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

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Item 9 of the provisional agenda

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

Note by the secretariat

1. In preparing the draft work-plan, the secretariat has taken into consideration the current work-plan (ECE/EB.AIR/68, annex IV), as well as the decisions taken by the Working Group on Strategies and Review at its thirty-second session (EB.AIR/WG.5/66), the Implementation Committee at its fifth meeting (EB.AIR/2000/2), the Working Group on Effects at its nineteenth session (EB.AIR/WG.1/2000/2), and the Steering Body to the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP) at its twenty-fourth session (EB.AIR/GE.1/2000/2).

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.

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2001 WORK-PLAN FOR THE IMPLEMENTATION OF THE CONVENTION

1. STRATEGIES AND POLICIES

1.1 STRATEGIES AND REVIEW

Description/objective: Assessment of ongoing scientific and technical activities in view of the potential need to revise existing protocols or prepare new ones; negotiating revisions to protocols, including their annexes; promoting the exchange of technology; preparing proposals for any strategic developments under the Convention. The Working Group on Strategies and Review will assist the Executive Body in all policy-related issues.

Main activities and time schedules:

Taking into account the relevant activities under EMEP and the Working Group on Effects, as well as the relevant initiatives of the European Community, and on the basis of information received from its expert groups, the Working Group on Strategies and Review will, in particular:

- (a) Assess work in preparation of a review of the 1999 Gothenburg Protocol, including progress in reducing acidification, eutrophication and ground-level ozone and the pollutants responsible for these effects. It will also review progress in the work on particulate matter pollution (emission inventories, effects, atmospheric modelling and integrated assessment modelling) in order to present to the Executive Body a draft decision, including a timetable, on possible international action to tackle it;
- (b) Assess work in preparation of a review of the Protocol on Heavy Metals, including information on the measures scheduled for re-evaluation in the Protocol. It will prepare a timetable of further action and required input for a review of the Protocol, including a possible effect-based approach as a basis for future action;
- (c) Assess work in preparation of a review of the Protocol on Persistent Organic Pollutants (POPs), also taking into account progress under item 1.5 below, including information on the pollutants scheduled for re-evaluation in the Protocol and on pollutants that are candidates for future inclusion. It will prepare a timetable of further action and required input for a review of the Protocol;
- (d) Review progress in the exchange of information and technology, including the results of a second workshop on techno-economic databases to be held in France in April 2001, information received on product-related measures to reduce emissions of volatile organic compounds (VOCs), POPs and heavy metals and progress in work carried out under item 1.6 below;
- (e) Conduct negotiations, as requested by the Executive Body, on an instrument to secure the long-term financing of all core activities under the Convention, and present a draft instrument to the Executive Body at its nineteenth session.

The thirty-third session of the Working Group on Strategies and Review will take place from 24 to 27 September 2001.

1.2 COMPLIANCE REVIEW

Description/objectives: Review of compliance by the Parties with their obligations under the Protocols to the Convention.

Main activities and time schedule: The Implementation Committee will evaluate the effectiveness of the revised questionnaire for reporting strategies and policies, including the reporting on technology-related obligations. It will carry out an in-depth review of compliance by Parties with the 1991 VOC Protocol, focusing on their national emission obligations. The Committee will continue its dialogue with appropriate subsidiary bodies and experts. It will also continue consideration of compliance issues related to obligations in the Protocols that are not subject to specific reporting requirements, such as provisions dealing with research and monitoring. If a submission, referral or request for a report is made under paragraph 3 (b) or (d) of the Committee's functions, this will have to be dealt with as a priority and the Committee may have to adjust its work-plan and time schedule accordingly.

- (a) Seventh meeting of the Implementation Committee in April 2001;
- (b) Eighth meeting of the Implementation Committee in Geneva in September 2001;
- (c) Fourth report by the Implementation Committee to the Executive Body at its nineteenth session.

1.3 REVIEWS OF STRATEGIES AND POLICIES FOR AIR POLLUTION ABATEMENT

Description/objectives: Overview of air pollution abatement in the UN/ECE region, giving a comprehensive description of national and international strategies and policies, including legislation in force and emission levels. Provide, together with emission data, a basis for the Implementation Committee to review compliance by Parties with their obligations under the Protocols to the Convention. The reviews are carried out every two years.

Main activities and time schedule:

- (a) Parties are invited to present corrections and additional information to the draft 2000 review (EB.AIR/2000/1 and addenda) to the secretariat by 15 January 2001;
- (b) The secretariat will then publish the review after additions and corrections have been incorporated;
- (c) The next review is scheduled for 2002.

1.4 ECONOMIC ASSESSMENT OF BENEFITS FROM AIR POLLUTION ABATEMENT AND ECONOMIC INSTRUMENTS

Description/objectives: To develop further the economic work on benefits and economic instruments undertaken by the former Task Force on Economic Aspects of Abatement Strategies and to enable economic considerations to be taken into account in the discussion/review of the Protocols to the Convention. A first workshop shall establish the state of science concerning the measurement and economic valuation of the health effects associated with air pollution, discuss alternative methodologies for the measurement and valuation of air-related health effects, and present the results of the latest research in those areas where there is greatest uncertainty. A second workshop shall focus on the valuation of ecosystem benefits from air pollution abatement and build on the work of all relevant International Cooperative Programmes (ICPs) under the Working Group on Effects. Further work will also be done on the use of economic instruments to reduce transboundary air pollution.

Main activities and time schedule: The Network of Experts on Benefits and Economic Instruments (NEBEI), led by the United Kingdom and with Mr. David Pearce as rapporteur, will provide the framework and expertise for a series of workshops. NEBEI will meet only on the occasion of planned workshops and include not only economists but also representatives from other specialist groups. It will collaborate closely with the Task Force on the Health Aspects of Air Pollution, the Working Group on Effects and the Task Force on Integrated Assessment Modelling.

(a) A first workshop on the measurement and economic valuation of health effects associated with air pollution will be held on 19-20 February 2001 in the United Kingdom. Its report will be presented to the Working Group on Strategies and Review at its thirty-third session;

(b) A second workshop under NEBEI on the valuation of ecosystem benefits from air pollution abatement is tentatively scheduled for November 2001 in the Netherlands.

1.5 FURTHER ASSESSMENT OF PERSISTENT ORGANIC POLLUTANTS

Description/objectives: Review the evidence on specific POP compounds with a view to:

(a) Making the best use of available knowledge to meet the existing obligations for substances listed in annexes I, II and III to the Protocol on POPs; and

(b) Assisting Parties in identifying which candidates may be given priority for inclusion in the Protocol. The addition of new substances to annex I, II or III to the Protocol on POPs is regulated in Executive Body decision 1998/2 on procedures and information to be submitted to the Executive Body.

Main activities and time schedule:

(a) An ad hoc expert group will assess priority substances and then review and assess data put forward, including risk profiles, for those POPs that may qualify to be included in the

Protocol on POPs. The expert group will report on progress to the Working Group on Strategies and Review at its thirty-third session;

(b) The second meeting will take place in Canada in May 2001 to review the evidence and prepare a draft assessment report;

(c) The expert group may decide to organize a third meeting in the autumn of 2001.

1.6 EXCHANGE OF INFORMATION AND TECHNOLOGY

Description/objectives: To create favourable conditions for implementing technology-related obligations of the Convention and its Protocols, to facilitate the implementation of existing Protocols and the accession of non-Parties, particularly countries with economies in transition.

To examine the needs for updating technical annexes and guiding documents to the Protocols.

Main activities and time schedule:

(a) Workshop in Bologna (Italy) on 19-21 February 2001 on the implementation of VOC abatement techniques in the surface-coating and dry-cleaning sectors and report on its outcome to the Working Group on Strategies and Review;

(b) Seminar/workshop on control technologies for emissions from stationary sources to be held in Warsaw on 8-12 October 2001;

(c) Collection of information by the secretariat from Parties and international institutions on control technology and product management practices for pollutants covered by the Protocols and establishment of collaboration with other international bodies, e.g. European Integrated Pollution Prevention and Control Bureau in Seville (Spain).

1.7 AMMONIA ABATEMENT

Description/objectives: A framework code of good agricultural practice identifying the best available control options and techniques to reduce ammonia emissions from agriculture will be prepared as a basis for Parties to draw up national codes and to better quantify relationships between recommended control options/techniques and resulting ammonia emissions undertaken by the ad hoc expert group on ammonia abatement led by the United Kingdom.

Main activities and time schedule:

(a) Drafting of guiding part of the framework advisory code of good agricultural practice for submission to the Working Group on Strategies and Review at its thirty-third session;

(b) Collection of information necessary to improve relationships between the measures applied, ammonia emissions and their reduction, and new information on control techniques by the expert group;

(c) Second meeting of the ad hoc expert group in spring 2001 and progress report to the Working Group on Strategies and Review at its thirty-third session.

1.8 MANAGEMENT OF BY-PRODUCTS/RESIDUES CONTAINING HEAVY METALS OR PERSISTENT ORGANIC POLLUTANTS

Description/objectives: Preparation of a state-of-the-art report on the management and use of by-products/residues containing primarily heavy metals or POPs generated by different sectors, including conclusions and draft recommendations and, where appropriate, proposals to modify or to extend control techniques under the existing Protocols by the Task Force under the leadership of Austria.

Main activities/time schedule:

(a) Editorial meeting of the Task Force to finalize the state-of-the-art report in Rome in February 2001;

(b) Final draft state-of-the-art report for consideration by the Working Group on Strategies and Review at its thirty-third session.

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

2.1 EMISSIONS

Description/objectives: Update, using data submitted by Parties, and maintain the EMEP emission inventory, including carrying out quality assurance, to provide reliable information on emissions and emission projections and to aid the monitoring of compliance. Provide assistance to Parties to help them fulfil reporting tasks. The Task Force on Emission Inventories and Projections, led by the United Kingdom, will provide a technical forum and expert network to discuss, exchange information and harmonize emission factors, methodologies, projection models and reporting. The Meteorological Synthesizing Centre-West (MSC-W) will support the inventory database, the secretariat will request the data. The Meteorological Synthesizing Centre-East (MSC-E) will provide support for heavy metal and POP emission activities. The Chemical Coordinating Centre (CCC) will also contribute to this work.

Main activities and time schedule:

(a) A workshop (early 2001) will address emission reporting to international bodies to: (i) improve the reporting process allowing for validation of data quality; (ii) guarantee consistency and comparability with emission projections; and (iii) minimize the workload at the national level. It will be organized in collaboration with other interested groups, e.g. United Nations Framework Convention on Climate Change, the Statistical Office of the European Communities (EUROSTAT) and the Organisation for Economic Co-operation and Development (OECD);

(b) The Task Force on Emission Inventories and Projections will finalize the emission reporting guidelines using recommendations from the workshop, for consideration at the twenty-fifth session of the Steering Body, for approval by the Executive Body at its nineteenth session, and for comprehensive reporting at the end of 2001;

(c) As requested by the secretariat, Parties will submit 2000 emission data from the territories covered by EMEP for SO_x, NO_x, non-methane volatile organic compounds (NMVOCs), NH₃, CO, heavy metals (priority metals: cadmium (Cd), mercury (Hg) and lead (Pb)) and selected POPs. For CO₂ and CH₄, the same data as reported under the United Nations Framework Convention on Climate Change should be submitted. The Parties, in cooperation with MSC-E and MSC-W, will carry out the necessary work to submit the specified data on heavy metals and POPs emissions, in accordance with the EMEP Guidebook, to ensure that data are available for the reference year and for current emissions. MSC-W in collaboration with the Task Force will consider requirements for estimating organic emissions;

(d) In 2001 Parties will start reporting emissions of fine particulate matter (PM) as PM₁₀ and PM_{2.5}. MSC-W will provide guidance for reporting in cooperation with the European Community and the European Environment Agency (EEA). Parties will review an interim emission inventory developed by the Netherlands Organization for Applied Scientific Research (TNO) for 1995 as a basis for the 2000 inventory. Experts at TNO and EMEP will be available for consultation. In addition, the Task Force will discuss PM emission reporting requirements;

(e) CCC in consultation with national experts will adjust European emission inventories for POPs and mercury to the EMEP requirements and provide these data to MSC-E;

(f) MSC-W will present the updated report on 1980-1999 emissions to the Steering Body at its twenty-fifth session. The report will be available to the Implementation Committee and for the report on strategies and policies presented to the Executive Body at its nineteenth session. CCC will develop profiles of chemical species of the heavy metals and POPs considered within the Protocols on heavy metals and POPs.

(g) MSC-W, in cooperation with CIAM, the EEA European Topic Centre on Air Emissions (ETC/AE), the secretariat, the other EMEP centres and the Task Force on Emission Inventories and Projections will develop further methods and a scientific basis for compliance monitoring, verifying emission data and controlling data quality;

(h) The Task Force will increase its work on the verification of emission data and on emission projections. It will prepare a further extension of the Guidebook on VOC species and particulate matter. It will work with Parties to improve the quality and completeness of emission reporting, and strengthen the use of the designated emission expert network. The tenth meeting of the Task Force will take place in May 2001.

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 past, present and future exceedances of critical loads of acidifying and eutrophying depositions in Europe, in collaboration with the Coordination Center for Effects (CCE). Analyse scenarios on cost-effective reductions of acidification, eutrophication, tropospheric ozone. Provide information for monitoring compliance. The Task Force on Measurement and Modelling, led by Austria and co-chaired by the World Meteorological Organization (WMO), will increase the involvement of Parties in developing and implementing monitoring and modelling strategies.

Main activities and time schedule:

- (a) The Parties will report monitoring results to CCC twice a year: January-June data by 1 December and July-December data by 1 June. CCC will manage the monitoring database and assist countries with monitoring nitrogen compounds and quality assurance. The exchange of monitoring information and experiences with the WMO/Global Atmospheric Watch Programme, North American experts and European research groups will continue and increase. CCC will place a stronger emphasis on uniform methodologies, and on quality control and quality management of the network;
- (b) CCC and MSC-W will coordinate a study of the EMEP monitoring strategy for acidifying and eutrophying compounds and particulates taking into account the evolving needs of the Convention. CCC will consider solutions, with national experts, for harmonizing national monitoring needs with those of EMEP and the European Community and follow up recommendations with all countries;
- (c) MSC-W will calculate the annual transboundary transport of sulphur and nitrogen compounds with the Eulerian model. In collaboration with CIAM and the Parties, it will continue to develop methods and visualization tools for the analysis of emission reduction strategies, in particular the user-interface for the Lagrangian EMEP models via the Internet;
- (d) CCC and MSC-W together will continue to evaluate trends in concentrations and depositions of acidifying pollutants and base cations from EMEP data; MSC-W and CCC will explore new methods for evaluating and validating results between measurements and models. MSC-W will review, as necessary, the parametrization of dry and wet depositions in the acid deposition model;
- (e) MSC-W will focus on the implementation of a unified Eulerian model code for acidification, eutrophication, ground-level ozone and particulates;
- (f) MSC-W will begin recalculation of meteorological input data from 1990 to enable analysis of trends and evaluation of achievements. It will continue to revise and verify meteorological input fields relevant to air pollution modelling;

(g) Results derestricted by the Steering Body will be put on the EMEP Web site. Contributions to the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) and the Baltic Marine Environment Protection Commission (HELCOM) will seek to provide a near-regional evaluation of Protocol achievements through interpretation of observed data;

(h) The Task Force on Measurement and Modelling will prepare for an assessment of EMEP measurement and modelling work for 1980-2000 and will propose other major issues for its work for the next five years. The Task Force will promote the review of national monitoring network data by Parties and will itself review the current monitoring strategy of EMEP to identify any changes needed for assessing implementation and compliance. In particular, a measurement strategy for PM₁₀ will be drawn up, taking account of the recommendations of the Interlaken workshop (EB.AIR/GE.1/2000/9), the need to validate models, and activities of other international bodies. The second meeting of the Task Force will be held in 2001 in Slovenia;

(i) A workshop hosted by the United States Environmental Protection Agency (EPA) in spring 2001 will address issues related to the trans-Atlantic transport of air pollutants.

2.3 PHOTO-OXIDANTS

Description/Objectives: Provide monitoring results on ozone and VOCs. Develop and verify the ozone model aiming at a common oxidant/acidification model. Evaluate short- and long-term exposures to photochemical oxidants and collaborate with the Working Group on Effects in developing methods for damage analysis. Analyse scenarios of ground-level ozone in cooperation with CIAM.

Main activities and time schedule:

(a) Parties will report ozone and VOC monitoring results to CCC, which is responsible for quality assurance, data storage, and making data available on the Internet. CCC will continue to measure and collect ozone and VOC data. It will work to increase the spatial coverage of data;

(b) MSC-W and CCC will continue the evaluation of the status of monitoring and quality assurance activities for photo-oxidants;

(c) MSC-W will calculate the short-term exposures to photochemical oxidants of vegetation for growing periods, and the potential exposure of humans; it will apply the revised ozone level II dry deposition sub-routine and harmonize the treatment of emissions in the unified Eulerian acid rain-photochemical-particulate matter (PM) model;

(d) MSC-W and CCC will evaluate ozone trends and review the status of monitoring and quality assurance activities. For selected monitoring sites, ozone trend calculations will be made and compared with modelled values over several years;

(e) MSC-W will evaluate the effects of control measures on photo-oxidants, in cooperation with CIAM, paying particular attention to effects of scale;

(f) Workshop on factors limiting ozone formation to be held in Switzerland (spring 2001).

2.4 HEAVY METALS

Description/objectives: Provide monitoring and modelling data on concentrations, depositions and transboundary fluxes of Cd, Pb and Hg over Europe. Develop further the Pb, Cd and Hg transport models in parallel with the development of heavy metal (HM) critical limits under the Working Group on Effects. Analyse trends in Pb and Cd deposition.

Main activities and time schedule:

(a) CCC and MSC-E in cooperation with Parties will prepare an estimate of trends in emissions, concentrations and depositions of HMs in Europe;

(b) The Parties, in cooperation with CCC, will further develop the EMEP network for trace metals, with first priority elements Hg, Cd and Pb and second priority elements copper (Cu), zinc (Zn), arsenic (As), chromium (Cr) and nickel (Ni). The HM sampling and analysis manual will be completed. CCC will continue work on HM standard operating procedures and quality control routines. Noting the lack of reliable data and the need for cooperative efforts, CCC will collect all new measurement data and results from existing national and other international networks;

(c) MSC-E will make model calculations of concentrations, depositions and country-to-country matrices for Pb and Cd, as well as their trend analysis. It will cooperate with CCC, MSC-W and the Task Force on Emission Inventories and Projections to verify HM emission data quality. In close cooperation with CCC, modelling results will be checked against measurements. MSC-E will further refine model parametrization and perform uncertainty analysis;

(d) MSC-E will further develop the multi-compartment Hg model, paying special attention to atmosphere-soil and atmosphere-seawater exchange processes. Intercomparison of Hg models (II stage) will continue and hemispherical model development will start. The sharing of information and experience with the Arctic Monitoring and Assessment Programme (AMAP) and with North American and European research groups will continue/increase;

(e) CCC and MSC-E will report on HM measurements and modelling results and put detailed data on the EMEP Web site. Specific attention will be given to the reporting to HELCOM and OSPARCOM. MSC-E will continue cooperation with WMO, EC, UNEP, the European Experiment on the Transport and Transformation of Environmentally Relevant Trace Constituents over Europe (EUROTRAC), AMAP, the Working Group on Effects, CCE and the Task Force on the Health Aspects of Air Pollution.

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. Study further the physico-chemical processes of POPs in different environmental compartments, taking into account their transport within the EMEP region and on the hemispheric/global scale.

Main activities and time schedule:

(a) MSC-E will, in cooperation with CCC, MSC-W and the Task Force on Emission Inventories and Projections and in consultation with the Parties, prepare to verify POP emission data quality;

(b) The Parties, in cooperation with CCC, will further develop the measurement network. CCC will collect monitoring data available from other international programmes. The laboratory comparison will continue and CCC will continue work on the standard operating procedures and quality control routines for the manual for sampling and chemical analysis;

(c) MSC-E will study the physico-chemical properties of selected POPs and will analyse and summarize scientific results obtained under EUROTRAC/MEPOP, other international programmes such as AMAP, HELCOM and OSPARCOM and national programmes. MSC-E will further develop multi-compartmental POP models, paying special attention to model sensitivity. It will assess seasonal and annual variations and check results against measurements in cooperation with CCC. The results will be posted on the Internet. The POPCYCLING-Baltic model will be used to assess pathways, deposition and fate in the Baltic Sea region;

(d) MSC-E will use new procedures for meteorological data for regional and hemispheric modelling and begin preparatory work on the intercomparison of models. Hemispheric model development will continue. MSC-E will develop and validate multi-compartment transport models for selected POPs, and improve parametrization of exchange processes. It will also investigate the sedimentation, accumulation and degradation processes and the influence of size distribution on the long-range transport of benzo(a)pyrene (B(a)P).

2.6 FINE PARTICULATES

Description/objectives: Draw up recommendations for emission reporting and monitoring of air concentrations of atmospheric particles. 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.

Main activities and time schedule:

(a) Given that a basic limitation to developing emission reduction strategies for atmospheric particles is the uncertainty of the elements responsible for adverse health effects, the EMEP centres will provide the Task Force on the Health Aspects of Air Pollution with relevant

data allowing for the drawing-up of recommendations on plausible indicators/ limit values. Such indicators will subsequently be used to develop the EMEP monitoring and modelling strategy for particulate matter;

(b) EMEP will develop a monitoring strategy for the Convention, harmonized as far as possible with the EC. CCC, in collaboration with the Task Force on Measurements and Modelling, will recommend methods for PM_{2.5} measurements, chemical speciation/size distribution and quality assurance procedures. CCC will initiate the collection of data from Parties;

(c) MSC-W will develop further the unified Eulerian model to include primary and secondary aerosols. It will test a box model that allows for aerosol dynamics. The first results on the introduction of the aerosol dynamic module will be analysed;

(d) Workshop on implementation of aerosol dynamics modules in Eulerian models (2001);

(e) An EMEP workshop on fine-particulate modelling and speciated measurements will be organized in collaboration with EPA in autumn 2001 or spring 2002;

(f) Model development at MSC-W will take account of the coordinated European programme on particulate matter emission inventories and contribute to the integrated assessment model for particles being developed by CIAM.

2.7 INTEGRATED ASSESSMENT MODELLING

Description/objectives: Analysis of scenarios on cost-effective reduction of acidification, eutrophication, tropospheric ozone and related phenomena, especially particulate matter pollution. Modelling will cover: (i) abatement options for reducing sulphur, nitrogen oxides, ammonia, VOCs and primary particulate matter, including structural measures in energy, transport and agriculture, and their costs; (ii) projections of emissions; (iii) assessments of the atmospheric transport of substances (including global transport); and (iv) analyses and quantification of environmental and health effects and benefits of emission reductions. Modelling will draw upon the results from other subsidiary bodies. The Task Force on Integrated Assessment Modelling, led by the Netherlands, will guide the work of CIAM at the International Institute for Applied Systems Analysis (IIASA). All activities will be conducted in close collaboration with related work led by the European Commission.

Main activities and time schedule:

(a) CIAM, in collaboration with MSC-W, will improve the framework for an integrated assessment model for particulates. It will liaise with the Coordinated European Emissions Inventory Project for Particles to develop abatement cost curves for particles;

(b) CIAM, in collaboration with MSC-W, will revise the integrated assessment models to incorporate recent advances in atmospheric transport models. In addition, work on the analysis

of uncertainties will consider uncertainties in atmospheric transport models and related non-linearities from numerical advection and atmospheric chemical processes;

(c) The Task Force will hold its twenty-sixth meeting in May 2001 (tentatively in Brussels) and organize a workshop (autumn 2001).

3. EFFECTS OF MAJOR AIR POLLUTANTS ON HUMAN HEALTH AND THE ENVIRONMENT

3.1 REVIEW OF EFFECTS OF MAJOR AIR POLLUTANTS

3.1.1 Annual reports on progress in effects-oriented activities

Description/objectives: Annual review of activities and results of the International Cooperative Programmes and the Task Force on the Health Aspects of Air Pollution. Preparation of a draft annual joint report based on the information provided by the lead countries and the programme coordinating centres, for consideration by the Working Group on Effects.

Main activities and time schedule:

(a) Submission of relevant information on the International Cooperative Programmes and the Task Force on the Health Aspects of Air Pollution to the secretariat (18 May 2001);

(b) Submission of the draft 2001 joint report of the International Cooperative Programmes and the Task Force on the Health Aspects of Air Pollution prepared by the secretariat, to the Working Group on Effects in 2001.

3.1.2 Major review of effects of air pollutants

Description/objectives: Review of knowledge on the effects of selected air pollutants based on the results of the International Cooperative Programmes and the Task Force on the Health Aspects of Air Pollution as well as other relevant data and information. The 2001 substantive report will summarize present knowledge on the occurrence, movement and effects of selected heavy metals in the environment.

Main activities and time schedule:

(a) Submission of draft contributions to the substantive report by the International Cooperative Programmes and the Task Force on the Health Aspects of Air Pollution (in accordance with the outline approved by the Working Group on Effects at its nineteenth session) in January 2001;

(b) Review of the draft contributions by the Extended Bureau of the Working Group on Effects at its meeting in February 2001;

- (c) Preparation of the draft substantive report (March-June 2001);
- (d) Draft substantive report and its executive summary to the Working Group on Effects in 2001;
- (e) Draft plan for future work on heavy metals taking into account available funding (prepared by the Bureau) to the Working Group in 2001;
- (f) Draft outline of the possible comprehensive review and assessment of the present air pollution effects and their recorded trends (prepared by the Bureau) to the Working Group on Effects in 2001 for consideration.

3.2 INTERNATIONAL COOPERATIVE PROGRAMME ON EFFECTS OF AIR POLLUTION ON MATERIALS, INCLUDING HISTORIC AND CULTURAL MONUMENTS

Description/objectives: Quantification of the multi-pollutant effects on the corrosion of selected materials under different environmental conditions, *inter alia*, as a basis for the economic evaluation of air pollution damage. A Programme Task Force led by Sweden, in cooperation with the Programme's main research centre (Swedish Corrosion Institute, Stockholm), is responsible for the detailed planning and coordination of the Programme.

Main activities and time schedule:

- (a) Preparation and publication early in 2001 of the proceedings of the workshop on mapping air pollution effects on materials, including stock at risk (held in Stockholm, June 2000);
- (b) Report on the evaluation of corrosion attack after one year of exposure in the multi-pollutant programme to the Working Group on Effects in 2001;
- (c) Progress report on the further development of a database of environmental data for the multi-pollutant exposure programme to the Working Group in 2001;
- (d) Seventeenth meeting of the Programme Task Force, 11-13 June 2001, Dübendorf, Switzerland.

3.3 INTERNATIONAL COOPERATIVE PROGRAMME ON ASSESSMENT AND MONITORING OF ACIDIFICATION OF RIVERS AND LAKES

Description/objectives: Identification of the state of surface water ecosystems and their long-term changes, with respect to the regional variation and impact of selected air pollutants, and including effects on biota. A Programme Task Force led by Norway, which also provides the Programme's centre (Norwegian Institute for Water Research, Oslo), is responsible for the detailed planning and coordination of the Programme.

Main activities and time schedule:

- (a) Publication of the report on trends in intercalibration results;
- (b) Organization of the year 2001 biological and chemical intercalibrations; presentation of the 2000 results (including intercalibration on heavy metals) to the Working Group in 2001;
- (c) Progress report on the further development of the monitoring network and Programme's database with emphasis on biological data to the Working Group in 2001;
- (d) Report on the in-depth evaluation of nitrogen in surface waters, prepared in cooperation with EMEP, and note on the impact of short-term climatic fluctuations (sea-salt episodes) on the assessment of trends in water quality, to the Working Group in 2001;
- (e) Seventeenth meeting of the Programme Task Force, October 2001, Corvallis, Oregon, United States of America (tentatively).

3.4 INTERNATIONAL COOPERATIVE PROGRAMME ON ASSESSMENT AND MONITORING OF AIR POLLUTION EFFECTS ON FORESTS

Description/objectives: Collection and assessment of comprehensive and comparable data on changes in forests under actual environmental conditions (in particular air pollution, including acidifying and eutrophying deposition, as well as other stresses) and determination of cause-effect relationships. A Programme Task Force led by Germany, in cooperation with the Programme's main coordinating centre (Federal Research Centre for Forestry and Forest Products, Hamburg, Germany), is responsible for the detailed planning and coordination of the Programme. Intensive monitoring of forest ecosystems on the permanent sample plots (level II), extensive large-scale monitoring (level I) and integrated evaluation of results are carried out in cooperation with the European Commission.

Main activities and time schedule:

- (a) Preparation of the 2001 executive and technical reports on Forest Condition in Europe (levels I and II); summary report on the 2000 monitoring results to the Working Group on Effects in 2001;
- (b) Information on progress in compiling a cause-effect report based on the results of core plots of ICP Forests and ICP Integrated Monitoring to the Working Group in 2001;
- (c) Progress report on the further development of links between level I and level II monitoring to the Working Group in 2001;
- (d) Seventeenth meeting of the Programme Task Force, 19-23 May 2001, Westport, Ireland.

3.5 INTERNATIONAL COOPERATIVE PROGRAMME ON EFFECTS OF AIR POLLUTION ON NATURAL VEGETATION AND CROPS

Description/objectives: Evaluation of the effects of air pollutants and other stresses on natural vegetation and crops; identification of dose/response functions for a range of crops; validation of ozone critical levels for natural vegetation and crops and further development of the level II approach; evaluation of natural vegetation and crops as effective indicators of the potential for damage to natural ecosystems by ozone, and evaluation and mapping of heavy metal deposition to vegetation. A Programme Task Force, led by the United Kingdom, with the cooperation of the Programme's coordination centre (Centre for Ecology and Hydrology, Bangor Research Unit, Bangor, United Kingdom), is responsible for the detailed planning and coordination of the Programme.

Main activities and time schedule:

- (a) The 2001 annual status report on the achievements of the Programme to the Working Group on Effects in 2001;
- (b) Progress report on further development of the Programme's experiments on the effects of ambient ozone episodes on crops and natural vegetation to the Working Group in 2001;
- (c) Progress report on determining the critical flux for effects of ozone on biomass to the Working Group in 2001;
- (d) Continuing study of deposition of heavy metals, including analysing heavy metal content of clover clone samples and taking over the coordination of the Europe-wide heavy metal in mosses programme; information to the Working Group on Effects in 2001;
- (e) Fourteenth meeting of the Programme Task Force, 23-26 January 2001, Louvain, Belgium.

3.6 INTERNATIONAL COOPERATIVE PROGRAMME ON INTEGRATED MONITORING OF AIR POLLUTION EFFECTS ON ECOSYSTEMS

Description/objectives: Determination and prediction of the state of ecosystems and their long-term changes with respect to the regional variation and impact of selected air pollutants, with special attention to effects on biota. A Programme Task Force led by Sweden is responsible for planning, coordinating and evaluating the Programme. The Programme's centre (Finnish Environment Institute, Helsinki) is entrusted with collecting, storing, processing and analysing data from countries taking part in the Programme.

Main activities and time schedule:

- (a) Presentation of the Tenth Annual Report to the Working Group on Effects in 2001;

- (b) Continued calculation of: (i) sulphur and nitrogen compounds, base cations and H⁺ budgets and trends; and (ii) heavy metal pools and fluxes; information to the Working Group in 2001;
- (c) Further development of bioeffects indication, assessment of multi-pollutant, multi-effect relationships; progress report to the Working Group in 2001;
- (d) Progress report on the results of site-specific dynamic modelling and assessment of the recovery at selected ICP Integrated Monitoring sites, to the Working Group in 2001;
- (e) Consideration of possibilities for closer cooperation with and/or more active participation in activities of other relevant international organizations/bodies, in addressing global environmental issues (e.g. climate change); information to the Working Group in 2001;
- (f) Ninth meeting of the Programme Task Force, 3-5 May 2001, Rome, Italy.

3.7 INTERNATIONAL COOPERATIVE PROGRAMME ON MODELLING AND MAPPING

Description/objectives: Determination of critical loads and levels and their exceedances for selected pollutants, development and application of other methods for effect-based approaches, and modelling and mapping of the present status and trends in impacts of air pollution. A Programme Task Force led by Germany is responsible for the detailed planning and coordination of activities. The Task Force uses and integrates available and accepted data, drawing, in particular, on the current work of other task forces, International Cooperative Programmes and EMEP. The Coordination Center for Effects (CCE at the National Institute of Public Health and the Environment, Bilthoven, Netherlands) provides scientific and technical support to the Task Force and to other effect-related activities, in particular by developing methods and models for calculating critical loads and levels and for applying other effect-based approaches, as well as by producing maps of critical loads and levels and their exceedances, and other risk parameters related to potential damage and recovery.

Main activities and time schedule:

- (a) Continuing maintenance and updating of the database of critical loads of sulphur and nitrogen, as well as data derived from them; information to the Working Group on Effects in 2001;
- (b) Progress report on further development of methods and procedures (including Europe-wide dynamic modelling) for the assessment of recovery and risk of future damage, to the Working Group in 2001;
- (c) Further development of critical limits for heavy metals based, inter alia, on the outcome of the meeting of the ad hoc expert group (held in October 2000 in Bratislava); information to the Working Group in 2001;

(d) Preparation of the sixth CCE 2001 status report for presentation to the Working Group in 2001;

(e) Eleventh CCE workshop on modelling and mapping, 24-27 April 2001, Bilthoven, Netherlands;

(f) Seventeenth meeting of the Programme Task Force, May 2001, Bratislava, Slovakia.

3.8 EFFECTS OF AIR POLLUTANTS ON HUMAN HEALTH

Description/objectives: Preparation of state-of-the-art reports on the direct and indirect effects of long-range transboundary air pollution on human health.

(a) The World Health Organization (WHO) is invited to present relevant progress/technical reports to the Working Group on Effects, so that acquired knowledge of WHO can be applied in the further implementation of the Convention. Additional information/reports should be provided, when appropriate, by other international organizations, interested Governments, and/or other subsidiary bodies under the Convention;

(b) To support the Working Group on Effects and the Executive Body in preparing/substantiating new and/or updating existing protocols, the joint Task Force of WHO/European Centre for Environment and Health (ECEH) and the Executive Body, led by WHO/ECEH, evaluates and assesses the health effects of long-range transboundary air pollution and reports on the subject.

Main activities and time schedule:

(a) Continuation of the assessment of population exposure to particulates from long-range transport and of its health effects; information to the Working Group on Effects in 2001;

(b) Finalization of the report on a preliminary assessment of the health risk of selected heavy metals from long-range transboundary air pollution to be presented to the Working Group in 2001;

(c) Preliminary assessment of the potential health effects of the selected "higher priority" POPs; information to the Working Group in 2001;

(d) Fourth meeting of the Task Force on the Health Aspects of Air Pollution, 4-6 April 2001, Bonn, Germany (tentatively).