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**ECONOMIC COMMISSION FOR EUROPE**

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

Working Group on Effects

**REPORT ON THE TWENTY-SECOND SESSION  
OF THE WORKING GROUP ON EFFECTS**

Introduction

1. The twenty-second session of the Working Group on Effects took place in Geneva from 3 to 5 September 2003.
2. It was attended by representatives of the following Parties to the Convention: Bulgaria, Canada, Czech Republic, Denmark, Finland, France, Germany, Hungary, Italy, Netherlands, Norway, Poland, Republic of Moldova, Romania, Slovenia, Sweden, Switzerland, Ukraine, and the United Kingdom.
3. Representatives of the World Health Organization's European Centre for Environment and Health (WHO/ECEH), Bonn Office and the Union of the Electricity Industry (EURELECTRIC) were present. The EMEP Meteorological Synthesizing Centre-East (MSC-E) and the Centre for Integrated Assessment Modelling (CIAM) were also represented.
4. Mr. H-D. Gregor (Germany) chaired the meeting.

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.

## I. ADOPTION OF THE AGENDA

5. The agenda (EB.AIR/WG.1/2003/1) was adopted.

## II. ADOPTION OF THE REPORT OF THE TWENTY-FIRST SESSION

6. The Working Group adopted the report of its twenty-first session (EB.AIR/WG.1/2002/2).

## III. MATTERS ARISING FROM THE TWENTIETH SESSION OF THE EXECUTIVE BODY FOR THE CONVENTION ON LONG-RANGE TRANSBOUNDARY AIR POLLUTION, THE THIRTY-FOURTH SESSION OF THE WORKING GROUP ON STRATEGIES AND REVIEW AND THE TWENTY-SIXTH SESSION OF THE STEERING BODY OF THE COOPERATIVE PROGRAMME FOR MONITORING AND EVALUATION OF THE LONG-RANGE TRANSMISSION OF AIR POLLUTANTS IN EUROPE (EMEP)

7. Mr. K. Bull, the Chief of the Air and Water Team of the Environment and Human Settlements Division, provided information on the present status of the Convention and noted the recent progress in the ratification of its protocols, in particular the entry into force of the 1998 Aarhus Protocol on Persistent Organic Pollutants (POPs), which was to take place on 23 October 2003. He reviewed decisions and ongoing activities of the Executive Body and its subsidiary bodies, in particular the Working Group on Strategies and Review and the Steering Body of EMEP of relevance to the Working Group on Effects. Special mention was made of the importance of: (i) developing a communications strategy and the relevance of the Working Group's substantive report for this; (ii) increased focus on work on POPs and heavy metals; (iii) continuing close collaboration between the Working Group on Effects and the EMEP Steering Body; (iv) facilitating participation of countries in Eastern Europe, the Caucasus and Central Asia (EECCA) in the work of the Convention. He also noted decision 2002/1 taken by the Executive Body at its twentieth session on the financing of core activities not covered by the EMEP Protocol. This was reported to Ministers at the Ministerial Conference "Environment for Europe" in Kiev in May 2003. He elaborated on the outcome of the workshop on communications, held in London on 9-11 April 2003, which had identified ways to improve the visibility of the Convention and its achievements.

8. The Chairman provided information on cooperation with other bodies, and reported on the twentieth session of the Executive Body held in December 2002 (ECE/EB.AIR/77). He noted that cooperation with EMEP and the Working Group on Strategies and Review was very good. He also drew attention to the increased participation of delegates from countries in transition at meetings of the Working Group on Effects.

9. Mr. R. Ballaman, Chairman of the Working Group on Strategies and Review, noted the good cooperation between the Working Groups and stressed the priorities for future work, in particular the review of protocols where priorities may be determined by their entry into force. He further noted the importance of effective communications and drew attention to the twenty-fifth anniversary of the Convention in November 2004.

10. The Working Group on Effects took note of the decisions made by the Executive Body and

its Bureau, and of the results of the deliberations of other bodies under the Convention, and agreed to bear them in mind when discussing its future activities.

#### IV. RECENT RESULTS AND SHORT-TERM GOALS OF THE EFFECT-ORIENTED ACTIVITIES

11. The Chairman introduced the 2003 Joint report of the International Cooperative Programmes (ICPs) and the Task Force on the Health Aspects of Air Pollution (EB.AIR/WG.1/2003/3) and invited representatives of individual task forces/programmes to review their ongoing activities and the most important results and to summarize plans for their further development.

A. International Cooperative Programme (ICP) on assessment and monitoring of air pollution effects on forests

12. Mr. T. Haußmann (Germany), Chairman of the Task Force of ICP Forests, presented the progress report of the programme, including the results of the nineteenth Task Force meeting (EB.AIR/WG.1/2003/3, annex I). He noted the continued growing of participation by Parties in the activities of the programme including those in North America and the eastern part of the ECE region, as well as cooperation with the Acid Deposition Monitoring Network in East Asia (EANET) and United Nations Forum on Forests. Information was also provided on recent developments in the programme's activities in the fields of dynamic modelling, ozone measurements and injuries, data quality assurance, forest damage, and biodiversity. In addition, he indicated that the level I and level II monitoring programmes were showing promising results. The work was progressing in accordance with the medium-term work-plan.

13. Mr. M. Lorenz (Germany), Head of the Programme Coordinating Centre, introduced the summary report on the 2002 results of monitoring forest condition in Europe (EB.AIR/WG.1/2003/5) and provided additional detailed information on the latest results of the programme, referring, in particular, to the work on ozone concentrations and ozone exposure in forests, carbon sequestration in forest trees and soils, and the long-term effects of sulphur, nitrogen and heavy metals deposition.

14. Mr. M. Posch (Netherlands), representing the Coordination Center for Effects (CCE), provided additional information on the dynamic modelling results. He noted the excellent cooperation between ICP Forests and ICP Modelling and Mapping but expressed concern about the interruption of funding for the Forest Intensive Monitoring Coordinating Institute. He hoped that there would be possibilities for continuing the work done by this Institute.

15. The Working Group expressed its satisfaction with the impressive results of ICP Forests in addressing a growing number of important topics. It appreciated, in particular, the results from close cooperation with other bodies under the Convention. However, several delegations, while noting the plans of the programme to enlarge its activities, expressed their concern regarding the financing of such activities.

16. Mr. Haußmann stressed that ICP Forests would continue with activities laid down in its mandate and shared the concerns regarding financing, including the delay by the European

Commission in deciding upon its involvement in the programme. Enlargement of the activities of ICP Forests was important mainly because of the links between the work under the Convention and the effects of climate change.

17. The Working Group on Effects:

- (a) Took note of the report on the progress of ICP Forests (EB.AIR/WG.1/2003/3, annex I);
- (b) Took note of the summary report on monitoring forest condition in Europe (EB.AIR/WG.1/2003/5);
- (c) Appreciated the programme's increased focus on dynamic modelling, ozone and carbon sequestration;
- (d) Noted the programme's plans to develop further its activities, in particular on level II monitoring and dynamic modelling which belonged to the core activities under the Convention, and on other activities such as forest biodiversity, climate change and carbon sequestration;
- (e) Welcomed the active cooperation of ICP Forests with other programmes, bodies and international organizations within and outside the ECE region;
- (f) Expressed concern regarding the cooperation with the European Commission and recommended further discussions with the European Commission to develop cooperation with its Forest Focus programme.

B. ICP on assessment and monitoring of acidification of rivers and lakes

18. Ms. B. Kvaeven (Norway), Chairwoman of the Task Force of ICP Waters, introduced the report on the recent achievements of the programme, including the results of the eighteenth Task Force meeting (EB.AIR/WG.1/2003/3, annex II), and the technical report on the acidification of surface water in Europe and North America (EB.AIR/WG.1/2003/6). She stressed the importance of biological monitoring and underlined the need to develop biological response models to assess recovery and aid the review of protocols. She also stressed the importance of national monitoring programmes in this regard.

19. Ms. B.-L. Skjelkvåle (Norway), Project Manager, provided more detailed information on the reports of the programme and its work-plan. She presented the 15-year report, which contained long-term trends for chemistry, biological recovery, dynamic modelling and heavy metals. She encouraged countries to be involved in the calculation of critical loads for surface waters. Dynamic modelling was being addressed through increased cooperation between ICPs and ICP Waters expected to play an important role in this work. Uncertainties in future trend predictions were most likely to be related to the effects of climate change and the behaviour of nitrogen.

20. The Working Group welcomed the important results of the work and congratulated the programme on its 15-year report. It stressed the importance of further developing the work on biological recovery and dynamic modelling.

21. The Working Group:

- (a) Took note of the report on the progress of ICP Waters (EB.AIR/WG.1/2003/3, annex II);
- (b) Noted with appreciation the 15-year report on the acidification of surface water in Europe and North America (EB.AIR/WG.1/2003/6);
- (c) Took note of the results of the workshop on models for biological recovery from acidification in a changing climate (Norway, September 2002), and welcomed the publication of its proceedings;
- (d) Took note of the information on the results of the 2003 chemical and biological intercalibration exercise;
- (e) Noted the further progress in developing the programme's monitoring network and database with emphasis on biological data, and welcomed its effective cooperation with other programmes and bodies;
- (f) Welcomed proposals from the programme to continue work on dynamic modelling and to further develop its interests in heavy metals and POPs.

C. ICP on effects of air pollution on materials, including historic and cultural monuments

22. Mr. V. Kucera (Sweden), Chairman of the Task Force of ICP Materials, introduced the progress report of the programme, including the results of the nineteenth Task Force meeting (EB.AIR/WG.1/2003/3, annex III). Special mention was made of the finalization of the multi-pollutant exposure programme whilst noting its main results, which were detailed in reports made available to the Working Group. He outlined plans for the programme's future activities and indicated that the results would be used for assessing indicators, identifying thresholds, mapping stock at risk and cost-benefit studies. Other activities would be related to a new project "EU 6 FP CULT-STRAT" and to the programme's new sub-centre on cultural heritage and stock at risk. He noted that the MULTI-ASSESS project would continue, with a focus on nitric acid and particulate matter. He announced plans to organize a workshop, in spring 2005, on the assessment of economic consequences of corrosion, in cooperation with the Network of Experts on Benefits and Economic Instruments.

23. Mr. S. Fitz (Germany) presented the results of the workshop on the release of heavy metals from materials due to corrosion, held in May 2003 in Munich (Germany) (EB.AIR/WG.1/2003/7).

24. Mr. S. Doytchinov (Italy) presented the work-plan and planned activities of the new sub-centre on cultural heritage and stock at risk (EB.AIR/WG.1/2003/7) in Italy with the technical support of the Italian National Agency for New Technologies, Energy and the Environment (ENEA). Activities had already started on stock-at-risk studies and cooperation with the United Nations Educational Scientific and Cultural Organization (UNESCO) had been established on cultural heritage monuments.

25. In the ensuing discussion the Working Group congratulated the Programme on the important progress made, especially regarding the finalization of the multi-pollutant exposure programme, the substantial development of its activities, as well as the successful sharing of the achieved results and new knowledge with organizations/institutes outside the UNECE region.

26. The Working Group:

- (a) Took note of the report on the progress of ICP Materials (EB.AIR/WG.1/2003/3, annex III);
- (b) Took note of the report of activities of the new sub-centre on cultural heritage and stock at risk (EB.AIR/WG.1/2003/7);
- (c) Congratulated ICP Materials on the results of the four-year exposure from the multi-pollutant programme;
- (d) Noted recent developments in the programme's participation in the MULTI-ASSESS project of the European Commission;
- (e) Welcomed the start of activities at the new programme sub-centre on cultural heritage and stock at risk, at the Italian National Agency for New Technologies, Energy and the Environment;
- (f) Took note of the results of the workshop on the release of heavy metals due to corrosion of materials, held in May 2003 in Munich, and requested the proceedings to be made available to the Working Group on Strategies and Review and the broader public;
- (g) Noted the continued support of the lead country and its intention to streamline the activities of the programme, concentrating on the needs of the Convention whilst eventually reducing activities in coordination and reducing the monitoring network;
- (h) Noted also the lead country's plans to seek partnership for coordinating activities after 2004.

D. ICP on effects of air pollution on natural vegetation and crops

27. Ms. G. Mills (United Kingdom), Chairwoman of the Task Force on ICP Vegetation, introduced the progress report of the programme, including the results of the sixteenth Task Force meeting (EB.AIR/WG.1/2003/3, annex IV). She also outlined the programme's plans and activities for 2003. She provided details of work done on ozone monitoring, of the revision of critical levels for ozone, and of the results of the survey on the heavy metals in mosses conducted in 2000/2001 (EB.AIR/WG.1/2003/8). She also informed the Working Group on the annual report of ICP Vegetation: Air Pollution and Vegetation, as well as providing information on other important reports prepared by the programme. She explained the key improvements to the Stockholm Environment Institute (SEI) land-cover map, which had been used for some of the Convention's work, and noted that harmonization with other European land cover data sets was ongoing. Ms. Mills summarized the work done on revising chapter 3 of the Mapping Manual, on mapping critical levels for vegetation. The text had been submitted for consideration by ICP Modelling and Mapping.

28. The Working Group congratulated ICP Vegetation on its work and welcomed its recent results. The finalization of the revision of chapter 3 of the Mapping Manual was highly appreciated. Further cooperation on the harmonization of land cover maps was necessary, especially cooperation with ICP Modelling and Mapping, EMEP and SEI.

29. The Working Group:

- (a) Took note of the report on the progress of ICP Vegetation (EB.AIR/WG.1/2003/3,

annex IV) and the programme's 2003 annual status report;

(b) Took note of the technical report on the survey on the heavy metals in mosses, conducted in 2000/2001 (EB.AIR/WG.1/2003/8), congratulated the programme on the results and requested continued activities in this area;

(c) Welcomed with appreciation the progress in developing the programme's activities, mainly on ozone biomonitoring and its plans to further develop flux-based approaches for ozone effects;

(d) Noted the outcome of an expert panel meeting to review changes to chapter 3 of the Mapping Manual, which had been further discussed at the Task Force meeting of ICP Modelling and Mapping in May 2003 and welcomed the contributions made by the programme to the revision of the text;

(e) Welcomed the intended cooperation with EMEP on deposition data and ICP Forests on level II monitoring.

#### E. ICP on integrated monitoring of air pollution effects on ecosystems

30. Mr. L. Lundin (Sweden), Chairman of the Task Force of ICP Integrated Monitoring, presented the progress report of the programme and reviewed its recent achievements, including the results of the eleventh Task Force meeting (EB.AIR/WG.1/2003/3, annex V) as well as the programme's twelfth annual report. He also noted the ongoing priority activities of the programme, as well as its extended interests in hydrological pathways modelling, forest management impacts and climate change issues. Special mention was made of the technical report on site-specific dynamic modelling (EB.AIR/WG.1/2003/9) and the joint report of ICP Forests and ICP Integrated Monitoring on cause-effect relationships in forest ecosystems. He also noted the extensive cooperation between ICP Integrated Monitoring and other ICPs as well as with other bodies. The ICP was involved in projects with collaboration both inside and outside the Convention.

31. Mr. A. Jenkins (United Kingdom) introduced the technical report on site-specific dynamic modelling (EB.AIR/WG.1/2003/9) and discussed the conclusions of this report. He noted that the model predictions matched the long-term observations at each of the sites but concluded that sensitivity analysis of model predictions was urgently required. Therefore, there was a clear need for continued long-term monitoring in the ICP Integrated Monitoring catchments.

32. Delegates congratulated ICP Integrated Monitoring on its work and welcomed its recent results. They requested that the results of the site-specific dynamic modelling should be made available to other ICPs and to the interested public.

33. The Working Group on Effects:

(a) Took note of the report on the progress of ICP Integrated Monitoring (EB.AIR/WG.1/2003/3, annex V);

(b) Noted the continued progress in site-specific dynamic modelling, welcomed the technical report (EB.AIR/WG.1/2003/9) and requested work to continue on this topic with particular emphasis on uncertainties;

(c) Took note of the programme's twelfth report, the annual report for 2003;

(d) Noted the continued progress in calculating pools and fluxes of heavy metals at selected sites and the plans for publication of the recent results;

(e) Took note of the progress made in calculating fluxes and trends of sulphur, nitrogen and base cations and in particular the results to be published on proton budgets and on the cumulative effects of N deposition;

(f) Welcomed the continued work on biodiversity in the work-plan.

F. ICP on Modelling and Mapping of Critical Levels and Loads and Air Pollution Effects, Risks and Trends

34. Mr. T. Spranger (Germany), Chairman of the Task Force of ICP Modelling and Mapping, introduced the report on the recent activities of the programme (EB.AIR/WG.1/2003/3, annex VI) and, in particular, reviewed the conclusions from the nineteenth meeting of the Task Force. He summarized the activities of the programme and presented plans for future activities. He also noted the progress achieved in developing critical limits and transfer functions for heavy metals (EB.AIR/WG.1/2003/10/Add.1) and the revision of the Mapping Manual. Mr. Spranger made special mention of the need for external input of data for mapping and modelling critical loads for heavy metals. He requested the Working Group to raise awareness so that the Working Group on Strategies and Review and its Expert Group on Heavy Metals might address the need for agro-economic data to calculate critical load exceedances. In addition, he stressed that cooperation to harmonize land cover data should continue between CCE, the EMEP Meteorological Synthesizing Centres, SEI and CIAM.

35. Mr. J.-P. Hettelingh, Head of the Coordination Center for Effects, presented the results of the calls for data from national focal centres with respect to critical loads for acidification and eutrophication and with respect to dynamic models (EB.AIR/WG.1/2003/10). The information was presented in the CCE Status Report 2003. He also described recent activities, including the outcome of the thirteenth CCE workshop, which focused on dynamic modelling. He made special mention of new preliminary deposition maps provided by EMEP which would have important consequences for the exceedances of critical loads. He concluded that the 2003 critical loads database had not changed significantly from 1999, but there were regional differences. He requested the Working Group to issue a new call for data on critical loads and dynamic modelling data for the autumn of 2003.

36. Several delegations expressed their high appreciation for the quantity of work and the quality and importance of the results achieved by the programme. In particular, a number of delegations welcomed the progress achieved in the application of dynamic modelling and the steps taken to link dynamic modelling to integrated assessment. CCE emphasized the need for information on target years for the dynamic modelling work. Delegations expressed interest in participating in the dynamic modelling activities and providing input for the work. Several delegations stressed that further steps should be taken to harmonize the land-cover maps used for different purposes under the Convention. Furthermore, it was noted that close cooperation between the programme's expert panel on heavy metals and the Expert Group on Heavy Metals was needed to provide appropriate input for the preparations for the review of the Protocol on Heavy Metals. In addition, close cooperation with other bodies under the Convention, in particular EMEP and CIAM, as well as the active participation of, and support by, all countries, was essential for the successful application of dynamic modelling on the European scale.

37. The Working Group on Effects:

- (a) Took note of the report on the progress of ICP on Modelling and Mapping including the results of the thirteenth CCE workshop (EB.AIR/WG.1/2003/3, annex VI);
- (b) Noted with appreciation the publication of the CCE Status report 2003: Modelling and Mapping of Critical Thresholds in Europe;
- (c) Took note of the report on the call for data for European critical loads on acidification and eutrophication including dynamic modelling parameters (EB.AIR/WG.1/2003/10);
- (d) Welcomed the technical report on progress in the development of heavy metal critical loads methodology (EB.AIR/WG.1/2003/10/Add.1) and requested the Task Force to continue work in this area to provide input to the Convention's Expert Group on Heavy Metals;
- (e) Took note of the large differences between exceedance maps based on preliminary ecosystem-dependent depositions and those based on average depositions, and decided to raise the awareness of the relevant bodies of the Convention concerning the consequences for integrated assessment modeling;
- (f) Invited CCE to issue a call for data on critical loads and dynamic modelling data in autumn 2003, stressed the importance of active participation of all Parties in the modelling and mapping activities, and urged Parties to continue their efforts to respond to calls for data;
- (g) Noted with appreciation the efforts made to review and revise the programme's Mapping Manual, and recommended its future use to Parties;
- (h) Decided to inform the Executive Body of its need for guidance in selecting target years for dynamic modelling;
- (i) Urged the programme to continue its efforts to harmonize land-cover mapping for the purposes of the Convention in cooperation with ICP Vegetation, the EMEP centres and SEI;
- (j) Agreed that the programme should extend its work to include studies of the synergies between the effects of air pollution and climate change;
- (k) Identified the need for data on non-atmospheric inputs of lead and cadmium (e.g. fertilizer) and requested that this should be brought to the attention of the Executive Body.

**G. Task Force on the Health Aspects of Air Pollution**

38. Mr. M. Krzyzanowski, representative of the European Centre for Environment and Health of the World Health Organization (WHO/ECEH), Bonn Office, and Chairman of the Task Force on the Health Aspects of Air Pollution, introduced the progress report on the activities of the Task Force, including the results of its sixth meeting (EB.AIR/WG.1/2003/3, annex VII). He also informed the Working Group of the publication of the report on the health risks of persistent organic pollutants from long-range transboundary air pollution and drew attention to the summary report on the evaluation of health risks of particulate matter and ozone (EB.AIR/WG.1/2003/11), which showed increased evidence of a causal relationship between fine particulate matter (measured as PM2.5) exposure and health effects. There was also new evidence from epidemiological studies on the effects of short-term exposure to ozone which suggested that there was no concentration threshold, as well as evidence of long-term effects on lung function.

39. Mr. Krzyzanowski outlined the future planned activities for the Task Force. These included the quantification of impacts of particulate matter and ozone on mortality and morbidity, in collaboration with EMEP and CIAM, and the initiation of an assessment of the health impacts of

“new” POPs. The activities would be carried out by WHO/ECEH in collaboration with the European Commission’s Clean Air for Europe (CAFE) programme with financial support from the European Commission. It was stressed that the results would also answer the needs of the Convention.

40. Delegations expressed their satisfaction with the impressive results achieved by the Task Force. It was noted that continued work on the quantification of health impacts of particulate matter and ozone was important.

41. The Working Group on Effects:

- (a) Took note of the report on the activities of the Task Force (EB.AIR/WG.1/2003/3, annex VII);
- (b) Noted with appreciation the publication by WHO of the full technical report on “Health Risks of Persistent Organic Pollutants from Long-range Transboundary Air Pollution” and welcomed the plans for an assessment of the health impacts of new POPs;
- (c) Welcomed the efforts of the Task Force to further develop its activities, especially to consider the monitoring and assessment of the health impacts of particulate matter and ozone (EB.AIR/WG.1/2003/11) in collaboration with EMEP and CIAM;
- (d) Expressed its appreciation to the WHO European Centre for Environment and Health, Bonn Office, for its continuing leading role in the Task Force’s activities;
- (e) Reiterated its invitation to all interested countries to nominate experts and actively participate in the work of the Task Force.

#### H. Common aspects of the International Cooperative Programmes

42. In introducing the discussion on more general aspects of the effect-oriented activities, the Chairman drew attention to the growing participation of countries in the effect-oriented activities. He noted the positive results of closer and more effective cooperation among ICPs, as well as with EMEP and other bodies under the Convention. He stressed the continuing need for communicating the results of the effect-oriented activities to policy and decision makers, to the professional community outside the Convention and to the general public. This would help maintain the necessary political and financial support.

43. The Working Group on Effects:

- (a) Welcomed the efforts of the ICP and the Task Force on the Health Aspects of Air Pollution to address priority tasks to support the effective implementation of the Convention, in particular on preparing for the forthcoming review of the protocols;
- (b) Stressed once more the importance of the work carried out by the national focal centres and of the support provided by the lead countries and coordinating centres;
- (c) Welcomed the increased level of participation in the Working Group, and noted the continuing trend of Parties to participate in the activities of the task forces; stressed the importance of active participation by all Parties in the effect-oriented activities to provide the sound knowledge and high-quality representative databases required for effective implementation and future review of the Convention and its protocols;
- (d) Invited the Executive Body to reiterate its invitation to Parties to nominate national

focal centres for those effect-oriented activities/programmes in which they did not yet actively participate;

(e) Noted the importance of communicating the results and findings of the effect-oriented activities to the scientific community, policy makers and the general public both at national and international levels, and took note that the twenty-fifth anniversary of the Convention, in 2004, would provide a good opportunity for publicizing the work of the programmes;

(f) Took note of the work-plan elements dealing with synergy between climate change and air pollution as identified by the ICPs and the Task Force on Health Aspects.

## V. FURTHER DEVELOPMENT OF THE EFFECT-ORIENTED ACTIVITIES AND THEIR CONTRIBUTION TO THE FUTURE REVIEW OF PROTOCOLS

### A. Updated medium-term work-plan

44. The Chairman introduced the medium-term work-plan for the further development of the effect-oriented activities (EB.AIR/WG.1/2003/4) noting that it had been prepared following the Executive Body's invitation to harmonize it as much as possible with that of the EMEP Steering Body. He also informed the Working Group on the results of the meeting of its Extended Bureau, held with the Bureau of the Steering Body, which had taken place in February 2003. Document EB.AIR/WG.1/2002/6 had been updated, amending specific tasks to be carried out by individual programmes in 2003-2004.

45. Representatives of several programmes proposed changes to the table of the medium-term work-plan. It was agreed that "Material for possible review of the Protocol" under POPs should be moved from 2005 to 2004, "Proposal for effect-based approach for Hg" under Heavy Metals should be moved from 2005 to 2004, a new activity "Agreed methodology for Hg" should be introduced in 2005, and "Preliminary dynamic modelling: European scale" for Nutrient N should be transferred to 2005 (see table below).

46. The Working Group on Effects:

(a) Took note of the results of the joint meeting of its Extended Bureau and the Bureau of the EMEP Steering Body, which had taken place in February 2003;

(b) Approved the updated medium-term work-plan for the further development of the effect-oriented activities (EB.AIR/WG.1/2003/4) as amended and decided to submit it to the Executive Body;

(c) Agreed on the importance of continuing collaboration with the EMEP Steering Body, in particular with its Bureau and programme centres, to ensure that the Convention's priorities were addressed effectively;

(d) Agreed to bear the above in mind when considering plans for its future activities, and invited all programmes to do the same.

### B. Draft annotated outline of the 2004 substantive report

47. The Chairman presented the draft annotated outline of the report on the review and assessment of present air pollution effects and their recorded trends (EB.AIR/WG.1/2003/3/Add.1), prepared by the Bureau in collaboration with the secretariat and

with the assistance of a consultant. He noted the availability of the first draft of the report on the Working Group's web page. He stressed that the objective of the report was not only to present the most important results of individual programmes/task forces but, in particular, to provide the Executive Body with summarized and assessed data and information needed for the forthcoming review of the protocols to the Convention.

48. The consultant responsible for preparing the first draft report, Mr. Guy Fenech, outlined the work that he had done to compile the draft. To ensure consistency in the form and content of individual contributions, he had held bilateral discussions with all programme centres. Based on in-depth assessment of the comprehensive contributions provided by ICPs and the Task Force early in 2003, the consultant proposed: (i) amendments to the structure of the report; (ii) additional topics to be addressed by ICPs and the Task Force; and (iii) methods of work for finalizing the draft substantive report.

49. The Chairman indicated that the Bureau and the Extended Bureau had agreed to invite ICPs to send their comments to the Secretariat by the end of September 2003 and decided on further steps to be taken to fill the gaps in the report. The missing parts of the document in the chapter on trends in emissions and deposition would be prepared in cooperation with EMEP. There were also gaps in the chapter on economic aspects and the chapter on conclusions and recommendations. The Bureau would be meeting in December to review the inputs to the report. He invited delegates to provide information for the further editing of the report and noted that the Working Group was expected to decide upon its plan for finalizing the report in readiness for the twenty-third session of the Working Group in 2004.

50. In the ensuing discussion, ICPs were asked to check the contents of the report for consistency. The delegation of France enquired of the possibility for translating the document into other languages, preferable French and Russian, if funds were available.

51. The Working Group on Effects:

(a) Approved the draft of the 2004 substantive report on the review and assessment of present air pollution effects and their recorded trends, summarized in document EB.AIR/WG.1/2003/3/Add.1, taking note of suggestions for amendment, and decided to submit it to the Executive Body for information;

(b) Expressed its appreciation to the consultant, Mr. G. Fenech, and to the Task Force and ICPs for their contributions and their active participation throughout its preparation;

(c) Agreed that the Bureau in collaboration with the secretariat should take the necessary steps to ensure that the report was finalized and published in readiness for the Working Group's twenty-third session and the Convention's twenty-fifth anniversary;

(d) Agreed to investigate the possibilities for translating the full document into other languages;

(e) Invited Parties to submit comments for the further editing of the report to the Secretariat before the end of September.

## VI. UPDATING OF SCIENTIFIC AND TECHNICAL KNOWLEDGE

### A. Progress in dynamic modelling

52. Mr. A. Jenkins (United Kingdom), Chairman of the Joint Expert Group on Dynamic Modelling, introduced the summary report on its third meeting (EB.AIR/WG.1/2003/13). He reviewed the present status and recent progress in dynamic modelling and the methods to be used for European assessment. He summarized the Group's main findings and recommendations regarding future activities of ICPs and other bodies under the Convention. Key conclusions were directed towards making full use of existing model outputs, ensuring consistency with critical loads, encouraging ICPs to transfer dynamic modelling expertise, and promoting the use of outputs of dynamic modelling widely and publicly to increase the wider understanding of the concepts, approaches and results. He also noted the most important gaps in knowledge and outlined the needs for future research and development.

53. The Working Group welcomed the progress achieved, stressed the importance of dynamic modelling for the work under the Convention, and supported the further development of these activities.

54. The Working Group:

- (a) Noted the conclusions and recommendations from the third meeting of the Joint Expert Group (EB.AIR/WG.1/2003/13) and decided to present them to the Executive Body for information;
- (b) Welcomed the important work done by the Joint Expert Group, and noted the active participation of ICPs and national experts in its activities;
- (c) Noted the need for further work on uncertainties and the importance of securing resources for this work;
- (d) Noted with appreciation the proposals from the Joint Expert Group to continue its work, noting the suggestions for more openness and focus on ICP work, and requested the Joint Expert Group to report on progress to it in 2004.

### B. Workshop on empirical critical loads for nitrogen deposition on semi-natural ecosystems

55. Mr. B. Achermann (Switzerland) introduced the note on the results, conclusions and recommendations of the workshop on empirical critical loads for nitrogen deposition on semi-natural ecosystems, held in Bern in November 2002 (EB.AIR/WG.1/2003/14). The aim of the workshop was to evaluate, update or revise the critical loads and to give more guidance regarding the use of a harmonized classification and mapping of nitrogen-sensitive ecosystems.

56. Several delegations congratulated Switzerland and the authors of the background documents on their excellent work. However, it was recognized that scientific data were still weak for critical loads for marine environments.

57. The Working Group:

- (a) Took note of the workshop report on empirical critical loads for nitrogen deposition on (semi-) natural ecosystems, as summarized in EB.AIR/WG.1/2003/14, and decided to present it to the Executive Body for information;
- (b) Welcomed the progress made but stressed the need for continued research into the long-term effects of increased nitrogen deposition on (semi-) natural ecosystems, including that for low-deposition areas;
- (c) Welcomed in particular the derived ranges for empirical critical loads for ecosystems classified according to the harmonized European nature information (EUNIS) system.

C. Workshop on establishing ozone critical levels II

58. The Chairman presented the note on the results of the workshop on establishing ozone critical levels II, held in November 2002 in Gotenburg, Sweden. The complete workshop report was available on the Internet at: [www.ozoneworkshop.ivl.se](http://www.ozoneworkshop.ivl.se). The aims of the workshop were to review new and existing knowledge, to suggest ozone exposure relationships for use for different vegetation types and to suggest specific changes to the Mapping Manual.

59. The Working Group:

- (a) Took note of the substantial progress made in the development of new ozone critical levels for agricultural crops, semi-natural vegetation and forest trees;
- (b) Took note of the results of the workshop and its main conclusions and recommendations, and agreed that this formed a good basis for revised critical levels for ozone;
- (c) Requested ICP Vegetation and ICP Forests to continue their efforts in developing improved critical levels for ozone.

D. Forthcoming workshops and technical meetings

60. Organizers and/or representatives of the host countries provided information on the objectives of, and ongoing preparations for, the forthcoming workshops and technical meetings:

- (a) CCE training session on dynamic modelling (13-15 October 2003, Prague, tentatively);
- (b) Workshop on critical loads for heavy metals (spring 2004, tentatively);
- (c) ICP Materials programme Task Force meeting (9-10 June 2004 in Watford, United Kingdom);
- (d) ICP Integrated Monitoring programme Task Force meeting (13-15 May 2004 in Molln, Austria);
- (e) ICP Waters programme Task Force meeting (October 2004 in Sweden, tentatively);
- (f) Subregional critical loads workshop for Central Europe (20-21 November 2003 in Cracow, Poland).

The provisional list of meetings for 2003/2004 was updated accordingly.

61. The Working Group on Effects:

- (a) Took note of the planned workshops and technical meetings and appreciated the effort already devoted to their preparation; it invited Parties to participate actively in them;
- (b) Requested the secretariat to make the existing guidelines for organizing workshops, expert groups and task force meetings available on a web page of the Convention.

## VII. FINANCING OF EFFECT-ORIENTED ACTIVITIES

62. The secretariat introduced a note on the financing of effect-oriented activities, prepared by the Bureau of the Working Group in collaboration with the secretariat (EB.AIR/WG.1/2003/12), which was prepared in line with decision 2002/1 of the Executive Body. The secretariat presented updated information on table 3 of the document showing the recent development in the Trust Fund. It noted that the total sum of contributions in 2003 exceeded the total sum in 2002, but stressed that there were payments of previous years' contributions by Belgium and Monaco and contributions in kind from the United Kingdom, which were included as agreed in decision 2002/1. It drew attention to the relevant decisions of the Executive Body requesting the Working Group on Effects to submit to it at its twentieth session an agreed budget for 2003 and preliminary budgets for 2004 and 2005 showing essential coordination costs of different elements of the effect-oriented activities.

63. The Chairman reiterated the importance of the substantial financial support provided by all lead countries of the programmes, by countries hosting the programme centres, and those organizing task force meetings and workshops.

64. The Working Group:

- (a) Approved the note on the financing of effect-oriented activities (EB.AIR/WG.1/2003/12), as amended, and decided to submit it to the Executive Body;
- (b) Approved the essential coordination costs of different elements of the effect-oriented activities for 2004 (EB.AIR/WG.1/2003/12, table 1) and the preliminary total estimates of the 2005 and 2006 costs of US\$ 2,152,700 for submission to the Executive Body;
- (c) Noted with appreciation the essential support provided to it and its effect-oriented activities by lead countries, countries hosting coordinating centres and organizing meetings, and countries funding the activities of their national focal centres and the active participation of their national experts in the work under the Convention;
- (d) Reiterated its invitation to all Parties which had not yet done so to consider providing voluntary contributions to the Trust Fund for financing the effect-oriented activities without undue delay;
- (e) Expressed its appreciation to Belgium and Monaco for their contributions addressing payments for previous years.

65. The secretariat informed the Working Group that voluntary contributions in United States dollars should be sent to:

Bank Name:	JPMorgan Chase Bank
Address:	International Agencies Branch
	1166, Avenue of the America, 17th floor
	New York, N.Y. 10036-2708, USA
ABA:	021000021 (Specific for US use)
SWIFT code:	CHASUS33
Account Name:	UN Geneva General Fund
Account Number:	485-001802

Each contribution must be clearly referenced:

Credit LUA Trust Fund ECE/EOA, Allotment account: LUC-25-270

66. These contributions should be clearly earmarked by year for which the contribution is made and the specific programme/coordinating centre (if applicable).

67. Alternatively, contributions may also be made by cheque made payable to "UN Economic Commission for Europe", clearly earmarked as indicated above, and addressed to:

Executive Office (Office 333)  
Office of the Executive Secretary  
Economic Commission for Europe  
Palais des Nations  
1211 Geneva 10

68. Whatever the method of payment, a communication should be sent to UNECE, specifying the amount contributed, the date and purpose of the payment.

### VIII. ELECTION OF OFFICERS

69. Mr. H.-D. Gregor (Germany) was re-elected Chairman. Mr. B. Achermann (Switzerland), Mr. T. Johannessen (Norway), Mr. R. Farret (France) and Mr. W. Mill (Poland) were re-elected Vice-Chairmen. The Working Group noted with appreciation the support from Mr. G. Fenech (Canada), who retired after serving as Vice-Chairman. It elected Mr. F. Conway (Canada), as its new Vice-Chairman. The Working Group appreciated the important contribution of its Bureau to the recent impressive results and expressed its gratitude. The Working Group also noted that to meet all its future demanding tasks the Bureau might need to invite other experts to participate in its work.

### IX. OTHER BUSINESS

70. The secretariat presented a provisional list of meetings for 2003/2004 and invited all Parties and programmes to communicate to it any amendments or new information.

71. The delegation of Poland indicated that its Ministry of Environment had offered to translate the Modelling and Mapping Manual into Russian, if the Working Group recognized the need for this. The Working Group, including ICP Modelling and Mapping, expressed its appreciation for the offer by Poland and accepted it.

72. The secretariat again drew the attention of the Working Group to the web pages of the Executive Body (<http://www.unece.org/env/eb>) and the Working Group on Effects (<http://www.unece.org/env/wge>).

73. The Chairman informed the Working Group that its twenty-third session was tentatively scheduled to be held from 1-3 September 2004, starting on Wednesday, 1 September 2004, at 10 a.m.

**Table**  
**Medium-term work-plan: intended deliverables of the effect-oriented activities for individual pollutants and years**

	Acidity	Nutrient N	Ozone ( $O_3$ )	PM	Heavy metals (HM)	POPs
2003	Evaluating critical loads and dynamic models at ICP Forests sites (F, MAP) Modelling of effects in surface waters (W) Updated trends in corrosion effects (MAT) Proton budget calculations (IM) Effects on vegetation (IM) Updated critical loads maps (MAP) Preliminary results of dynamic modelling (MAP)	Effects on vegetation (IM) Updated critical loads maps (MAP) Site-specific dynamic modelling (IM)	Concentration- and flux-effect models for crops, semi-natural vegetation and trees (V, F) Preliminary maps of revised critical levels of $O_3$ (V) Approved methodology for $O_3$ mapping (V, MAP) Database on response of natural vegetation to $O_3$ (V) Review of health effects (H)	Updated review of health effects (H)	Critical loads and risk assessment of HM (F, MAP) Assessment of HM release due to corrosion (MAT) Report from HM in mosses 2000/2001 survey (V) Scientific paper on HM concentrations/fluxes (IM)	Review of health risks from long-range transboundary air pollution (H)
2004	Modelling biological recovery (W) Multi-pollutant dose/response functions (MAT) Threshold levels for multi-pollutant effects and mapping of areas of exceedance (MAT) Dynamic modelling (IM) Recovery and trends on IM sites (IM) Updated critical loads maps (MAP) Results of dynamic modelling on European scale to TFIAM (MAP)	Trend analysis (F) Recovery and trends on IM sites (IM) Updated maps of critical loads (MAP) Dynamic modelling (IM)	Geographical distribution of $O_3$ injuries in forests, incl. list of sensitive species (F) Trends in injury and biomass reduction (V) Final maps of revised critical levels of $O_3$ for TFIAM (V, F, MAP) Exposure assessment and health risk (H) Flux-effect model for clover (V)	Preliminary threshold levels for effects of PM on materials (MAT) Assessment of health effects of exposure (H)	Assessment of HM in soil on forest sites; update (F) Report on factors influencing HM content in mosses (V) Agreed methodology for mapping critical loads of Pb, Cd (MAP) Proposal for effect-based approach for Hg (MAP)	Assessment of POPs in aquatic biota (W) Material for possible review of the Protocol (for existing and new substances) (MAP, IM, V, H)
2005	Updated critical loads and dynamic modelling results (MAP, JEG)	Updated critical loads and dynamic modelling results (MAP, JEG) Relationships between N depositions, forest stand structure and species composition of ground vegetation (F) Spatial and temporal trends in N content of vegetation in Europe (V) Preliminary dynamic modelling: European scale (MAP)	Comparison of economic impacts on crops using concentration-based and flux-based approaches (V) Mapping plant communities at risk (V, MAP) Relationships between $O_3$ concentrations and ozone symptoms on forest trees (F)	Final threshold levels for effects of PM on materials (MAT)	Advanced maps of critical loads of Cd and Pb (MAP) First report on critical loads exceedances for Cd and Pb with improved maps (MAP, in cooperation with MSC-E) Material for possible review of the Protocol (critical loads maps, risk assessment of other HM (MAP, F, W, MAT, IM, V, H)) Trends in HM in mosses (V) Agreed methodology for Hg (MAP)	

(F): ICP Forests; (H): Task Force on the Health Aspects of Air Pollution; (IM): ICP Integrated Monitoring; (JEG): Joint Expert Group on Dynamic Modelling; (MAP): ICP Modelling and Mapping; (MAT): ICP Materials; (V): ICP Vegetation; (W): ICP Waters; (TFIAM): Task Force on Integrated Assessment Modelling.

Annex

**PROVISIONAL LIST OF MEETINGS FOR 2003/2004**

15-18 December 2003 Geneva	Executive Body for the Convention (twenty-first session)
1-3 September 2004 Geneva	Working Group on Effects (twenty-third session)
6-8 September 2004 Geneva	EMEP Steering Body (twenty-eighth session)
13-17 September 2004 Geneva	Working Group on Strategies and Review (thirty-sixth session)
14-17 December 2004 Geneva	Executive Body for the Convention (twenty-second session)
April 2004 Rome	Implementation Committee (thirteenth meeting)
September 2004 Geneva	Implementation Committee (fourteenth meeting)
6-8 October 2003 Lugano (Switzerland)	Programme Task Force, ICP on Assessment and Monitoring of Acidification of Rivers and Lakes (nineteenth meeting)
9-10 October 2003 Angers (France)	Expert Group on Techno-economic Issues
13-15 October 2003 Prague	CCE training session on dynamic modelling
3-5 November 2003 Oslo	Task Force on Measurements and Modelling, Workshop to review and evaluate the unified EMEP model
17-18 November 2003 Langen (Germany)	Workshop on heavy metals
20-21 November 2003 Cracow (Poland)	Subregional critical loads workshop for Central Europe
26-28 November 2003 Sweden	EMEP Workshop on emissions, transport, deposition and effects of base cations in relation to acidification
November 2003 Moscow (tentatively)	The third expert meeting on the Intercomparison of POP models
Autumn 2003 (tentatively)	Network of Experts on Benefits and Economic Instruments (NEBEI) Workshop on material damage to cultural heritage
22-23 January 2004 Laxenberg (Austria) (tentatively)	Task Force on Integrated Assessment Modelling, EMEP Workshop on RAINS model review
February 2004 Kalamata (Greece) (tentatively)	Programme Task Force, ICP on Effects of Air Pollution on Natural Vegetation and Crops (seventeenth meeting)
20-23 April 2004 New Orleans (United States)	EMEP Workshop on particulate matter measurements and modelling

April 2004 Oslo (tentatively)	Task Force on Measurements and Modelling (fifth meeting) (foreseen to be held jointly with WMO Global Atmosphere Watch)
April/May 2004 Bonn (Germany) (tentatively)	Joint Task Force on the Health Aspects of Air Pollution (seventh meeting)
10-12 May 2004 Paris (France) (tentatively)	Task Force on Integrated Assessment Modelling (twenty-ninth meeting)
13-15 May 2004 Molln (Austria)	Programme Task Force, ICP on Integrated Monitoring of Air Pollution Effects on Ecosystems (twelfth meeting)
22-26 May 2004 Sweden (tentatively)	Programme Task Force, ICP on Assessment and Monitoring of Air Pollution Effects on Forests (twentieth meeting)
24-26 May 2004 Vienna (tentatively)	CCE workshop (fourteenth)
27-28 May 2004 Vienna (tentatively)	Programme Task Force, ICP on Modelling and Mapping of Critical Levels and Loads and Air Pollution Effects, Risks and Trends (twentieth meeting)
9-10 June 2004 Watford (United Kingdom)	Programme Task Force, ICP on Effects of Air Pollution on Materials, Including Historic and Cultural Monuments (twentieth meeting)
23-25 June 2004 Indianapolis (United States) (tentatively)	Workshop on control technologies for particulate matter
Spring 2004 (tentatively)	Workshop on critical loads for heavy metals
Spring 2004 Poland (tentatively)	Expert Group on Ammonia Abatement, Workshop on agricultural emission abatement options
Spring 2004 (tentatively)	Task Force on Emission Inventories and Projections (thirteenth meeting) / EIONET
October 2004 Sweden (tentatively)	Programme Task Force, ICP Waters on Assessment and Monitoring of Acidification of Rivers and Lakes (nineteenth meeting)
Autumn 2004 (tentatively)	Task Force on Measurements and Modelling, EMEP Workshop on hemispheric air pollution (follow-up to Bad Breisig, 2002)
2004 Sweden (tentatively)	Saltsjöbaden II (EMEP Workshop on air pollution policy assessment)