-oriented activities (ECE/EB.AIR/2009/17/Rev.1);

(e) Guidelines for reporting on the monitoring and modelling of air pollution effects (ECE/EB.AIR/2008/11, ECE/EB.AIR/WG.1/2008/16/Rev.); and

(f) Draft 2018-2019 workplan for the implementation of the Convention (ECE/EB.AIR/2017/1).

The revised mandates will include key objectives and functions of the task forces and centres. The mandates are expected to be in force for the next 5 to 10 years. Specific activities and related deliverables on a shorter timeframe will be included in the bi-annual workplans for the implementation of the Convention.

2. Highlights of achievements of the Task Force and Programme Centre of the International Cooperative Programme on Effects of Air Pollution on Natural Vegetation and Crops are:

(a) The establishment of more than twenty ozone flux-based critical levels for vegetation (including forests), biologically a more relevant indicator of the risk of ozone impacts on vegetation than concentration-based critical levels, and identifying areas most at risk of ozone impacts;

(b) The provision of evidence of ozone impacts on vegetation, including interactions with nitrogen pollution and climate change, and consequences for ecosystem services and biodiversity, showing that impacts are widespread;

(c) Demonstrating that no clear trends of impacts of ozone on vegetation have been observed in the last two decades, hence ozone pollution remains of global concern with background concentrations rising in Europe, contributing to impacts on vegetation;

(d) Monitoring heavy metal and nitrogen concentrations in naturally growing mosses since 1990 has identified declines in concentrations in many areas of Europe whilst hotspots of heavy metal and nitrogen pollution still remain;

(e) The considerable decline in cadmium and lead concentrations in mosses since 1990, and to a lesser extent mercury concentrations, provides evidence for the success of heavy metal air pollution abatement policies in Europe, with mercury pollution remaining of global concern.

Annex

Revised mandate for the Task Force and the Programme Centre of the International Cooperative Programme on Effects of Air Pollution on Natural Vegetation and Crops (ICP Vegetation).

1. The Programme Centre (at the Centre for Ecology & Hydrology, Bangor), hosted by the United Kingdom of Great Britain and Northern Ireland, will be responsible for the detailed planning and coordination of the Programme.

2. The Centre will assume principal responsibility for coordinating the relevant activities under the ICP Vegetation including development of technical projects, provision of deliverables according to the workplan (including reports and access to relevant information and data), participation in relevant Task Force meetings and workshops, organizing the Task Force meeting, technical and training workshops, and providing communication with and direct support to Parties.

3. The Centre will be responsible for the production and the provision with respect to the processes set by the WGE (in particular regarding the time lines) of information and

data on air pollution impacts on natural vegetation and crops, necessary for the implementation of the Convention and its Protocols by the Parties.

4. The Centre will report on its activities and deliverables to WGE and to other bodies of the Convention as needed.

5. Specific scientific and technical activities developed by the Centre should be discussed and approved by WGE and included in the biannual workplan.

6. The functions of the Centre will be to:

(a) Plan and conduct its technical work to collate and review evidence of (i) impacts of ozone on vegetation from monitoring activities, experiments, surveys and the literature, including impacts in a changing climate, at the regional and global scale, and assess spatial patterns and temporal trends (ii) spatial patterns and temporal trends of the deposition of heavy metals, nitrogen and persistent organic pollutants to vegetation using naturally growing mosses as biomonitors;

(b) Develop further and apply flux-based ozone critical levels for vegetation, map areas at risk of ozone impacts on vegetation and exceedances of critical levels at the regional and global scale in the current and future climate; update the *Manual on Methodologies and Criteria for Modelling and Mapping Critical Loads and Levels and Air Pollution Effects, Risks and Trends*⁶ and associated background documents with the latest relevant scientific knowledge; collate and review information on the impacts of ozone on food production (including economic assessments), ecosystem services and biodiversity;

(c) Stimulate outreach activities and train new partners to apply methodologies described under (a) and (b), liaise with global networks and initiatives inside and outside the Convention to contribute to the United Nations' Sustainable Development Goals; invite new partners to attend the annual Task Force meeting and specific workshops;

(d) Support the Parties with the further development and implementation of methodologies described under (a) and (b), including requirements of the new European Union National Emissions Ceilings Directive (Directive (EU) 2016/2284); organise the annual Task Force meeting and invite Parties to attend, present their work related to the programme, and contribute to discussions and new developments;

(e) In 2014, the coordination of the moss survey to monitor deposition of specified air pollutants (see (a)) was transferred to the Russian Federation to enhance participation of countries in Eastern Europe, Caucasus and Central Asia. New contacts made within this network are used to stimulate participation in ozone-related activities too. Relevant documents will be translated into Russian to stimulate knowledge transfer and the organisation of relevant meetings and workshops in countries in Eastern Europe, Caucasus and Central Asia, is encouraged;

(f) Collaborate with the ICP on Assessment and Monitoring of Air Pollution Effects on Forests (ICP Forests) on monitoring ozone impacts on forests and monitoring deposition of relevant air pollutants to mosses; with the Meteorological Synthesizing Centre-West on modelling ozone fluxes and nitrogen deposition to vegetation; with the Meteorological Synthesizing Centre-East on modelling heavy metal deposition to vegetation; with the Task Force on Integrated Assessment Modelling and the Centre for

⁶ A first version of the Mapping Manual was published in 1993. It has since been updated three times: in 1996, 2004 and again in 2016. The full text of the 2016 version is available as online, by chapter, from the website of the International Cooperative Programme on Modelling and Mapping of Critical Levels and Loads and Air Pollution Effects, Risks and Trends: http://icpmapping.org/Latest_update_Mapping_Manual.

Integrated Assessment Modelling on modelling ozone fluxes in the Greenhouse Gas Air Pollution Interactions and Synergies (GAINS) model; with the Task Force on Hemispheric Transport of Air Pollution (HTAP) on modelling ozone fluxes to vegetation using HTAP scenarios and assess implications for food production and ecosystem services;

(g) Collaborate with the Tropospheric Ozone Assessment Report (TOAR), initiated by the International Global Atmospheric Chemistry (IGAC) Project, on producing reports and generate globally easily accessible ozone exposure and dose metrics; the Climate and Clean Air Coalition (CCAC) and future United Nations Environment Programme (UNEP) initiatives benefiting from assessment of the risk of ozone impacts on vegetation;

(h) Carry out other tasks assigned to it by the Working Group on Effects and the Executive Body.

D. Revised mandate for the Task Force and the Programme Centre of the International Cooperative Programme on Integrated Monitoring of Air Pollution Effects on Ecosystems

1. The current terms of reference (mandates) for International Cooperative Programmes (ICPs) and the Task Force on the Health Aspects of Air Pollution had been specified in document *Future Development of Effects-Oriented Activities* (EB.AIR/WG.1/2000/4, Annexes II-VIII) approved by the Working Group on Effects (WGE) and the Executive Body in 2000. The mandates need to be revised and updated to make them consistent with the current provisions and priorities of the Convention and of WGE set in the following documents:

(a) Long-term Strategy for the Convention on Long-range Transboundary Air Pollution (ECE/EB.AIR/106/Add.1);

(b) The 2016 scientific assessment of the Convention;⁷

(c) Policy response to the 2016 scientific assessment of the Convention (ECE/EB.AIR/WG.5/2017/3, ECE/EB.AIR/WG.5/2017/3/Corr.1 and ECE/EB.AIR/2017/4 forthcoming);

(d) Revised long-term strategy of the effects-oriented activities (ECE/EB.AIR/2009/17/Rev.1);

(e) Guidelines for reporting on the monitoring and modelling of air pollution effects (ECE/EB.AIR/2008/11, ECE/EB.AIR/WG.1/2008/16/Rev.); and

(f) Draft 2018-2019 workplan for the implementation of the Convention (ECE/EB.AIR/2017/1).

The revised mandates will include key objectives and functions of the task forces and centres. The mandates are expected to be in force for the next 5 to 10 years. Specific activities and related deliverables on a shorter timeframe will be included in the bi-annual workplans for the implementation of the Convention.

⁷ See Rob Maas and Peringe Grennfelt, eds., *Towards Cleaner Air: Scientific Assessment Report 2016* (Oslo, 2016) and United States Environmental Protection Agency and Environment and Climate Change Canada, *Towards Cleaner Air: Scientific Assessment Report 2016 – North America* (2016, online report).

2. Highlights of achievements of the Task Force and the Programme Centre of the International Cooperative Programme on Integrated Monitoring of Air Pollution Effects on Ecosystems are: *(to be completed)*

Annex

Revised mandate for the Task Force and the Programme Centre of the International Cooperative Programme on Integrated Monitoring of Air Pollution Effects on Ecosystems (ICP Integrated Monitoring).

1. The Task Force of ICP Integrated Monitoring (led by Sweden) is responsible for planning, coordinating and evaluating the Programme, while the Programme Centre is hosted by the Finnish Environment Institute, Helsinki).

2. ICP Integrated Monitoring will provide WGE and the Executive Bod with information on the state of ecosystems and their long-term changes, with respect to the regional variation and impact of selected air pollutants, and including effects on biota. To this end, in particular, ICP Integrated Monitoring will:

(a) Monitor the state of natural/semi-natural ecosystems and provide explanations for changes, in terms of causative environmental factors;

(b) Develop and validate models for the simulation of ecosystem effects and use these to estimate responses to actual or predicted changes in pollution stress;

(c) Carry out biomonitoring for detecting changes and develop biota indicators identifying future alterations; and

(d) Develop further tools to guide users in the interpretation of the available data and their use in (effects) models.

3. The Programme Centre will be entrusted with

(a) Collecting, processing and storing data from participating countries;

(b) Managing the database and ensuring its accessibility to other users; and

(c) Assessing and interpreting data (also in cooperation with other institutes), giving particular attention to the assessment and modelling of complex interactions in natural and semi-natural ecosystems.

4. The Centre will report on its activities and deliverables to WGE and to other bodies of the Convention as needed.

5. Specific scientific and technical activities developed by the Centre should be discussed and approved by WGE and included in the biannual workplan.

6. The functions of the Centre will be to:

(a) Prioritise and rationalise the Programme's network, monitoring activities, and data reporting;

(b) Monitor and assess long-term trends, stores and fluxes of elements and compounds of priority interest to the Convention (e.g. nitrogen and heavy metals), as well as other elements and parameters important for the evaluation of environmental effects (such as base cations, carbon and phosphorous,) and for meeting relevant international data requirements;

(c) Develop dynamic models of biogeochemical effects and recovery, risk assessment, and interactions with climate change with emphasis on timescales of ecosystem effects;

-
- (d) Develop biomonitoring and assessment of biological data particularly on vegetation;
 - (e) Report on progress according to the Programme aims and short-term obligations as defined in the workplan;
 - (f) Collaborate with ... (within the Convention – to be completed);
 - (g) Collaborate with external partners ... (outside the Convention - to be completed);
 - (h) Carry out other tasks assigned to it by the Working Group on Effects and the Executive Body.

E. Revised mandate for the Task Force and the Coordination Centre for Effects of the International Cooperative Programme on Modelling and Mapping of Critical Levels and Loads and Air Pollution Effects, Risks and Trends

1. The current terms of reference (mandates) for International Cooperative Programmes (ICPs) and the Task Force on the Health Aspects of Air Pollution had been specified in document *Future Development of Effects-Oriented Activities* (EB.AIR/WG.1/2000/4, Annexes II-VIII) approved by the Working Group on Effects (WGE) and the Executive Body in 2000. The mandates need to be revised and updated to make them consistent with the current provisions and priorities of the Convention and of WGE set in the following documents:

- (a) Long-term Strategy for the Convention on Long-range Transboundary Air Pollution (ECE/EB.AIR/106/Add.1);
- (b) The 2016 scientific assessment of the Convention;⁸
- (c) Policy response to the 2016 scientific assessment of the Convention (ECE/EB.AIR/WG.5/2017/3, ECE/EB.AIR/WG.5/2017/3/Corr.1 and ECE/EB.AIR/2017/4 forthcoming);
- (d) Revised long-term strategy of the effects-oriented activities (ECE/EB.AIR/2009/17/Rev.1);
- (e) Guidelines for reporting on the monitoring and modelling of air pollution effects (ECE/EB.AIR/2008/11, ECE/EB.AIR/WG.1/2008/16/Rev.); and
- (f) Draft 2018-2019 workplan for the implementation of the Convention (ECE/EB.AIR/2017/1).

The revised mandates will include key objectives and functions of the task forces and centres. The mandates are expected to be in force for the next 5 to 10 years. Specific activities and related deliverables on a shorter timeframe will be included in the bi-annual workplans for the implementation of the Convention.

⁸ See Rob Maas and Peringe Grennfelt, eds., *Towards Cleaner Air: Scientific Assessment Report 2016* (Oslo, 2016) and United States Environmental Protection Agency and Environment and Climate Change Canada, *Towards Cleaner Air: Scientific Assessment Report 2016 – North America* (2016, online report).

2. Highlights of achievements of the Task Force and the Coordination Centre for Effects of the International Cooperative Programme on Modelling and Mapping of Critical Levels and Loads and Air Pollution Effects, Risks and Trends are:

(a) Since its set up in 1988, ICP on Modelling and mapping of critical levels and loads and air pollution effects, risks and trends (ICP Modelling and Mapping) has developed critical loads and critical levels methodologies and databases to assess the risk to ecosystems of acidification, eutrophication and heavy metals. The approach has been extended to include dynamic modelling methodologies to enable the simulation and evaluation of the temporal development of these risks to future policy target years. Since 2008, scientific work under ICP Modelling and Mapping includes the development of critical loads for biodiversity to assess the impact of sulphur and nitrogen deposition on endpoints for biodiversity in general and the occurrence of plant species in particular;

(b) ICP Modelling and Mapping is supported by the Coordination Centre for Effects (CCE) its Programme Centre. The Programme Centre develops and proposes modelling and mapping methodologies and guidance, which are documented in CCE reports⁹, publications in the scientific literature, and in formal documents submitted under the Convention to the annual joint sessions of WGE and EMEP Steering Body. The Programme Centre compiles national data, submitted by national focal centres, into a Database of critical loads for acidification, eutrophication and biodiversity, while applying methods and compiling information for European parties that do not provide their own information. Data from North America (Canada and the United States of America), can also be collected and compiled by the Programme Centre, to complete the geographic coverage of the ECE region;

(c) ICP Modelling and Mapping activities are based on the contributions of the participating parties, either through their national focal centres or, in some cases, through informal submissions. These parties develop and maintain national databases and indicators and challenge their results with those from other countries. They also participate in model development. At annual meetings and CCE workshops, different approaches are compared, discussed, and modified with an aim to reach consensus on methods that should be used by all parties. In this process, methods and data of the CCE have been essential since it began its work in 1990. Demonstrating that no clear trends of impacts of ozone on vegetation have been observed in the last two decades, hence ozone pollution remains of global concern with background concentrations rising in Europe, contributing to impacts on vegetation;

(d) Modelling and mapping methodologies are described in the *Manual on Methodologies and Criteria for Modelling and Mapping Critical Loads and Levels and Air Pollution Effects, Risks and Trends*.¹⁰ This document was first published in 1993 and since then has been updated in collaboration with the ICP on Effects of Air Pollution on Natural Vegetation and Crops (ICP Vegetation) and the International Cooperative Programme on Effects of Air Pollution on Materials, including Historic and Cultural Monuments (ICP Materials). It provides a description of harmonized indicators to establish critical levels and loads and methods to assess the impacts of acidification, eutrophication, heavy metals, ozone and particulate matter on terrestrial and aquatic ecosystems, crops or building materials;

⁹ See www.wge-cce.org.

¹⁰ A first version of the Mapping Manual was published in 1993. It has since been updated three times: in 1996, 2004 and again in 2016. The full text of the 2016 version is available as online, by chapter, from the website of the International Cooperative Programme on Modelling and Mapping of Critical Levels and Loads and Air Pollution Effects, Risks and Trends: http://icpmapping.org/Latest_update_Mapping_Manual.

(e) The information used to elaborate critical levels and critical loads is based on national databases and monitoring programs that feed into the work of the national focal centres, including work carried out by other ICPs. The Critical load database and maps compiled by the CCE are shared with the Centre for Integrated Assessment Modelling, Meteorological Synthesizing Centre-East and Meteorological Synthesizing Centre-West to enable (i) the identification and mapping of ECE- and national regions as well as (nature) areas where depositions exceed critical loads and (ii) establish the magnitude of these exceedances. This information is then used for the assessment of pollution abatement scenario-alternatives that are identified by the Working Group on Strategies and Review and Executive Body and subsequently analysed by the Centre for Integrated Assessment Modelling in the Task Force on Integrated Assessment Modelling. The CCE can generate series of exceedance maps for ecosystems in ECE countries, as for instance listed in European Environment Agency's European Nature Information System (EUNIS), for the European Union's Natura 2000 areas and for a number of European and North American habitats on different spatial scales, as appropriate. These maps provide comprehensive information of air pollution policy trends and efficiency and are used in benefit analysis;

(f) Data produced under by ICP Modelling and Mapping are made available according to the Convention data rules (Decision 2006/1, ECE/EB.AIR/89/Add.1);

(g) The collaborative work of ICP Modelling and Mapping community results in the Critical Load Database, which has proven to be an important part of the scientific support of air pollution abatement policies of the Convention and of the European Union. In Europe and North America, ICP Modelling and Mapping community contribute to assess past and future impacts of air pollution on ecosystems.

Annex

Revised mandate for the Task Force and the Coordination Centre for Effects of the International Cooperative Programme on Modelling and Mapping of Critical Levels and Loads and Air Pollution Effects, Risks and Trends

1. France is the lead country of the Task Force of ICP Modelling and Mapping while its Programme Centre - the Coordination Centre for Effects (CCE), is lead by the Netherlands (until the end of 2017). Both are responsible for the guidance of – and collaboration with – its national focal centres and with EMEP and WGE centres to provide the Executive Body for the Convention and its subsidiary bodies with comprehensive information:

(a) On critical loads and levels and the risk of exceedances for selected pollutants and effects on appropriate endpoints of the natural environment;

(b) On the development and application of methods for effect-based approaches, including dynamic modelling and the modelling of impacts on suitable indicators of biodiversity and of possible impacts on selected ecosystem services;

(c) On the modelling and mapping of the present status and trends of impacts of air pollution on terrestrial and aquatic ecosystems for the ECE region.

Together, the chairs of ICP Modelling and Mapping Task Force and the head of its Programme Centre, are responsible for the organisation of annual meetings, of workshops, as appropriate, and for reporting their activities and deliverables to WGE and to the other bodies and groups in the Convention, as required. The Task Force of ICP Modelling and Mapping and the Programme Centre receive guidance and instructions from WGE and the Executive Body concerning priorities, tasks and timetable. They also assist bodies and groups under the Convention as appropriate.

2. The Task Force of ICP Modelling and Mapping plans, organises and evaluates the Programme's activities. It reviews and assesses methodologies and databases on critical loads and levels, and their exceedances, as well as (trends of) the risk of impacts on suitable indicators for the health of terrestrial and aquatic ecosystems. It documents modelling and mapping methodologies in the Modelling and Mapping Manual which is maintained and kept available via ICP Modelling and Mapping website. The Task Force makes recommendations on the further development of effect-based approaches, and on future modelling and mapping requirements.

3. The functions of the Programme Centre (CCE) are to:

(a) Develop methodologies and databases for the calculation of critical loads, their exceedances and their mapping at ECE scale under ICP Modelling and Mapping and provide technical advice regarding the use and interpretation of critical loads and exceedances;

(b) Implement established knowledge on effects of major air pollutants on the natural environment in modelling methodologies, including information exchanges with other Convention and Research Groups on available dose response relationships assessed in order to protect ecosystems;

(c) Develop and apply methods for effect-based approaches, including dynamic modelling and the modelling of impacts on suitable indicators of biodiversity and its services in collaboration with other ICPs and the Joint Expert Group on Dynamic Modelling;

(d) Conduct periodic training sessions and workshop to assist national focal centres in their work;

(e) Maintain and update relevant databases and serve as clearing house for data collection and exchanges regarding critical loads and levels amongst Parties and bodies under the Convention;

(f) Produce information and data necessary for the implementation of the Convention and its protocols in relation to indicators for the health of natural ecosystems including critical loads and their exceedances.

4. Parties are encouraged to for collecting and electronically archiving national data on critical loads and levels and effects risks and trends of air pollution according to the Modelling and Mapping Manual guidelines, and collaborate with the Programme Centre so that their data can be integrated in the Programme Centre database. Parties also contribute to the development of critical load calculations and mapping methodologies and share knowledge through, in particular, workshops.

5. ICP Modelling and Mapping Task Force and its Programme Centre endeavour to share knowledge on critical loads and modelling methodologies addressing the risk of impacts on terrestrial and aquatic ecosystems with all parties, in particular with the Parties in Eastern Europe, the Caucasus and Central Asia. For that purpose, the Modelling and Mapping Manual is proposed to be translated into Russian.

6. ICP Modelling and Mapping Task Force and its Programme Centre collaborate with other ICPs to develop understanding and dose response relationships for terrestrial and aquatic ecosystems. The Programme Centre collaborates closely with Centre for Integrated Assessment Modelling and the Task Force on Integrated Assessment Modelling in the elaboration and assessment of pollution scenarios. Deposition data from EMEP (Meteorological Synthesizing Centre-East and Meteorological Synthesizing Centre-West) are made available in a format that is appropriate to enable the calculation of critical loads and their exceedances.

7. ICP Modelling and Mapping Task Force and its Programme Centre can collaborate with relevant organisations under the United Nations (e.g. Arctic Monitoring and Assessment Programme; United Nation Environment Programme; Convention on Biological Diversity) and in North America and in the European Union to help produce critical load exceedance maps and help conduct scenario analysis of computed emission abatement alternatives. The Programme Centre can participate in research programmes in order to develop knowledge and understanding of ecosystem responses to air pollution on regional and continental scales.

8. ICP Modelling and Mapping Task Force and its Programme Centre carry out tasks that have been adopted in the science related part of the workplan of the Convention established by WGE and the Executive Body, provided that sufficient funding is available.

F. Revised mandate for the Task Force and the Programme Centre of the International Cooperative Programme on Effects of Air Pollution on Materials, Including Historic and Cultural Monuments.

1. The current terms of reference (mandates) for International Cooperative Programmes (ICPs) and the Task Force on the Health Aspects of Air Pollution had been specified in document *Future Development of Effects-Oriented Activities* (EB.AIR/WG.1/2000/4, Annexes II-VIII) approved by the Working Group on Effects (WGE) and the Executive Body in 2000. The mandates need to be revised and updated to make them consistent with the current provisions and priorities of the Convention and of WGE set in the following documents:

- (a) Long-term Strategy for the Convention on Long-range Transboundary Air Pollution (ECE/EB.AIR/106/Add.1);
- (b) The 2016 scientific assessment of the Convention;¹¹
- (c) Policy response to the 2016 scientific assessment of the Convention (ECE/EB.AIR/WG.5/2017/3, ECE/EB.AIR/WG.5/2017/3/Corr.1 and ECE/EB.AIR/2017/4 forthcoming);
- (d) Revised long-term strategy of the effects-oriented activities (ECE/EB.AIR/2009/17/Rev.1);
- (e) Guidelines for reporting on the monitoring and modelling of air pollution effects (ECE/EB.AIR/2008/11, ECE/EB.AIR/WG.1/2008/16/Rev.); and
- (f) Draft 2018-2019 workplan for the implementation of the Convention (ECE/EB.AIR/2017/1).

The revised mandates will include key objectives and functions of the task forces and centres. The mandates are expected to be in force for the next 5 to 10 years. Specific activities and related deliverables on a shorter timeframe will be included in the bi-annual workplans for the implementation of the Convention.

2. Highlights of achievements of the Task Force and Programme Centre of the International Cooperative Programme on Effects of Air Pollution on Materials, Including Historic and Cultural Monuments (ICP Materials) are:

¹¹ See Rob Maas and Perine Grennfelt, eds., *Towards Cleaner Air: Scientific Assessment Report 2016* (Oslo, 2016) and United States Environmental Protection Agency and Environment and Climate Change Canada, *Towards Cleaner Air: Scientific Assessment Report 2016 – North America* (2016, online report).

(a) Maintenance of a regionally extensive database on pollution, climate, corrosion and soiling in a network of urban, rural and industrial test sites in Europe and North America;

(b) Develop and maintain high quality standards in data collection by adhering to relevant standards within International Organization for Standardization (ISO) Technical Committee 156 for exposure and evaluation of corrosion attack on materials;

(c) Development of corrosion dose-response-functions for sulphur dioxide dominating situation, corrosion dose-response functions for the multi-pollutant situation and soiling dose-response functions for a variety of materials;

(d) Regular exposure of indicator materials for periodic trend assessments (each third year) enabling quantification of trends in pollution, corrosion and soiling;

(e) Several case studies on United Nations Educational, Scientific, and Cultural Organization (UNESCO) cultural heritage sites as policy relevant indicators for verification of air pollution effects on real objects of cultural heritage, including economic assessment.

Annex

Revised mandate for the Task Force and the Programme Centre of the International Cooperative Programme on Effects of Air Pollution on Materials, Including Historic and Cultural Monuments (ICP Materials).

1. The main research centre (at Swerea KIMAB, Stockholm, Sweden) is responsible for the detailed planning and coordination of the programme, including co-chairing of the ICP Materials Task Force together with Italy.

2. The Centre will assume principal responsibility for coordinating the relevant activities under the ICP Materials including development of technical projects, provision of deliverables according to the workplan (including reports and access to all relevant information and data), participation in relevant Task Force meetings and workshops, organizing technical workshops and training workshops, and providing communication with and direct support to Parties.

3. The Centre will be responsible for the production and the provision with respect to the processes set by the WGE (in particular regarding the time lines) of quantitative policy-relevant information on monitored and modelled air pollution effects on materials, necessary for the implementation of the Convention and its Protocols by the Parties.

4. The Centre will report on its activities and deliverables to the WGE and to other bodies of the Convention as needed.

5. Specific scientific and technical activities developed by the Centre should be discussed and approved by WGE and be included in the biannual workplan.

6. The functions of the Centre will include:

(a) Monitoring and assessment of the impact of the environment on corrosion and soiling effects on materials as well as their trends by (i) maintaining and developing an international network of atmospheric corrosion test sites (ii) conduct regular short term (1-year) and long term (4-year) exposures of corrosion and soiling specimens and (iii) collect and measure environmental data at the test sites. This is done by support of and collaboration with national focal points for test sites, sub-centres for materials and the sub-centre for environmental data;

(b) Derivation of exposure-response functions for corrosion and soiling effects of air pollutants, in combination with other stresses such as climate change and chloride deposition;

(c) Gathering information on policy-relevant user friendly indicators to evaluate air pollution effects on materials by conducting case studies on the UNESCO cultural heritage sites including (i) assessment of the environment and condition (ii) risk assessment; iii) economic assessment of damages of corrosion and soiling. This is done by support of and collaboration with the sub-centre for cultural heritage in Italy;

(d) Investigate the relevance of short lived climate forcers, in particular black carbon from the viewpoint of soiling of materials;

(e) Further development of modelling and mapping procedures by supporting regular updates of the *Manual on Methodologies and Criteria for Modelling and Mapping Critical Loads and Levels and Air Pollution Effects, Risks and Trends*¹² (chapter IV) in collaboration with the ICP Modelling and Mapping of Critical Levels and Loads and Air Pollution Effects, Risks and Trends describing procedures for mapping corrosion and soiling effects on materials;

(f) Further development and improvement of methodologies for measuring air pollution effects of materials by co-operation with external (non-Convention) relevant standardisation bodies, such as the ISO Technical Committee 156 Corrosion of metals and alloys;

(g) Carry out other tasks assigned to it by the Working Group on Effects and the Executive Body.

G. Revised mandate for the Task Force on the Health Aspects of Air Pollution

1. The current terms of reference (mandates) for International Cooperative Programmes (ICPs) and the Task Force on the Health Aspects of Air Pollution had been specified in document *Future Development of Effects-Oriented Activities* (EB.AIR/WG.1/2000/4, Annexes II-VIII) approved by the Working Group on Effects (WGE) and the Executive Body in 2000. The mandates need to be revised and updated to make them consistent with the current provisions and priorities of the Convention and of WGE set in the following documents:

(a) Long-term Strategy for the Convention on Long-range Transboundary Air Pollution (ECE/EB.AIR/106/Add.1);

(b) The 2016 scientific assessment of the Convention;¹³

(c) Policy response to the 2016 scientific assessment of the Convention (ECE/EB.AIR/WG.5/2017/3, ECE/EB.AIR/WG.5/2017/3/Corr.1 and ECE/EB.AIR/2017/4 forthcoming);

(d) Revised long-term strategy of the effects-oriented activities (ECE/EB.AIR/2009/17/Rev.1);

¹² A first version of the Mapping Manual was published in 1993. It has since been updated three times: in 1996, 2004 and again in 2016. The full text of the 2016 version is available as online, by chapter, from the website of the International Cooperative Programme on Modelling and Mapping of Critical Levels and Loads and Air Pollution Effects, Risks and Trends: http://icpmapping.org/Latest_update_Mapping_Manual.

¹³ See Rob Maas and Peringe Grennfelt, eds., *Towards Cleaner Air: Scientific Assessment Report 2016* (Oslo, 2016) and United States Environmental Protection Agency and Environment and Climate Change Canada, *Towards Cleaner Air: Scientific Assessment Report 2016 – North America* (2016, online report).

(e) Guidelines for reporting on the monitoring and modelling of air pollution effects (ECE/EB.AIR/2008/11, ECE/EB.AIR/WG.1/2008/16/Rev.); and

(f) Draft 2018-2019 workplan for the implementation of the Convention (ECE/EB.AIR/2017/1).

The revised mandates will include key objectives and functions of the task forces and centres. The mandates are expected to be in force for the next 5 to 10 years. Specific activities and related deliverables on a shorter timeframe will be included in the bi-annual workplans for the implementation of the Convention.

2. The key objective of the Task Force on the Health Aspects of Air Pollution (Task Force on Health) is to assess the health effects of long-range transboundary air pollution and provide supporting documentation. Assessments aim to quantify the contribution of transboundary air pollution to human health risks and help define priorities for guiding future monitoring and abatement strategies.

3. Within the period of its existence, the Task Force on Health has provided scientific evidence of health effects of long-range transboundary air pollutants by delivering a series of health assessment reports by pollutant: persistent organic pollutants (2003), particulate matter, ozone and nitrogen dioxide (2003), particulate matter (2006), heavy metals (2007), particulate matter from various sources (2007), ozone (2008), black carbon (2012) and residential heating with wood and coal (2015). Until 2017, the 20 sessions of the annual Task Force meeting have been a platform where Parties can share recent policies and activities related to air pollution and health and update on the progress in research on health impact of air pollution. The Task Force meetings have also contributed to Parties' capacity building. Further, the overall the Task Force activities have supported the effective implementation of the existing protocols and their expected revisions.

Annex

Revised mandate for the Task Force on the Health Aspects of Air Pollution (Task Force on Health).

1. The Task Force on Health Aspects of Air Pollution is a joint body of the Executive Body and the World Health Organization (WHO), led by the WHO European Centre for Environment and Health (ECEH; Bonn, Germany), responsible for evaluating and assessing the health effects of long-range transboundary air pollution and providing necessary information in the field.

2. The Task Force on Health will assume the principal responsibility for coordinating the relevant activities, including development of technical projects, provision of deliverables according to the workplan (e.g., annual reports and access to all relevant information and data), organization of the Task Force meetings and communication with and direct support to Parties.

3. The Task Force will be responsible for the production and the provision, with respect to the processes set by WGE, of all information and data necessary for the implementation of the Convention and its Protocols by the Parties.

4. The Task Force on Health will report on its activities and deliverables to WGE and to other bodies of the Convention as needed.

5. Specific scientific and technical activities developed by the Task Force on Health should be discussed and approved by WGE and be included in the biannual workplan.

6. The functions of the Task Force on Health will be to:

(a) Quantify health impacts of long-range transboundary air pollution;

-
- (b) Expand the knowledge base by consolidating existing evidence on health outcomes of exposure to air pollution and by identifying emerging issues of health relevance;
 - (c) Provide a forum to the Parties and expertise to exchange recent research, experiences and suggestions on the health impact of air pollution;
 - (d) Assist Parties in quantifying the health impact of transboundary air pollution and defining priorities to guide future monitoring and abatement strategies;
 - (e) Facilitate Parties to communicate of health risks associated with air pollution exposure;
 - (f) Contribute to capacity building on quantifying health impacts of air pollution and assessing the health benefits from reducing air pollution in Eastern Europe, the Caucasus and Central Asia by developing a curriculum and supporting the use of health impact quantification tool;
 - (g) Collaborate with EMEP to assess the hazardous of air pollutant in the region;
 - (h) Collaborate with other processes and organizations (Environment and Health Process, Health 2020, Paris Agreement, Sustainable Development Goals and United Nations Environment Assembly) to identify and realize synergies;
 - (i) Carry out other tasks assigned to it by the Working Group on Effects and the Executive Body.

II. Task Forces and Centres under the Steering Body to EMEP

A. Revised mandate for the EMEP Task Force on Emission Inventories and Projections (TFEIP)

1. The mandates for the EMEP task forces need to be revised and updated to make them consistent with the provisions and priorities of the Convention and EMEP set in the following documents:

- (a) Revised Strategy for EMEP for 2010-2019 (ECE/EB.AIR/2009/16/Rev.1);
- (b) EMEP Revised Monitoring Strategy 2010-2019 (ECE/EB.AIR/GE.1/2009/15);
- (c) Long-term Strategy for the Convention on Long-range Transboundary Air Pollution (ECE/EB.AIR/106/Add.1);
- (d) The 2016 scientific assessment of the Convention;¹⁴
- (e) Policy response to the 2016 scientific assessment of the Convention (ECE/EB.AIR/WG.5/2017/3, ECE/EB.AIR/WG.5/2017/3/Corr.1 and ECE/EB.AIR/2017/4 forthcoming);
- (f) Draft 2018-2019 workplan for the implementation of the Convention (ECE/EB.AIR/2017/1).

2. The Task Force on Emission Inventories and Projections (TFEIP) was established by decision of Executive Body to offer a forum to the Parties, and the EMEP centres for technical and scientific discussions to develop guidelines and tools for reporting national emissions and consolidating emission inventories in the Parties and throughout the ECE region.

3. The Task Force on Emission Inventories and Projections (TFEIP) has closely supported EMEP and Parties in the reporting of air pollutant emissions and projections data to the Convention. Recent achievements include:

- (a) Having responsibility for the 3-yearly major revision of the EMEP/European Environment Agency (EEA) Air Pollutant Emission Inventory Guidebook (EMEP/EEA guidebook) used for the estimation and reporting of national emissions, and to be published in 2016;
- (b) Providing regular meetings of the TFEIP expert network to harmonise emission factors, establish methodologies for the evaluation of emission data and projections and identify problems related to emissions reporting. Supporting initiatives to continually improve the quality of emission inventory data, such as the annual emission inventory review process;
- (c) Improving the co-operation and collaborative working with stakeholder groups within the Convention, to ensure that the outputs from the TFEIP expert network continue to better meet the needs of the users;

¹⁴ See Rob Maas and Peringe Grennfelt, eds., *Towards Cleaner Air: Scientific Assessment Report 2016* (Oslo, 2016) and United States Environmental Protection Agency and Environment and Climate Change Canada, *Towards Cleaner Air: Scientific Assessment Report 2016 – North America* (2016, online report).

(d) Supporting implementation of the reporting requirements specified in the Convention's emission reporting guidelines, including provision of expert guidance to the Executive Body and Implementation Committee on the adjustment application and review procedures established under the 2012 amended Gothenburg Protocol.

Annex

Revised mandate for the Task Force on Emission Inventories and Projections

1. The Task Force on Emission Inventories and Projections under the leadership of the United Kingdom, European Union, and Finland, will assist EMEP by providing sound scientific support to the Convention and its Parties concerning the reporting of air pollutant emissions and projections data.

2. The lead Parties will assume principal responsibility for coordinating the work of the Task Force, including coordination of technical projects, provision of deliverables according to the workplan, organizing its meetings and providing communication with Parties.

3. The Task Force will report on its activities and deliverables to the Steering Body to the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP).

4. The Task Force will be composed of experts from Parties to the Convention and invited experts. Each Party will nominate a national focal point. Meetings of the Task Force will also be open to representatives of intergovernmental or accredited non-governmental organizations, researchers, industrial organisations, and consultancies. The chair(s) shall invite individuals with expertise relevant to the work of the Task Force.

5. All reports prepared by the Task Force will reflect, where practicable, the range of views expressed during its meetings.

6. The functions of the Task Force will be to:

(a) Develop further the EMEP/EEA Guidebook methodologies by supporting work that provides updated information from the literature and liaising with other projects. The Task Force will ensure regular updating of the maintenance and improvement plan for the Guidebook with a view to publishing major updates in 2016, and every following 3-4 years.

(b) Maintain and co-ordinate the activities of an expert network on emissions inventories and projections, to facilitate technical discussions between experts in a range of different topics relating to air pollutant emissions.

(c) Ensure regular meetings of the Task Force and its expert panels, to provide a technical forum for the expert network to share best practice and exchange information on national and international activities on emission inventories and projections. This includes initiatives to harmonise emission factors, establish methodologies for the evaluation of emission data and projections, the identification of problems related to emissions reporting and recommended solutions.

(d) Support Parties in implementing the reporting requirements of the Convention's emission reporting guidelines. This includes supporting initiatives to improve the quality of emission inventory data such as the annual emission inventory review process, as well as supporting the adjustment application and review procedures established under the 2012 amended Gothenburg Protocol via provision of expert guidance.

(e) Undertake specific activities and initiatives within the emissions inventory technical area, including: (i) Updating of the adjustments guidance if required with comments provided by Parties and as instructed by the Executive Body; (ii) Reviewing the

need for updating document ECE/EB.AIR/GE.1/2007/16 on the Methods and Procedures for emission inventory reviews, and ensuring continued alignment with activities under the United Framework Convention on Climate Change;

(f) Supporting the Convention's initiative to deliver capacity building to countries in Eastern Europe, the Caucasus and Central Asia, as resources allow. This includes holding specific meetings with experts from these regions at meetings of the TFEIP, as well as contributing to in-country capacity building and training activities;

(g) Ensuring close co-operation between the TFEIP and other partners within the Convention, by e.g. scheduling of joint workshops and contribution to joint activities. Partners within the Convention include in particular selected Centres (e.g. CEIP, MSC-W, MSC-E and CIAM), and task forces (e.g. TFMM, TFRN, TFIAM and TFTEI);

(g) Collaborating with external (non-Convention) partners on specific technical issues as necessary - such as AMAP, the Stockholm Convention and the Minamata Convention;

(h) Carry out other tasks assigned to it by the EMEP Steering Body and the Executive Body as resources allow.

B. Revised mandate for the EMEP Task Force on Hemispheric Transport of Air Pollution (TFHTAP)

The EMEP Steering Body, considering the evolution of EMEP since the TFHTAP was established and in order to harmonize and co-ordinate better the activities of Task Forces and Centres decided:

1. The mandates for the EMEP task forces need to be revised and updated to make them consistent with the provisions and priorities of the Convention and EMEP set in the following documents:

(a) Revised Strategy for EMEP for 2010-2019 (ECE/EB.AIR/2009/16/Rev.1);

(b) EMEP Revised Monitoring Strategy 2010-2019 (ECE/EB.AIR/GE.1/2009/15);

(c) Long-term Strategy for the Convention on Long-range Transboundary Air Pollution (ECE/EB.AIR/106/Add.1);

(d) The 2016 scientific assessment of the Convention;¹⁵

(e) Policy response to the 2016 scientific assessment of the Convention (ECE/EB.AIR/WG.5/2017/3, ECE/EB.AIR/WG.5/2017/3/Corr.1 and ECE/EB.AIR/2017/4 forthcoming);

(f) Draft 2018-2019 workplan for the implementation of the Convention (ECE/EB.AIR/2017/1);

(g) The new Sustainable Development Goals of the United Nations and the Paris Agreement on tackling Climate Change, that will also have effect on air pollution;

¹⁵ See Rob Maas and Perine Grennfelt, eds., *Towards Cleaner Air: Scientific Assessment Report 2016* (Oslo, 2016) and United States Environmental Protection Agency and Environment and Climate Change Canada, *Towards Cleaner Air: Scientific Assessment Report 2016 – North America* (2016, online report).

(h) Reports by WHO, OECD, IEA, UNEP and World Bank, stressing the important role of air pollution in public health damage, will increase the need for increased efforts to reduce air pollution at the global scale.

The revised mandates will include key objectives and functions of the task forces and centres. The mandates are expected to be in force for the next 5 to 10 years. Specific activities and related deliverables on a shorter timeframe will be included in the bi-annual workplans for the implementation of the Convention.

2. The Task Force on hemispheric Transport of Air Pollution (TFHTAP) was established by decision of Executive Body of the Convention to offer a forum to the Parties, and the EMEP centres for technical and scientific discussions with experts from non-ECE regions to evaluate methods and tools for the description of air pollution patterns at the hemispheric scale, and assessment of global emission reduction strategies. Recent achievements include:

(a) Analysis of the responses in terms of ozone and particulate matter concentrations, to a large set of emission reduction scenarios applied in the large regions of the Northern hemisphere;

(b) Fostering global models development and evaluation against a set of observations gathered from several networks implemented in the world and building up partnership with those network;

(c) Assessment of synergies between regional and global modelling for integrated assessment modelling and policy support purposes;

(d) Assessment of the impact of Short Lived Climate Pollutants (SLCP) on air pollution in and outside the ECE region and conception and evaluation of mitigation options to target those pollutants.

Annex

Revised mandate for the Task Force on Hemispheric Transport of Air pollution (TFHTAP)

1. The Task Force on Hemispheric Transport of Air Pollution, under the leadership of the European Union and the United States of America, will examine the transport of air pollution across the northern hemisphere and its regional impacts, considering air quality, health, ecosystem, and near-term climate effects.

2. The lead Parties will assume principal responsibility for coordinating the work of the Task Force, for organizing its meetings, for designating its chair(s), for communications with participating experts, and for other organizational arrangements in accordance with the workplan. Meetings will occur annually or more frequently as appropriate.

3. The Task Force will carry out the tasks specified for it in the workplan adopted biannually by the Executive Body, and will report thereon to the Steering Body to EMEP.

4. The Task Force will be composed of experts. Each Party will nominate a focal point to the secretariat. Meetings of the Task Force will be open to designated representatives of intergovernmental or accredited non-governmental organizations. The chair(s) are encouraged to invite individuals with expertise relevant to the work of the Task Force and experts from non-Convention countries in the northern hemisphere.

5. All reports prepared by the Task Force for the Executive Body and other groups under the Convention will reflect the full range of views expressed during its meetings.

6. The functions of the Task Force will be to:

(a) Plan and conduct the technical work necessary to develop a fuller understanding of: (i) the impact of air pollutant emissions from the Parties on human health, ecosystems, and climate change outside the ECE (i.e. extra-regional impacts) (ii) the impact of air pollutant emissions sources outside the ECE on the achievement of the environmental objectives of the Convention and its protocols (i.e., extra-regional influences) (iii) the impacts of emission-reduction opportunities in the ECE region on regional and intercontinental transport of air pollution and the associated air quality, health, ecosystem and near-term climate effects of such impacts and the impacts of complementary measures that might be taken in other regions where mitigation may prove cost-effective;

(b) Conduct the work specified in (a) as it pertains to all of the pollutants and precursors addressed by the Convention, with priority given to tropospheric ozone and aerosols;

(c) Conduct the technical work identified above through coordination, cooperation, and collaboration with: (i) other technical bodies under the Convention, including the Task Force on Measurements and Modelling, the Task Force on Emissions Inventories and Projections, the Task Force on Integrated Assessment Modelling, the Task Force on Techno-Economic Issues, and the International Coordinating Programmes of the Working Group on Effects; (ii) the relevant technical bodies under the Stockholm on Persistent Organic Pollutants and the Minamata Convention on Mercury; (iii) other regional air pollution agreements and networks; (iv) related international organizations and scientific efforts, including the Arctic Council/Arctic Monitoring and Assessment Programme (AMAP), the United Nations Environment Programme (UNEP), the World Meteorological Organization (WMO), the World Health Organization (WHO), the Intergovernmental Panel on Climate Change (IPCC), and the Climate and Clean Air Coalition (CCAC) to develop a common understanding of shared air pollution problems, and improve the technical capacity to evaluate emission reduction opportunities;

(d) Facilitate the dissemination of knowledge and methodologies developed within the Convention to other regions of the world, through cooperation with bodies inside and outside the Convention, to help build a common understanding of shared air pollution problems and improve the technical capacity to evaluate emission reduction opportunities;

(e) Carry out such other tasks related to the above work as the Executive Body may assign to it in the annual workplan.

C. Revised mandate for the EMEP Task Force on Integrated Assessment Modelling (TFIAM)

1. The mandates for the EMEP task forces need to be revised and updated to make them consistent with provisions and priorities of the Convention and EMEP set in the following documents:

(a) Revised Strategy for EMEP for 2010-2019 (ECE/EB.AIR/2009/16/Rev.1);

(b) EMEP Revised Monitoring Strategy 2010-2019 (ECE/EB.AIR/GE.1/2009/15);

(c) Long-term Strategy for the Convention on Long-range Transboundary Air Pollution (ECE/EB.AIR/106/Add.1);

-
- (d) The 2016 scientific assessment of the Convention;¹⁶
 - (e) Policy response to the 2016 scientific assessment of the Convention (ECE/EB.AIR/WG.5/2017/3, ECE/EB.AIR/WG.5/2017/3/Corr.1 and ECE/EB.AIR/2017/4 forthcoming);
 - (f) Draft 2018-2019 workplan for the implementation of the Convention (ECE/EB.AIR/2017/1).
 - (g) The new Sustainable Development Goals of the United Nations and the Paris Agreement on tackling Climate Change, that will also have effect on air pollution;
 - (h) Reports by IEA, OECD, UNEP, WHO and the World Bank, stressing the important role of air pollution in public health damage, will increase the need for increased efforts to reduce air pollution at the global scale.
2. The Task Force on Integrated Assessment Modelling (TFIAM) was established by decision of Executive Body to offer a forum to the Parties, and the EMEP centres for technical and scientific discussions to evaluate methods and tools for Integrated Assessment Modelling that aims at assessing the impacts (economical, environmental and health effects) of emissions control strategies set in the Protocols to the Convention. TFIAM has closely supported EMEP and Parties in evaluation of the cost-efficiency of emissions control strategies. Recent achievements include:
- (a) Analysis of the impact of the revised Gothenburg Protocol (2012) which sets new emission ceilings objectives with respect to air pollutants including fine particulate matter;
 - (b) Demonstration of the benefits of developing synergies between environmental policies, in particular, climate and air pollution policies;
 - (c) Assessment of the impact of Short Lived Climate Pollutants (SLCP) on air pollution in and outside the ECE region and conception and evaluation of mitigation options to target those pollutants;
 - (d) Analysis of the linkages between global, regional and local air pollution patterns and levels in the ECE region, and evaluation of potential synergies between control measures that could be implemented at various geographical scales.

Annex

Revised mandate for the Task Force on Integrated Assessment Modelling (TFIAM)

1. The Task Force on Integrated Assessment Modelling under the leadership of the Netherlands and Sweden guides the work of the Centre on Integrated Assessment Modelling (CIAM), reviews its modelling results, exchanges modelling experiences by the parties and reports its findings to EMEP/WGE and the Working Group on Strategies and Review (WGSR). CIAM and TFIAM integrate information of the various scientific bodies under EMEP and WGE, assess future scenarios and the cost-effectiveness of abatement strategies requested by the WGSR.
2. The lead Parties will assume principal responsibility for coordinating the work of the Task Force, including coordination of technical projects, provision of deliverables

¹⁶ See Rob Maas and Perine Grennfelt, eds., *Towards Cleaner Air: Scientific Assessment Report 2016* (Oslo, 2016) and United States Environmental Protection Agency and Environment and Climate Change Canada, *Towards Cleaner Air: Scientific Assessment Report 2016 – North America* (2016, online report).

according to the workplan, organizing its meetings and providing communication with Parties, as far as sufficient funding for the various wishes from the parties is available.

3. The Task Force will report on its activities and deliverables to the Steering Body to the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP), as well as the WGE, the WGSR and if needed the Executive Body.

4. The Task Force will be composed of experts nominated by Parties to the Convention and invited experts. Each Party will nominate a national focal point. Meetings of the Task Force will be open to designated representatives of intergovernmental or accredited non-governmental organizations. The chair(s) are encouraged to invite individuals with expertise relevant to the work of the Task Force.

5. All reports prepared by the Task Force will reflect the full range of views expressed during its meetings.

6. The functions of the Task Force will be to:

(a) Guide the technical work by the Centre on Integrated Assessment Modelling (CIAM); review the scientific quality of GAINS and assess future scenarios and the cost-effectiveness of abatement strategies as upon the request of the WGSR;.

(b) Integrate information from of the various scientific bodies under EMEP and WGE in the GAINS model and organize ex post analyses by these scientific bodies, as well as extend the scientific network to include data and scenario results of climate, energy, transport and agricultural models and feed data into economic models;

(c) Exchange integrated assessment modelling experiences between the Parties and organize bilateral consultations on the data used in GAINS; reach out to exchange experiences with countries outside the Convention area and exchange experiences with local air quality managers;

(d) Mediate between Parties seeking advice on developing scenarios and integrated assessment modelling to find relevant experts from other Parties;

(e) Mediate to find experts that can support the Parties in Eastern Europe, the Caucasus and Central Asia, and develop specific studies for these countries that request important resources to consolidate appropriate input data for IAM;

(f) The TFIAM and CIAM will closely collaborate with: (i) TFEIP and CEIP to improve emission estimates and projections (ii) MSC-W and TFMM to use the latest version of the EMEP model for source-receptor relationships and the development of a methodology to assess local exposure (iii) with TFH and ICP Modelling and Mapping to use the latest findings on exposure response relationships and impacts on biodiversity (iv) TFHTAP to assess cost-effective abatement strategies at the hemispheric scale;

(g) TFIAM and CIAM will also exchange information with the, AMAP, CCAC OECD, UNEP, WHO and World Bank to encourage cost-effective strategies for health and ecosystems at a global scale;

(h) Carry out other tasks assigned to it by the EMEP Steering Body and the Executive Body.

D. Revised mandate for the EMEP Task Force on Measurements and Modelling (TFMM)

1. The mandates for the EMEP task forces need to be revised and updated to make them consistent with provisions and priorities of the Convention and EMEP set in the following documents:

- (a) Revised Strategy for EMEP for 2010-2019 (ECE/EB.AIR/2009/16/Rev.1);
- (b) EMEP Revised Monitoring Strategy 2010-2019 (ECE/EB.AIR/GE.1/2009/15);
- (c) Long-term Strategy for the Convention on Long-range Transboundary Air Pollution (ECE/EB.AIR/106/Add.1);
- (d) The 2016 scientific assessment of the Convention;¹⁷
- (e) Policy response to the 2016 scientific assessment of the Convention (ECE/EB.AIR/WG.5/2017/3, ECE/EB.AIR/WG.5/2017/3/Corr.1 and ECE/EB.AIR/2017/4 forthcoming);
- (f) Draft 2018-2019 workplan for the implementation of the Convention (ECE/EB.AIR/2017/1).

2. The Task Force for Measurements and Modelling was established in 1999 by decision of Executive Body to offer a forum to the Parties, the EMEP centres and other international organizations for scientific discussions to evaluate methods and tools for the measurements and modelling of air pollution.

3. Within the period of its existence, TFMM has supported Parties to the Convention, *inter alia*, through the following actions:

- (a) Continuously discussed and fostered the development of an observational network and modelling tools that are essential for the verification of the impact of the actions taken on pollutants emission reduction;
- (b) Actively participated in elaborations, discussions, revisions and implementation of the EMEP monitoring strategy in cooperation with CCC;
- (c) Contributed to the improvement of the scientific understanding of the processes that control European air pollution levels through regular intensive measurement campaigns;
- (d) Coordinated benchmarking of EMEP modelling tools by means of model comparison projects and focused case studies, in particular by liaising with MSC-E and MSC-W;
- (e) Supported sharing, use and evaluation of EMEP models as tools for the assessment of air pollution transport and deposition at national and regional levels by the Parties;
- (f) Performed and published assessment reports and trend analyses of air pollution concentrations and deposition in the EMEP domain over the past 40 years.

¹⁷ See Rob Maas and Perine Grennfelt, eds., *Towards Cleaner Air: Scientific Assessment Report 2016* (Oslo, 2016) and United States Environmental Protection Agency and Environment and Climate Change Canada, *Towards Cleaner Air: Scientific Assessment Report 2016 – North America* (2016, online report).

Annex

Revised mandate for the Task Force on Measurements and Modelling

1. The Task Force on Measurements and Modelling, under the leadership of France and WMO, and in view of up-to-date scientific knowledge and technical developments of its Parties and worldwide will continue to examine the needs and requirements of the Parties to the Convention with the goal to support the improvement of tools and good practices to monitoring the state of the air pollution and to model the past and future changes of concentrations of air pollutants, transboundary fluxes, and deposition within the EMEP region.
2. The lead Parties will assume main responsibility for coordinating the work of the Task Force, including coordination of technical projects, provision of deliverables according to the mandate and respective workplans, organizing TF meetings and ensuring communication among Parties and relevant Convention bodies.
3. The Task Force will report on its activities and deliverables to the Steering Body to the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP).
4. The Task Force will be composed of experts nominated by Parties to the Convention, invited experts and representatives of the EMEP Centres responsible for tasks related to measurements and modelling (CCC, MSC-E and MSC-W). Meetings of the Task Force will be open to designated representatives of intergovernmental or accredited non-governmental organizations. The chair(s) are encouraged to invite individuals with expertise relevant to the work of the Task Force. Reports, prepared by the Task Force reflect the full range of views expressed at its meetings.
5. All reports prepared by the Task Force will reflect the full range of views expressed during its meetings.
6. The functions of the Task Force will be to:
 - (a) Provide a forum for the Parties to share knowledge, experiences, views, suggestions and develop recommendation on the issues related to air quality, efficiency and sufficiency of EMEP measurements and modelling.
 - (b) Provide an opportunity for the Parties and EMEP Centres (MSC-E, MSC-W, CCC) to discuss performance of measurements and models (EMEP models and those developed by the Parties), and their improvements, bearing in mind the scope and range of their application (such as for national assessments of air quality, assessment of transboundary fluxes and their influence on air quality, trend analyses, etc.);
 - (c) Plan and conduct its technical work towards implementation of the Monitoring Strategy of EMEP taking into consideration challenges encountered at national levels, best practices available and recommendations provided by the EMEP Manual for Sampling and Chemical Analysis;
 - (d) Interpret and assess the observations and modelling results related to air pollution levels, assess its temporal and spatial trends and contribute to the evaluation of the effectiveness of the implementation of the Convention and its Protocols;
 - (e) Ensure the coordinated efforts of Parties in organization and conduction of the intensive measurement periods and focused case studies, following data processing, model interpretation and results dissemination;
 - (f) Provide support and facilitate involvement of Parties in Eastern Europe, the Caucasus and Central Asia for example with respect to setting up monitoring stations and

national programs, case studies, use of models and promoting the tools developed under EMEP during workshops and other dedicated meetings;

(g) Collaborate with CCC, MSC-W, MSC-E, CEIP, TF-EIP, TF-HTAP, TF-IAM, and Working Group on Effects to evaluate emission inventories, improve the modelling tools to serve the integrated modelling and effects assessment, ensure the consistency between the regional and hemispheric scale analyses;

(h) Strengthen linkages with the European Union scientific programmes and infrastructures (like Copernicus or ACTRIS) with a focus on development of common tools and regional assessments; develop joint activities with European and international organizations and conventions (e.g. Joint Research Centre of the European Commission, EEA, WMO) to ensure synergies between regional and global scales, strengthening national activities,

(i) Carry out other specific tasks assigned by the EMEP Steering Body and the Executive Body through bi-annual workplans.

E. Revised mandate for the EMEP Chemical Coordinating Centre (CCC)

1. The mandates for EMEP Centres need to be revised and updated to make them consistent with provisions and priorities of the Convention and EMEP set in the following documents:

(a) Revised Strategy for EMEP for 2010-2019 (ECE/EB.AIR/2009/16/Rev.1);

(b) EMEP Revised Monitoring Strategy 2010-2019 (ECE/EB.AIR/GE.1/2009/15);

(c) Long-term Strategy for the Convention on Long-range Transboundary Air Pollution (ECE/EB.AIR/106/Add.1);

(d) The 2016 scientific assessment of the Convention;¹⁸

(e) Policy response to the 2016 scientific assessment of the Convention (ECE/EB.AIR/WG.5/2017/3, ECE/EB.AIR/WG.5/2017/3/Corr.1 and ECE/EB.AIR/2017/4 forthcoming);

(f) Draft 2018-2019 workplan for the implementation of the Convention (ECE/EB.AIR/2017/1).

2. The Chemical Coordinating Centre (CCC) was established by decision of Executive Body to offer to the Parties, the EMEP Task Forces (in particular Task Force on Measurements and Modelling) and other international organizations modelling tool for scientific assessment of past trends and current status in air pollution throughout the ECE region and evaluating the impact of the implementation of the Protocols of the Convention.

3. Within the period of its existence, CCC has supported the Convention and EMEP *inter alia*, through the following actions:

(a) Developed and updated the EMEP monitoring strategy (including quality assurance framework) and supporting the Parties in its implementation to ensure availability of high quality comparable data on air pollution throughout the ECE region;

¹⁸ See Rob Maas and Perine Grennfelt, eds., *Towards Cleaner Air: Scientific Assessment Report 2016* (Oslo, 2016) and United States Environmental Protection Agency and Environment and Climate Change Canada, *Towards Cleaner Air: Scientific Assessment Report 2016 – North America* (2016, online report).

(b) Promoted and disseminated best practices available and recommendations for implementation of the EMEP monitoring strategy, in particular thanks to the provision of the EMEP Manual for Sampling and Chemical Analysis;

(c) Contributed to the improvement of the scientific understanding of the processes that control European air pollution levels through regular intensive measurement campaigns;

(d) Participated to the elaboration of assessment report and trend analyses of air pollution concentrations and deposition in the EMEP domain over the past 40 years;

(e) Developed and maintained of the EBAS database which collects, gathers, checks and publishes all observations and measurements realized by the Parties to the Convention;

(f) Supported and assisted Parties for running new observation sites, especially in the Eastern Europe, the Caucasus and Central Asia.

Annex

Revised mandate for the Chemical Coordinating Centre (CCC)

1. The Chemical coordinating Centre hosted by NILU in Norway, has been carrying out its functions as one of three cooperating international centres of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP) as indicated in Article 1 of the EMEP Protocol to the Convention. It will be responsible for providing scientific support to the Convention with information on measurements of all pollutants and precursors addressed by the Convention.

2. The Centre will assume principal responsibility for coordinating the relevant activities under EMEP including development of technical projects, provision of annual reports and access to all relevant information and data, provision of deliverables according to the workplan, participation in the relevant task force meetings, organization of technical workshops and training workshops, and provision of communication with and direct support to Parties.

3. The Centre will be responsible for the production and the provision with respect to the processes set by the EMEP Steering Body (in particular regarding the time lines) of all information and data necessary for the implementation of the Convention and its Protocols in the Parties.

3. The Centre will report on its activities and deliverables to the EMEP Steering Body.

4. The scientific and technical activities developed by the Centre beyond this mandate should be discussed and approved by the EMEP Steering Body and be included in the biannual workplan.

5. EMEP Centres are co-funded through the Convention trust fund managed by ECE. The draft EMEP budget is developed by the EMEP Steering Body according to the priorities of EMEP and the Convention. The Executive Body decides about the workplan and the associated EMEP budget.

6. The functions of the Centre will be to:

(a) Development and coordination of the observation activities required to assess air pollution across the EMEP geographical domain: (i) Developing and revising the EMEP monitoring activities (monitoring strategy) in collaboration with TFMM, Parties and others; (ii) Assist Parties in implementing the monitoring strategy; Motivate Parties, Agencies and Scientific groups to be involved in EMEP activities; (iii) Make efforts to strengthen activities in regions with inadequate monitoring activities; (iv) Ensure links with other

organizations and programs communities undertaking measurements of atmospheric composition and deposition;

(b) Securing and improving the quality and representativeness of observations (i) developing adequate methodology to support EMEP needs where not available elsewhere, harmonization with CEN, ISO and the Metrology community etc. (ii) responsible for developing and updating the measurement guidelines and standard operation procedures in co-operation with TFMM, WMO/GAW and others (iii) responsible for organizing training courses and undertaking site visits (selection of new sites, audits) and laboratory audits; (iv) arranging regular laboratory intercomparisons for all variables required by the EMEP monitoring strategy, and linking results to data usage and interpretation; (v) arranging field intercomparisons; Assessment of representativeness of observations;

(c) Quality assurance and quality control of data submitted by Parties (i) Development of data reporting templates allowing sufficient meta-data provision; (ii) Training and assistance to personnel involved in data reporting; (iii) Technical handling of data flow; Check of individual datasets submitted, including statistical methods, visual inspection of time series plots, consistency in time and space; bi-lateral discussions, corrections and re-submissions with data originators;

(d) Archival and dissemination of observation data and associated meta-data to users (<http://ebas.nilu.no>) including development and operational support of the underlying IT-infrastructure used to host data and provision of access to data for operational users (other EMEP centers, external modeling groups, external users (EEA, WMO-GAW, COPERNICUS, others);

(e) Improve timeliness of observation data to users (EMEP Near-Real-Time);

(f) Assessment of data and information to stakeholders about results from monitoring activities;

(g) Support Parties, EMEP centres and others in data assessments and interpretations; Offer expert advice in the use of data, taking into account knowledge about data quality and other metadata; Prepare data reports providing status of observations and main findings;

(h) Contribute to the EMEP Status reports prepared for the EMEP Steering Body; Serve the interest of EMEP monitoring activities towards relevant activities under other frameworks to ensure harmonization, efficient use of resources and multiple use of data. Promote the use of EMEP observations in supporting European scale assessment of air pollution and source apportionment with respect to monitoring required in response to EU-directives; maintain links to external bodies addressing similar issues within Europe (EEA, HELCOM, OSPAR, others); maintain links to external bodies addressing similar issues outside Europe (AMAP, WMO-GAW, UNEP Stockholm Convention, UNEP Minamata Convention, regional programs in Northern America, South East Asia and elsewhere (in collaboration with HTAP); Promote EMEP observations as a contribution to COPERNICUS and GEOSS; Encourage the involvement of research groups to ensure implementation of EMEP Level 2 and Level 3 monitoring activities;

(j) Report on its activities and deliverables to the Steering Body to EMEP and Working Group on Effects and participate in annual meetings of the relevant Task Forces (TFMM, TFHTAP);

(k) Carry out other tasks assigned to it by the EMEP Steering Body and the Executive Body.

G. Revised mandate for the EMEP Centre on Emission Inventories and Projections (CEIP)

1. The mandates for EMEP Centres need to be revised and updated to make them consistent with provisions and priorities of the Convention and EMEP set in the following documents

- (a) Revised Strategy for EMEP for 2010-2019 (ECE/EB.AIR/2009/16/Rev.1);
- (b) EMEP Revised Monitoring Strategy 2010-2019 (ECE/EB.AIR/GE.1/2009/15);
- (c) Long-term Strategy for the Convention on Long-range Transboundary Air Pollution (ECE/EB.AIR/106/Add.1);
- (d) The 2016 scientific assessment of the Convention;¹⁹
- (e) Policy response to the 2016 scientific assessment of the Convention (ECE/EB.AIR/WG.5/2017/3, ECE/EB.AIR/WG.5/2017/3/Corr.1 and ECE/EB.AIR/2017/4 forthcoming);
- (f) Draft 2018-2019 workplan for the implementation of the Convention (ECE/EB.AIR/2017/1);
- (g) Guidelines for Reporting Emissions and Projections Data under the Convention (ECE/EB.AIR/125);
- (h) Methods and procedures for the technical review of air pollutant emission inventories reported under the Convention and its protocols (ECE/EB.AIR/GE.1/2007/16).

General functioning of a centre under EMEP

2. CEIP hosted by Environmental Agency Austria (UBA) collects emissions and projections of acidifying air pollutants, heavy metals, particulate matter and photochemical oxidants from Parties to the Convention, reviews submitted inventories in order to improve the quality of reported data, prepares data sets as input for long-range transport models and provides support to the Parties, the secretariat and the Implementation Committee.

3. CEIP also operates the ECE/EMEP emission database (WebDab) which contains information on emissions and projections from all Parties to the Convention in separate data sets: official emissions as submitted by Parties, emissions used in EMEP models (gap-filled emissions), gridded emissions, large point sources (LPS) and officially reported activity data. All reported data and data for modellers in online system accessible by public.

4. All data reported by Parties are stored in database systems. In addition, emission data are presented in interactive data viewers. Results of initial checks are provided to Parties annually. CEIP organised two cycles of in-depth review of emission inventories since 2008. Up to 10 Parties are reviewed annually, 44 in one five year cycle. CEIP developed system for annual review of adjustment applications. Reported applications are assessed since 2015, recommendations of ERT are submitted to EMEP SB in Status report. Module based gridding system in new resolution (0.1 x 0.1 longitude/latitude) is in place and can provide data for modellers. Joint Technical reports on (HMs) and POPs on current

¹⁹ See Rob Maas and Peringe Grennfelt, eds., *Towards Cleaner Air: Scientific Assessment Report 2016* (Oslo, 2016) and United States Environmental Protection Agency and Environment and Climate Change Canada, *Towards Cleaner Air: Scientific Assessment Report 2016 – North America* (2016, online report).

situation, gap filling and methodologies used for gap filling, gridding, discrepancies between reported and expert emission estimates was published.

Annex

Revised mandate for the Centre on Emission Inventories and Projections

1. The Centre will assume principal responsibility for coordinating the relevant activities under EMEP including development of technical projects, provision of deliverables according to the workplan (including annual reports and access to all relevant information and data), participation in the relevant task force meetings, organizing technical workshops and training workshops, and providing communication with and direct support to Parties.
2. The Centre will be responsible for the production and the provision with respect to the processes set by the EMEP Steering Body (in particular regarding the time lines) of all information and data necessary for the implementation of the Convention and its Protocols in the Parties.
3. The Centre will report on its activities and deliverables to the Steering Body to the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP).
4. The scientific and technical activities developed by the Centre should be discussed and approved by the EMEP Steering Body and be included in the biannual workplan.
5. EMEP Centres are co-funded through the Convention trust fund managed by ECE. The draft EMEP budget is developed by the EMEP Steering Body according to the priorities of EMEP and the Convention. The Executive Body decides about the workplan and the associated EMEP budget.
6. The functions of the Centre will be to plan and conduct its technical work:
 - (a) Compilation of emission data reported by Parties to the Convention and their import into the CEIP database. Maintain and improve of EMEP/CEIP database system and CEIP website. Adjust the database system (WebDab, RepDab) according to new reporting requirements and reporting formats. Make reported data accessible to public on the web;
 - (b) Carry out annual quality control of inventories reported under the Convention. Evaluate timeliness, consistency, completeness of submitted data. Plan and organise annual technical in-depth review of submitted inventories. Regularly improve/develop new tests for emission checking. Set up review teams and communicate with Parties. Communicate the results to the Parties and the EMEP Steering Body;
 - (c) Development of data sets for modellers, i.e. develop gridded data of EMEP pollutants for EMEP area. In particular calculate expert estimates for missing data and use "Module based gridding system and proxies for the spatial distribution of gap-filled emission data for the new EMEP grid domain in geographical coordinates (0.1° x 0.1° longitude/latitude). Develop distribution of emissions for Parties which do not report gridded data. Perform checks of gridded data. In transition period provide gridded data also in resolution 50 x 50km EMEP grid if requested;
 - (d) Support ECE secretariat by review compliance with reporting obligations: periodic review of compliance with Parties' reporting obligations, based on emission and projection data submitted to EMEP and available in the WebDab emission database;
 - (e) Support EMEP by managing review of adjustment applications to emission reduction commitments or inventories and any supporting documentation submitted by Parties in accordance with Executive Body decisions 2012/3, 2012/4 and 2012/12. Set up review teams and communicated with Parties. Maintain the on line database system for

storage and review of approved adjustments and supporting documentation provided by Parties;

(f) Assessing emission uncertainties by comparison of Convention data with emission data from other sources - the Joint Research Centre of the European Commission, the International Institute for Applied Systems Analysis (IIASA), UNFCCC (MACC optional), other - and quantification of the differences;

(g) CEIP closely cooperates with ECE secretariat, TFEIP and EEA by capacity building activities (trainings, workshops, country visits) in Eastern Europe, the Caucasus and Central Asia. Furthermore, CEIP provides online ad hoc support to technical experts from the region;

(h) CEIP work builds on the emission related work within EMEP, close cooperation is maintained with the other EMEP centers: CIAM, MSC-E, MSC-W and AMAP. Important collaboration partners are also the ECE secretariat, the TFEIP, TFMM, the Austrian Ministry of Environment, the EEA, Joint Research Centre of the European Commission and the European Commission;

(i) Carry out other tasks assigned to it by the EMEP Steering Body and the Executive Body.

H. Revised mandate for the EMEP Meteorological Synthesizing Centre-East (MSC-E)

1. The mandates for EMEP Centres need to be revised and updated to make them consistent with the current provisions and priorities of the Convention and EMEP set in the following documents:

(a) Revised Strategy for EMEP for 2010-2019 (ECE/EB.AIR/2009/16/Rev.1);

(b) EMEP Revised Monitoring Strategy 2010-2019 (ECE/EB.AIR/GE.1/2009/15);

(c) Long-term Strategy for the Convention on Long-range Transboundary Air Pollution (ECE/EB.AIR/106/Add.1);

(d) The 2016 scientific assessment of the Convention,²⁰

(e) Policy response to the 2016 scientific assessment of the Convention (ECE/EB.AIR/WG.5/2017/3, ECE/EB.AIR/WG.5/2017/3/Corr.1 and ECE/EB.AIR/2017/4 forthcoming);

(f) Draft 2018-2019 workplan for the implementation of the Convention (ECE/EB.AIR/2017/1).

The revised mandates will include key objectives and functions of the task forces and centres. The mandates are expected to be in force for the next 5 to 10 years. Specific activities and related deliverables on a shorter timeframe will be included in the bi-annual workplans for the implementation of the Convention.

2. The Meteorological Synthesizing Centre-East (MSC-E) was established by decision of Executive Body to offer to the Parties, the EMEP task forces (in particular the Task Force

²⁰ See Rob Maas and Peringe Grennfelt, eds., *Towards Cleaner Air: Scientific Assessment Report 2016* (Oslo, 2016) and United States Environmental Protection Agency and Environment and Climate Change Canada, *Towards Cleaner Air: Scientific Assessment Report 2016 – North America* (2016, online report).

on Measurements and Modelling, the Task Force of Hemispheric Transport of Air Pollution) and other international organizations modelling tool for scientific assessment of past and future trends in air pollution throughout the ECE region and evaluating the impact of the implementation of the Protocols of the Convention.

3. Within the period of its existence, MSC-W has supported the Convention and EMEP *inter alia*, through the following actions:

(g) Continuously maintained and fostered the development of modelling tools that are essential for the verification of the impact of the actions taken on pollutants emission reduction in the ECE region, in particular for heavy metals and persistent organic pollutants (POPs);

(h) Extended the EMEP model to the global scale to support assessment of the impact of heavy metals and POPs in the Northern hemisphere;

(i) Contributed to the evaluation and improvement of emission data reported by the Parties and supporting the Centre on Emission Inventories and projection in gap filling for heavy metals and POPs emissions not correctly documented;

(j) Participated to the elaboration of assessment report and trend analyses of air pollution concentrations and deposition in the EMEP domain over the past 40 years;

(k) Conducted several pilot studies with national experts to investigate the reasons of discrepancies between emissions, measurements and modelling results in some countries;

(l) Supported sharing, use and evaluation of EMEP models as tools for the assessment of air pollution transport and deposition at national and regional levels by the Parties.

Annex

Revised mandate for the Meteorological Synthesizing Centre-East (MSC-E)

1. The Meteorological Synthesizing Centre-East has been carrying out its functions as one of three cooperating international centres of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP) as indicated in Article 1 of the EMEP Protocol to the Convention. It will be responsible for providing scientific support to the Convention with information on modelling of heavy metals (lead (Pb), cadmium (Cd), and mercury (Hg)) and persistent organic pollutants (POPs, including polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), dibenzo-p-dioxins and dibenzofurans (PCDD/Fs), and hexachlorobenzene (HCB)).

2. The Centre will assume principal responsibility for coordinating the relevant activities under EMEP including development of technical projects, provision of annual reports and access to all relevant information and data, provision of deliverables according to the workplan, participation in the relevant task force meetings, organization of technical workshops and training workshops, and provision of communication with and direct support to Parties.

3. The Centre will be responsible for the production and the provision with respect to the processes set by the EMEP Steering Body (in particular regarding the time lines) of all information and data necessary for the implementation of the Convention and its Protocols in the Parties.

3. The Centre will report on its activities and deliverables to the Steering Body to the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP).

-
4. The scientific and technical activities developed by the Centre beyond this mandate should be discussed and approved by the EMEP Steering Body and be included in the biannual workplan.
 5. EMEP Centres are co-funded through the Convention trust fund managed by ECE. The draft EMEP budget is developed by the EMEP Steering Body according to the priorities of EMEP and the Convention. The Executive Body decides about the workplan and the associated EMEP budget.
 6. The functions of the Centre will be to:
 - (a) Prepare data on anthropogenic emissions of heavy metals and POPs on regional (EMEP domain) and global scales including auxiliary parameters (e.g. emission height, temporal variation, chemical composition etc.) as input for operational modelling based on gridded emission dataset provided by Centre for Emission Inventories and Projections (CEIP) and expert estimates;
 - (b) Prepare input data required for modelling of heavy metals and POPs on regional and global scales, including wind suspension of mineral dust as well as atmospheric concentrations of chemical reactants and particulate matter;
 - (c) Collect and process measurement data for evaluation of model performance from various monitoring networks and databases (e.g. EBAS, AirBase, GMOS, UNEP SC GMP Data Warehouse, etc.);
 - (d) Update the modelling tools with new findings and improved parameterizations developed by the Centre in its research activities in accordance with the bi-annual work-plan and cooperation with scientific community;
 - (e) Perform simulations of heavy metals and POPs dispersion on a global scale for evaluation of intercontinental transport of Hg and POPs and its impact on pollution levels in the EMEP countries;
 - (f) Perform further testing and evaluation of model performance in simulations of air concentration and deposition levels as well as source-receptor relationships of heavy metals and POPs on the new EMEP grid;
 - (g) Perform operational model assessment of heavy metal (Pb, Cd, and Hg) and POP (PAHs, PCBs, PCDD/Fs, and HCB) pollution levels over the EMEP domain;
 - (h) Perform quality assurance and quality control of modelling results through evaluation against measurements from the EMEP and other monitoring networks;
 - (i) Provide support of Parties to the Convention with use of the model assessment results and access to the modeling tools. In particular, present and discuss results of the national scale case studies and other research activities on heavy metal and POP pollution with fine resolution;
 - (j) Prepare annual Status Reports and individual country reports for the EMEP countries and make results of model calculations available online at the MSC-E website; develop and maintain a website in Russian to facilitate access to information by countries in Eastern Europe, the Caucasus and Central Asia;
 - (k) Continue collaboration with ICP-Vegetation on evaluation of heavy metal pollution levels in Europe using modeling results and measurements in mosses and develop cooperation with other International Cooperative Programmes; provide support of the Coordination Centre for Effects (CCE) with information on ecosystem-specific deposition heavy metals and POPs for assessment of critical load exceedances; contribute to the Task Force on Health with information on toxic substances (PAHs, PCDD/Fs and others);
 - (l) Working Group on Effects: Cooperate on dissemination of information and data exchange with international bodies including UNEP, AMAP, Stockholm Convention,

Minamata Convention, HELCOM, etc.;

(m) Report on its activities and deliverables to the Steering Body to EMEP and Working Group on Effects and participate in annual meetings of the relevant Task Forces (TFMM, TFHTAP).

(n) Carry out other tasks assigned to it by the EMEP Steering Body and the Executive Body.

I. Revised mandate for the EMEP Meteorological Synthesizing Centre-West (MSC-W)

1. The mandates for EMEP Centres need to be revised and updated to make them consistent with provisions and priorities of the Convention and EMEP set in the following documents:

(a) Revised Strategy for EMEP for 2010-2019 (ECE/EB.AIR/2009/16/Rev.1);

(b) EMEP Revised Monitoring Strategy 2010-2019 (ECE/EB.AIR/GE.1/2009/15);

(c) Long-term Strategy for the Convention on Long-range Transboundary Air Pollution (ECE/EB.AIR/106/Add.1);

(d) The 2016 scientific assessment of the Convention;²¹

(e) Policy response to the 2016 scientific assessment of the Convention (ECE/EB.AIR/WG.5/2017/3, ECE/EB.AIR/WG.5/2017/3/Corr.1 and ECE/EB.AIR/2017/4 forthcoming);

(f) Draft 2018-2019 workplan for the implementation of the Convention (ECE/EB.AIR/2017/1).

The revised mandates will include key objectives and functions of the task forces and centres. The mandates are expected to be in force for the next 5 to 10 years. Specific activities and related deliverables on a shorter timeframe will be included in the bi-annual workplans for the implementation of the Convention.

2. The Meteorological Synthesizing Centre-West (MSC-W) was established by decision of the Executive Body to offer to the Parties, the EMEP Task Forces (in particular Task Force on measurement and Modelling, Task Force of Hemispheric Transport of Air Pollution) and other international organizations modelling tool for scientific assessment of past and future trends in air pollution throughout the ECE region and evaluating the impact of the implementation of the Protocols of the Convention.

3. Within the period of its existence, MSC-W has supported the Convention and the EMEP programme *inter alia*, through the following actions:

(a) Continuously maintained and fostered the development of modelling tools that are essential for the verification of the impact of the actions taken on pollutants emission reduction and the assessment of transboundary air pollution fluxes in the ECE region;

²¹ See Rob Maas and Perine Grennfelt, eds., *Towards Cleaner Air: Scientific Assessment Report 2016* (Oslo, 2016) and United States Environmental Protection Agency and Environment and Climate Change Canada, *Towards Cleaner Air: Scientific Assessment Report 2016 – North America* (2016, online report).

-
- (b) Provided the Center on Integrated Assessment Modelling (CIAM) with source/receptor matrices computed annually to feed the GAINS model;
 - (c) Extended the EMEP model to the global scale to support assessment of source/receptor relationships between regions in the Northern hemisphere;
 - (d) Contributed to the evaluation of emission data reported by the Parties implementing gridded emission inventories in the EMEP model and evaluating its performances against observations;
 - (e) Participated to the elaboration of assessment report and trend analyses of air pollution concentrations and deposition in the EMEP domain over the past 40 years;
 - (f) Investigated methodologies to build up linkages between regional and local air pollution patterns;
 - (g) Supported sharing, use and evaluation of EMEP models as tools for the assessment of air pollution transport and deposition at national and regional levels by the Parties.

Annex

Revised mandate for the Meteorological Synthesizing Centre-West (MSC-W)

1. The Meteorological Synthesizing Centre-West hosted by Norwegian Meteorological Institute, will be responsible for providing scientific support to the Convention on atmospheric modelling of photochemical compounds, sulphur, nitrogen and particulate matter.
2. The Centre will assume principal responsibility for coordinating the relevant activities under EMEP including development of technical projects, provision of annual reports and access to all relevant information and data, provision of deliverables according to the workplan, participation in the relevant task force meetings, organization of technical workshops and training workshops, and provision of communication with and direct support to Parties.
3. The Centre will be responsible for the production and the provision with respect to the processes set by the EMEP Steering Body (in particular regarding the time lines) of all information and data necessary for the implementation of the Convention and its Protocols in the Parties.
3. The Centre will report on its activities and deliverables to the Steering Body to the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP).
4. The scientific and technical activities developed by the Centre beyond this mandate should be discussed and approved by the EMEP Steering Body and be included in the biannual workplan.
5. EMEP Centres are co-funded through the Convention trust fund managed by ECE. The draft EMEP budget is developed by the EMEP Steering Body according to the priorities of EMEP and the Convention. The Executive Body decides about the workplan and the associated EMEP budget.
6. The functions of the Centre will be to:
 - (a) Perform model simulations to trace progress towards the existing emission control protocol and support the design of new or revised Protocols, when necessary;
 - (b) Provide annual assessment of transboundary air pollution fluxes inside the EMEP area; source-receptor matrices, air concentrations and deposition fields for the EMEP domain for photochemical compounds, sulphur, nitrogen and particulate matter for

the most recent year where emissions are available. Update historic model runs when necessary to keep consistency with previous years;

(c) Maintain the EMEP/MSC-W model as ‘state-of-the-art’. Evaluate results of the EMEP/MSC-W model using EMEP data, as well as measurement data from other networks and projects. Improve methodologies and understanding of processes, parametrizations, emissions and linkages to climate and vegetation impacts;

(d) Facilitate the use of the EMEP MSC-W model by Parties, e.g. by maintaining an updated open source code on the web and providing training courses for EMEP/MSC-W model users. Provide annual country reports with model products and web access to model results, including data on high temporal resolution and source-receptor matrices, for use in air quality assessment by Parties;

(e) Provide support and facilitate involvement of Parties in Eastern Europe, the Caucasus and Central Asia, e.g. by providing country reports in Russian, target country participation to EMEP/MSC-W model training courses, provide support on the use of EMEP data and tools;

(f) Collaborate with CCC, CEIP, CIAM, TFMM, TFEIP, TFHTAP, TFIAM and Working Group on Effects on 1) interpretation, evaluation and assessment of measured and modelled air pollution, including intercontinental transport, 2) evaluation and improvement of emission inventories, 3) use of EMEP/MSC-W model results in integrated assessment and 4) risk of air pollution damage to vegetation and health.

(g) Continue cooperation with the Baltic Marine Environment Protection Commission (HELCOM) and the Commission for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Commission) on nitrogen deposition to sea areas, with a specific focus on ship emissions. Explore options for cooperation between EMEP and the European Union programmes such as Copernicus Atmosphere Monitoring Services, focusing on regional assessments. Support the Arctic Council’s Arctic Monitoring and Assessment Programme on modelling of SLCP impacts. Collaborate with AeroCom (Aerosols Comparisons between Observations and Models) and AerChemMIP (The Aerosol Chemistry Model Intercomparison Project within CMIP6) on the climate impacts of SLCP’s;

(h) Carry out other tasks assigned to it by the EMEP Steering Body and the Executive Body.
