



**Economic and Social
Council**

Distr.
GENERAL

EB.AIR/1999/7/Add.1
12 October 1999

Original: ENGLISH

ECONOMIC COMMISSION FOR EUROPE

EXECUTIVE BODY FOR THE CONVENTION ON
LONG-RANGE TRANSBOUNDARY AIR POLLUTION

Seventeenth session, Gothenburg (Sweden)
(29 November - 3 December 1999)
Item 9 of the provisional agenda

**DRAFT 2000 WORK-PLAN FOR THE IMPLEMENTATION OF THE CONVENTION
ON LONG-RANGE TRANSBOUNDARY AIR POLLUTION**

Addendum

Note by the secretariat

The EMEP work-plan for 2000 is presented as an addendum to document EB.AIR/1999/7 due to the timing of the Steering Body's twenty-third session. 2000 will be a year of transition for EMEP. The future organization of work under the Convention (EB.AIR/1999/5) will bring two new task forces and one new centre under EMEP and will affect the work of the existing task force. The work-plan set out below incorporates these changes and, in particular, item 1.4 (integrated assessment modelling) of EB.AIR/1999/7. Parties are also expected to increase their scientific contributions to EMEP. Furthermore, in 2000 the Steering Body will be in the middle of redefining the strategic goals of EMEP. The outcome will be taken into account in the 2001 work-plan. At its twenty-third session, the EMEP Steering Body decided to finalize a document on the long-term strategic objectives of EMEP and action plans for each thematic area of work: acidification and eutrophication, photo-oxidants, heavy metals, persistent organic pollutants, and fine particulates (EB.AIR/GE.1/1999/2, paras. 9-17). The Steering Body had already considered the objectives of these areas at its twenty-second session in 1998, when it also decided on some concrete action for the seventh phase (1999-2001). In the seventh-phase programme (EB.AIR/GE.1/1998/3 and Rev.1), it had also, for the first time, voiced the need to change the structure of the EMEP work-plan, and accordingly also the reporting of EMEP results, making them substance-oriented rather than centre-oriented starting already in 1999.

Documents prepared under the auspices or at the request of the Executive Body for the Convention on Long-range Transboundary Air Pollution for GENERAL circulation should be considered provisional unless APPROVED by the Executive Body.

2. COOPERATIVE PROGRAMME FOR MONITORING AND EVALUATION OF THE LONG-RANGE TRANSMISSION OF AIR POLLUTANTS IN EUROPE (EMEP)

The overall objectives of the EMEP work are defined in the mandate of the Steering Body (EB.AIR/1999/5, annex III). It will provide sound scientific support for the Convention, in particular in the areas of atmospheric monitoring and modelling, emission inventories and emission projections, and integrated assessment. The draft EMEP budget for 2000 is detailed in document EB.AIR/1999/8. As indicated in the budget, the implementation of the work programme at the Meteorological Synthesizing Centre-West requires extrabudgetary resources.

The EMEP work programme is carried out by the Parties^{1/} together with the Chemical Coordinating Centre (CCC), the two Meteorological Synthesizing Centres (MSC-E and MSC-W) and the Centre for Integrated Assessment Modelling (CIAM) in cooperation with the World Meteorological Organization (WMO). At its twenty-third session, the Steering Body agreed to increase scientific contributions from Parties to EMEP and to intensify cooperation between EMEP and all other relevant international organizations and programmes. **Therefore, the Parties are, for the first time in the context of this work-plan, invited to make proposals by 31 March 2000 for national research work that would support EMEP and could be included as voluntary contributions in the EMEP work-plan for 2001 (the final year of the seventh phase) or later.** Based on the proposals, the Steering Body Bureau will in April 2000 prepare the issue for further discussion at the Steering Body's twenty-fourth session.

In 2000, the Steering Body will finalize a document on the long-term strategic objectives of EMEP and action plans for each of the five thematic areas of its work.

A new task force will be set up to offer a forum to the Parties, the EMEP centres and other international organizations for scientific discussions on air quality measurements, modelling and assessment, together with further development of methods and tools for measurements and modelling, including quality assurance. The Task Force will be led by Austria (to be confirmed) and co-chaired by WMO. The first meeting of the Task Force will take place in 2000 to consider, in particular, the harmonization of EMEP sampling and analysis for acidifying and eutrophying pollutants and photo-oxidants and to prepare recommendations on any changes needed in the measurement programme of these pollutants. The Task Force will also prepare a proposal on main issues that it will consider during the next three to five years. These themes will be included under the relevant thematic areas in the work-plans for 2001 and onwards.

1/ The Parties pay mandatory financial contributions to cover the annual costs of international centres cooperating with EMEP. They also contribute to EMEP by monitoring air pollutants and reporting data and results, as requested in the Convention and its Protocols and detailed in the subsequent decisions of the Steering Body and the Executive Body. According to the EMEP Protocol, the Parties may also make voluntary contributions - either financial or scientific.

2.1. EMISSIONS

Description/objectives: EMEP emission inventory activities aim to help the Parties to fulfil their reporting tasks, store the reported emission data and control their quality; report on the available data; evaluate emission inventory requirements under the Convention to ensure an adequate flow of reliable information on emissions and emission projections; provide information to monitor compliance with international emission control agreements, and, as far as possible, cooperate and harmonize emission information with other relevant international work. The Task Force on Emission Inventories provides a technical forum and expert network to discuss, exchange information and harmonize emission factors, methodologies, projection models and reporting. CIAM/IIASA will contribute to this work in particular by studying emission projections, including the consequences of implementing current legislation.

Main activities and time schedule:

(a) All Parties will submit their 1999 emission data from the territories covered by EMEP for SO_x, NO_x, NMVOCs, CH₄, NH₃, CO, HMs (priority metals: Cd, Hg and Pb) and selected POPs and possible updates of previous figures to the secretariat by 31 December 2000, in accordance with the newly revised guidelines and making use of the latest edition of the Atmospheric Emission Inventory Guidebook. National totals, sectoral data (SNAP level 1) and sub-sectoral data (SNAP level 2) should be reported. For CO₂, the same data as reported under the United Nations Framework Convention on Climate Change should be submitted;

(b) MSC-W, together with the secretariat, will report on 1980-1998 emissions and the status of verification to the Steering Body at its twenty-fourth session. The report will then also be available for the Implementation Committee's meeting in September 2000. The latest data will be made available to the Executive Body at its eighteenth session for consideration in the context of the strategies and policies;

(c) MSC-W, in cooperation with CIAM/IIASA, the European Environment Agency's Topic Centre on Air Emissions, the secretariat, the other EMEP centres and the experts of the Task Force, will develop further methods and a scientific basis for compliance monitoring, verifying emission data and controlling their quality;

(d) MSC-W and the secretariat, in cooperation with the Chairman of the Task Force and in consultation with the other EMEP centres, will finalize a proposal for the emission reporting guidelines for consideration at the twenty-fourth session of the Steering Body and for approval by the Executive Body at its eighteenth session;

(e) The Task Force on Emission Inventories will increase its work on the verification of emission data and on emission projections. It will prepare the further extension of the Guidebook to give more detailed information on VOC species and to cover particulate matter (including issues such as particle size distribution, chemical composition, link to HM emission inventories), and also emissions of high-molecular weight VOCs, which are precursors of secondary organic particulate matter. The ninth meeting of the Task Force will take place in Italy in June 2000.

2.2 DEPOSITION OF ACIDIFYING AND EUTROPHYING COMPOUNDS

Description/objectives: Provide monitoring and modelling data on concentrations, depositions and transboundary fluxes of sulphur and nitrogen compounds over Europe. Analyse the past, present and future situation in Europe with regard to the exceedance of critical loads of acidifying and eutrophying depositions, in collaboration with the Coordination Center for Effects (CCE). Analyse scenarios on cost-effective reduction of acidification, eutrophication, tropospheric ozone and related phenomena. Provide information to monitor compliance with international emission control agreements.

Main activities and time schedule:

(a) The Parties will report their monitoring results to CCC twice a year: by 1 December data from January to June, and by 1 June data from July to December. CCC will assist countries to monitor nitrogen compounds and carry out quality assurance, in cooperation with the national quality assurance managers, and store data in the monitoring database. The exchange of monitoring information and experiences with the WMO/Global Atmospheric Watch Programme, North American experts and other European research groups will be continued and increased;

(b) CCC and MSC-W will together coordinate the study of the EMEP monitoring stations' representativeness in collaboration with national experts. MSC-W and CCC will develop methods to support the national experts in the development of EMEP-related activities at national level and investigate further the monitoring network design in view of the evolving needs of the Convention;

(c) MSC-W will calculate the annual transboundary transport of sulphur and nitrogen compounds with the Eulerian model. On request, it will supply specific additional information for the joint implementation of the 1994 Sulphur Protocol. In collaboration with CIAM/IIASA, MSC-W will evaluate and report on the uncertainty of source-receptor matrices as extrapolated to 2010 calculations. CCC and MSC-W will together evaluate trends in concentrations and depositions of acidifying pollutants as can be derived from the present EMEP data and jointly report on their analysis;

(d) MSC-W and CCC will explore new methods for evaluating and validating EMEP results. MSC-W aims at increasing the accuracy of the EMEP model results to 30% agreement with measurements and will review, as necessary, the current parametrizations of dry and wet depositions in the EMEP acid deposition model;

(e) The Task Force on Integrated Assessment Modelling, led by the Netherlands, will continue to evaluate the effects of specific control measures and give long-term guidance on the most cost-effective way of achieving environmental goals, with the assistance of CIAM/IIASA and in close collaboration with the related work led by the European Commission. Modelling will cover abatement options for reducing sulphur, nitrogen oxides, ammonia and volatile organic pollutants, including structural measures in energy, transport and agriculture, and their costs. It will, in cooperation with the

Working Group on Effects, also analyse the environmental and health effects and the economic benefits of emission reductions. MSC-W will provide scientific input on the modelling of transport of pollutants to IIASA. The Nordic Council of Ministers and the Swedish ASTA Programme will organize a workshop to examine the scientific need for future revisions to the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone in Sweden on 10-11 April 2000. The Task Force on Integrated Assessment Modelling will also meet in Sweden on 12-14 April 2000. In the light of the Workshop and based on the discussions during its twenty-fourth meeting (EB.AIR/WG.5/1999/14, chapter IV), the Task Force will prepare integrated assessment modelling issues for the EMEP long-term strategy paper, including also work for reviewing the new multi-pollutant Protocol;

(f) All results will be put on the EMEP website once the Steering Body has derestricted them. Specific attention will be given to the reporting to the Baltic Marine Environment Protection Commission (HELCOM) and the Oslo-Paris Commission for the Protection of the Marine Environment of the North-East Atlantic (OSPARCOM), as agreed between EMEP and these organizations;

(g) The EMEP centres, in cooperation with WMO, will organize a third workshop on data analysis and interpretation in Slovenia in 2000/2001;

(h) The first meeting of the Task Force on Measurements and Modelling will be held in 2000 to consider the harmonization of EMEP sampling and analysis for acidifying and eutrophying pollutants and photo-oxidants and to prepare recommendations on any changes needed in the measurement programme of these pollutants. The Task Force will also prepare a proposal on main issues that it will consider during the next three to five years.

2.3 PHOTO-OXIDANTS

Objectives/Description: Provide monitoring results on ozone and volatile organic compounds (VOCs). Develop and verify the EMEP Eulerian photo-oxidant model aiming at a common oxidant/acidification model. Evaluate short- and long-term exposures to photochemical oxidants and develop new methods for the analysis of damage, in collaboration with the Working Group on Effects. Analyse different scenarios on cost-effective reduction of ground-level ozone in cooperation with CIAM/IIASA as considered in point 2.2 above.

Main activities and time schedule:

(a) The Parties will report their ozone and VOC monitoring results to CCC as described above for acidifying pollutants. CCC will carry out quality assurance and store data. It will continue and extend, financial resources permitting, the measurements of aldehydes and ketones and organize as part of an EU project a laboratory intercomparison of hydrocarbon measurements. It will improve the collection of ozone measurement results from existing national and other international ozone networks to increase their spatial coverage;

(b) MSC-W will calculate the short-term exposures to photochemical oxidants for vegetation periods, and the potential exposure of humans. It will include more sophisticated plant uptake mechanisms in the modelling and review exposure calculations. It will also compare the Lagrangian and the multi-layer ozone models and develop further a coupled acid rain and

photochemical model;

(c) MSC-W and CCC will together review the possibility of evaluating ozone trends over Europe and review the present status of the monitoring and quality assurance activities for photo-oxidants under EMEP;

(d) MSC-W will evaluate the effects of specific control measures on photo-oxidants in cooperation with CIAM/IIASA (see point 2.2 (e) above).

2.4 HEAVY METALS (HMs)

Description/objectives: Provide more monitoring and modelling data on concentrations, depositions and transboundary fluxes of cadmium, lead and mercury over Europe. Develop further the Pb, Cd and Hg transport models in parallel with the further development of HM critical limits under the Working Group on Effects.

Main activities and time schedule:

(a) During 2000, the Parties, in cooperation with CCC, will establish an EMEP network for trace metals, with first priority elements Hg, Cd and Pb and second priority elements Cu, Zn, As, Cr and Ni. About ten monitoring sites in defined areas would be sufficient to support modelling purposes in Europe according to the work-plan for 1999: in northern and southern Scandinavia, western Russia/Belarus, southern Finland/Baltic, Baltic/Poland, central Europe/Czech Republic/Slovakia/Hungary, Balkan, Ireland/United Kingdom, Portugal/Spain, southern France/Italy, and Germany/Netherlands. The Joint Research Centre at Ispra (Italy) and CCC, in cooperation with other organizations, will organize a technical workshop in spring 2000 to share experience and consider the details of HM sampling and analytical procedures, quality assurance and laboratory comparisons. CCC will also continue the work on the HM standard operating procedures and quality control routines for the EMEP manual for sampling and chemical analysis. CCC and the Swedish Air Research Institute will organize a training course on Hg measurements. CCC will also continue to collect HM measurement results from existing national and other international networks. CCC will, in cooperation with the relevant universities in Norway and Sweden, convert the moss surveys from 1995 to deposition maps;

(b) MSC-E will continue the assessments of Pb and Cd. It will cooperate with MSC-W and the experts of the Task Force on Emission Inventories in the verification of HM emission data quality. In close cooperation with CCC, the modelling results will be checked against measurements. MSC-E will further study wet and dry deposition schemes in view of particle size distribution and continue sensitivity studies and uncertainty analysis. It will also develop further the mercury models and organize a mercury model intercomparison. Moreover, it will continue to share information and analyses of the scientific results with other international and national programmes, such as EUROTRAC/MEPOP;

(c) MSC-E will report on the recommendations of the Workshop on Modelling of Atmospheric Transport and Deposition of POPs and HMs (Geneva, November 1999) organized in cooperation with WMO, UNEP and EUROTRAC at the twenty-fourth session of the Steering Body;

(d) CCC and MSC-E will together report on HM measurements and modelling results. Specific attention will be given to the reporting to the marine commissions HELCOM and OSPARCOM, as agreed. Both centres will put their detailed data on the EMEP website.

2.5 PERSISTENT ORGANIC POLLUTANTS (POPs)

Description/objectives: Increase the provision of monitoring and modelling data on transboundary fluxes, concentrations and depositions of selected POPs over Europe. Develop the modelling bases of selected POPs (lindane, PAHs, PCBs (PCB-28, 52, 101, 118, 138, 153, 180) and some PCDD/Fs) and verify the functioning of the models. Study further the physico-chemical processes of POPs in different environmental compartments, taking also into account their transport within the EMEP region and on the hemispheric/global scale.

Main activities and time schedule:

(a) In 2000, the Parties, in cooperation with CCC, will set up an EMEP network for POP measurements. As a first step PAH, PCB, HCB, chlordane, lindane, α -HCH, DDT/DDE should be included in the EMEP measurement programme at five sampling sites: Scandinavia/Baltic, northern Atlantic region, continental Europe, Mediterranean region, south Atlantic region. To this end, financial support to laboratories able and willing to analyse samples from one or more countries may be necessary, or one central laboratory should be found. CCC will continue to collect the monitoring data on POPs available from other international programmes. The laboratory comparison initiated by CCC in 1999 will continue through most of 2000. The results will be discussed at a small workshop, to be organized in October/November 2000. CCC will also continue the work on the POP standard operating procedures and quality control routines for the manual for sampling and chemical analysis;

(b) MSC-E will study physico-chemical properties of selected POPs (see the list above). It will analyse and summarize scientific results obtained under EUROTRAC/MEPOP and other international programmes, such as in the hemispheric modelling under the Arctic Monitoring and Assessment Programme (AMAP), and under national programmes. It will pay specific attention to the improvement of the air-sea exchange module and the air-vegetation exchange process to estimate concentrations, depositions and accumulation of the pollutants in air, soil, sea water and vegetation. Furthermore, MSC-E will study the model sensitivity, assess the seasonal and annual variations and check the calculated results against measurements, in cooperation with CCC. MSC-E will cooperate with MCS-W and the experts of the Task Force on Emission Inventories in the verification of POP emission data quality.

2.6 FINE PARTICULATES

Description/objectives: Develop transport and integrated assessment models to provide the Steering Body, the Task Force on the Health Aspects of Air Pollution and the Executive Body with further information on the transboundary transport of fine particulates. Draw up recommendations for emission reporting and monitoring of air concentrations of atmospheric particles relevant to the Convention.

Main activities and time schedule:

(a) The Task Force on Emission Inventories will consider work needed for emission inventories (see point 2.1 above). The discussions at the EMEP workshop in Interlaken in November 1999 are expected to provide input for these considerations;

(b) The discussion of measurement at the EMEP workshop in Interlaken is also expected to form the basis for the drawing-up of detailed procedures and recommendations with respect to quality assurance. The measurements of fine particles within EMEP should be compatible with recent regulations concerning the measurements of PM₁₀ and PM_{2.5} in urban areas. On the basis of these discussions CCC will put forward a proposal with monitoring requirements for atmospheric particles useful to EMEP;

(c) MSC-W will evaluate the possibility of including primary aerosols in the Eulerian acid deposition model. It will develop the Eulerian model further in order to include secondary aerosols resulting from the atmospheric oxidation of volatile organic compounds. MSC-W, in cooperation with Nordic experts, will initiate the incorporation of an aerosol dynamic module in the Eulerian model. The discussions at the EMEP workshop in Interlaken are expected to help direct the modelling work as well;

(d) MSC-E, in cooperation with MSC-W, will study further the physico-chemical properties of primary particles which are relevant for the modelling of heavy metals;

(e) The Task Force on Integrated Assessment Modelling will also include fine particulates in its work. To support this, IIASA/CIAM will initiate work to integrate particulate matter into the model and present a progress report. It will also report on the work conducted for the German Federal Environmental Agency (UBA) and the United Kingdom's Department for the Environment, Transport and the Regions;

(f) The centres will present a joint progress report to the Steering Body and inform the Task Force on the Health Aspects of Air Pollution about their work.