

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

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 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

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).

reports², 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*.³ 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;

(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;

² See www.wge-cce.org.

³ 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.

(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.
