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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-THIRD SESSION  
OF THE WORKING GROUP ON EFFECTS**

**Introduction**

1. The twenty-third session of the Working Group on Effects took place in Geneva from 1 to 3 September 2004.
2. It was attended by representatives of the following Parties to the Convention: Armenia; Austria; Belgium; Bulgaria; Canada; Czech Republic; Denmark; Estonia; Finland; France; Germany; Hungary; Italy; Netherlands; Norway; Poland; Republic of Moldova; Romania; Russian Federation; Serbia and Montenegro; Slovenia; Sweden; Switzerland; Ukraine; United Kingdom; and the European Community.
3. A representative of the World Health Organization's European Centre for Environment and Health (WHO/ECEH), Bonn Office, was present. The EMEP Centre for Integrated Assessment Modelling (CIAM) was also represented.
4. Representatives of the following non-governmental organizations were present: the Oil Companies' European Organisation for Environment, Health and Safety (CONCAWE), and the Union of the Electricity Industry (EURELECTRIC).
5. 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**

6. The agenda (EB.AIR/WG.1/2004/1) was adopted.

## **II. ADOPTION OF THE REPORT OF THE TWENTY-SECOND SESSION**

7. The Working Group adopted the report of its twenty-second session (EB.AIR/WG.1/2003/2).

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

8. Mr. K. Bull, Chief of the Air and Water Team of the Environment and Human Settlements Division, provided information on the present status of the Convention's protocols and preparations for Convention's twenty-fifth anniversary. He drew special attention to the new United Nations guidelines on reports drafted and/or compiled in the secretariat, which emphasize the focusing on recommendations and conclusive decisions.

9. Mr. R. Ballaman (Switzerland), Chair of the Working Group on Strategies and Review, drew attention to priorities for consideration by the Working Group on Effects.

10. The Working Group took note of the decisions made by the Executive Body and its Bureau, and the deliberations of other bodies under the Convention, and agreed to bear them in mind when discussing its future activities.

## **IV. REVIEW OF RECENT RESULTS AND UPDATING OF SCIENTIFIC/TECHNICAL KNOWLEDGE**

11. The Chairman drew attention to the new structure of the session. The programme centres of the international cooperative programmes (ICPs) would present their technical results under seven environmental themes. Lead countries of each programme would give information on recent outputs and proposed short-term goals under a separate item.

### **A. Acidification**

12. Ms. B.-L. Skjelkvåle (Norway), ICP Waters, presented results on the recovery of invertebrate fauna from acidification at ICP Waters sites in Europe and North America

(EB.AIR/WG.1/2004/6) and noted in particular that continued improvement to the chemical status of acid-sensitive lakes and streams was leading to biological recovery.

13. Mr. V. Kucera (Sweden), Chairman of the Task Force of ICP Materials, summarized the evaluation of results from the multi-pollutant exposure programme of ICP Materials (EB.AIR/WG.1/2004/7) including the results of the European Union (EU) research projects MULTI-POLLUTANT and MULTI-ASSESS, concluding that the decreasing trend in corrosion had halted in some regions of Europe even though SO<sub>2</sub> concentrations were still decreasing, possibly due to the contributions from HNO<sub>3</sub> and particles.

14. Mr. M. Forsius (Finland), Head of the Programme Centre of ICP Integrated Monitoring, described proton budget calculations for ICP Integrated Monitoring sites. He noted that proton budgets were useful for integrating the net effects of several complex processes in acidified catchments.

15. Mr. J.-P. Hettelingh (Netherlands), Head of the Coordination Center for Effects (CCE) of ICP Modelling and Mapping, showed the new data from national focal centres on critical loads for acidification and eutrophication and on dynamic models (EB.AIR/WG.1/2004/10), stressing that 11% and 8% of European ecosystems were at risk from acidification in 2000 and 2010, respectively, as indicated by the new critical loads database of acidity and deposition computed with the EMEP unified model.

16. Mr. A. Jenkins (United Kingdom), Co-Chair of the Joint Expert Group on Dynamic Modelling, reported the relevant conclusions from the fourth meeting of the Joint Expert Group on Dynamic Modelling (EB.AIR/WG.1/2004/13), confirming that studies on acidification were on schedule.

17. The Working Group recognized with appreciation the range and quality of the work being done on acidification and:

(a) Took note of the ICP Waters report and conclusions on biological recovery at its sites (EB.AIR/WG.1/2004/6) and welcomed continued work on biological dynamic response models;

(b) Took note of the ICP Materials report on recent corrosion trends and measurements of HNO<sub>3</sub> for the multi-pollutant exposure programme (EB.AIR/WG.1/2004/7) and the progress in developing dose-response functions;

(c) Took note of the scientific paper on proton budgets at ICP Integrated Monitoring sites and its conclusions;

(d) Took note of the results and the technical report of ICP Modelling and Mapping on critical loads for acidification and dynamic models (EB.AIR/WG.1/2004/10) and recommended the results for use in work under the Convention;

(e) Agreed that 2030, 2050 and 2100 may be used as target years for dynamic modelling, noting that 2030 and 2050 had been suggested by the Working Group on Strategies

and Review (EB.AIR/WG.5/76, para. 36). It further noted the focus on only one implementation year (currently 2015), by which all reduction measures to reach the final deposition, the target load, were assumed to be implemented;

(f) Encouraged continued collaboration to ensure further development of appropriate interfaces between dynamic modelling and integrated assessment work;

(g) Requested that the new results from the EMEP unified model be reflected in the deposition history for use in dynamic modelling and for CCE to make appropriate data available to national focal centres;

(h) Took note of the conclusions of the report of the fourth meeting of the Joint Expert Group on Dynamic Modelling (EB.AIR/WG.1/2004/13) and confirmed that models should be calibrated to observations to ensure the validity of results.

## **B. Nutrient nitrogen**

18. Mr. M. Lorenz (Germany), Head of the Programme Coordinating Centre of ICP Forests, summarized measurements of nitrogen concentrations in bulk deposition made at level II sites (EB.AIR/WG.1/2004/5) and relationships identified between deposition, crown condition, tree growth and ground vegetation.

19. Mr. Forsius reported on the assessment of nitrogen processes and carbon-nitrogen (C/N) interactions at ICP Integrated Monitoring sites (EB.AIR/WG.1/2004/9), concluding that the C/N ratio in the organic horizon of soil was a useful indicator for risk of nitrogen leaching.

20. Mr. M. Posch (Netherlands), of CCE, described changes in exceedances partly resulting from the new critical loads data but mainly due to the EMEP unified model. He stressed that the latest calculations showed critical loads of nutrient nitrogen would be exceeded in 35% of the ecosystem area in 2010 after implementation of the Gothenburg Protocol.

21. Mr. Jenkins, referring to modelling of nutrient nitrogen (EB.AIR/WG.1/2004/13), identified a need for further work on the links between empirical and dynamic models.

22. The Working Group congratulated the programmes on their important work on nutrient nitrogen and:

(a) Took note of the results of ICP Forests on nitrogen deposition (EB.AIR/WG.1/2004/5) and noted with satisfaction the work funded by the Trust Fund;

(b) Took note of the findings on nitrogen processes at ICP Integrated Monitoring sites (EB.AIR/WG.1/2004/9);

(c) Took note of ICP Modelling and Mapping analyses of critical loads for eutrophication and dynamic models (EB.AIR/WG.1/2004/10) and recommended the results for use in work under the Convention;

(d) Noted the need to further develop methods for dynamic modelling of nutrient nitrogen as expressed by the Joint Expert Group on Dynamic Modelling (EB.AIR/WG.1/2004/13);

(e) Expressed its strong support for a workshop to stimulate modelling of nutrient nitrogen processes and their effects to meet its medium-term work-plan.

### C. Ozone

23. Mr. H. Harmens (United Kingdom), Chairman of the Task Force on ICP Vegetation, introduced recent results on ozone effects on vegetation (EB.AIR/WG.1/2004/8) drawing attention to improved concentration-based critical levels and to definitions of flux-based critical levels for selected vegetation receptors and noted predictions of impacts of ozone on crop production.

24. Mr. Lorenz described the assessment of exposure to ozone at level II plots (EB.AIR/WG.1/2004/5) where AOT40 (accumulated ozone concentration over a threshold of 40 parts per billion) values were estimated by passive and active monitoring as well as by modelling.

25. Mr. M. Krzyzanowski, representative of WHO/ECEH, Bonn Office, and Chairman of the Task Force on the Health Aspects of Air Pollution, outlined information on the health risks of ozone (EB.AIR/WG.1/2004/11), concluding that agreed methods for quantifying impacts indicated that more than 10,000 premature deaths per year in Europe could be attributed to ozone exposure.

26. The Working Group on Effects welcomed the progress and new results on ozone effects and:

(a) Took note of the ICP Vegetation technical report on flux-based critical levels for ozone (EB.AIR/WG.1/2004/8);

(b) Took note of the ICP Forests assessment of ozone injury to forests (EB.AIR/WG.1/2004/5);

(c) Took note of the Task Force on Health's results on the impacts of ozone to human health (EB.AIR/WG.1/2004/11);

(d) Agreed to amend document EB.AIR/WG.1/2004/5 by deleting "2000" in the caption to table 1 and deleting chapter IV, paragraphs 17 to 19, from the document, and requested the secretariat to issue a corrigendum.

### D. Particulate matter

27. Mr. Kucera gave an overview of the effects of particles on materials (EB.AIR/WG.1/2004/7) noting ICP Materials had developed a passive sampler for particulate matter deposition and had initiated assessment of soiling effects.

28. Mr. Krzyzanowski described the report on the health risks of particulate matter (EB.AIR/WG.1/2004/11); there were significant impacts of fine particulate matter on human health leading to a shortened life expectancy in the more polluted part of Europe up to one or two years and long-range transport of air pollutants was an important source of the risk.

29. The Working Group on Effects noted with appreciation the work on particulate matter and:

(a) Took note of the ICP Materials report on recent corrosion trends and measurements of particulates for the multi-pollutant exposure programme (EB.AIR/WG.1/2004/7);

(b) Took note of the Task Force on Health's findings on the modelling and assessment of the health impacts of particulate matter (EB.AIR/WG.1/2004/11);

(c) Encouraged Parties to send representatives to an editorial meeting arranged by the Task Force on Health on health risks of particulate matter from long-range transboundary air pollution on 4-5 November 2004 in Vienna.

#### **E. Heavy metals**

30. Mr. L. Lundin (Sweden), Chairman of the Task Force of ICP Integrated Monitoring, summarized the results on heavy metal pools and fluxes at ICP Integrated Monitoring sites (EB.AIR/WG.1/2004/9), noting heavy metals accumulating in soils and catchments often exceeded critical limits, leading to increased risks to biota.

31. Mr. Harmens reported on activities of ICP Vegetation, including the factors influencing the concentrations of heavy metals in mosses. He stressed the need to continue long-term moss biomonitoring and to relate the biomonitoring data to modelled deposition.

32. Ms. G. Schütze, Chairperson of the expert panel on heavy metals of ICP Modelling and Mapping, introduced the report of the workshop on critical loads of heavy metals (EB.AIR/WG.1/2004/10/Add.1), noting the proposal to use available effects-based approaches for Pb, Cd and Hg as scientific input to the review of the Protocol on Heavy Metals.

33. The Working Group on Effects expressed its appreciation of the work on heavy metals and:

(a) Took note of the ICP Integrated Monitoring report on heavy metal and nitrogen studies (EB.AIR/WG.1/2004/9);

(b) Took note of the ICP Vegetation activities on heavy metals in vegetation in 2003/2004, including results from the analysis of factors influencing the concentrations of heavy metals in mosses, and the preparations for the 2005 heavy metals in mosses survey;

(c) Took note of the recent developments and the report of the ICP Modelling and Mapping workshop on critical loads of heavy metals (EB.AIR/WG.1/2004/10/Add.1) concluding

that effects-based approaches for heavy metals were sound and recommending the results for use in work under the Convention.

#### **F. Persistent organic pollutants (POPs)**

34. Ms. M. Ulstein (Norway), Head of the Programme Centre of ICP Waters, outlined an assessment of persistent organic pollutants (POPs) in aquatic ecosystems. A draft report was in preparation and would be discussed by the Task Force in October. It would be available to the Task Force on POPs and a final report would be presented to the Working Group at its next session. Mr. Krzyzanowski noted that the Task Force on Health had completed and presented its evaluation of health risks of POPs in 2003 but was preparing for further work.

35. The delegate of Serbia and Montenegro drew attention to the forthcoming document "Draft guidance and guidelines on best available techniques and best environmental practice on POPs" being prepared by an expert group established under the Stockholm Convention on POPs and expected to be finalized in October 2004.

36. The Working Group on Effects noted the important work on POPs and:

- (a) Took note of the outline for an ICP Waters report of POPs in surface waters;
- (b) Noted that the Task Force on Health would address the risk of new candidate POPs according to the expected requests from the Executive Body.

#### **G. Cross-cutting items**

37. Mr. Hettelingh reported on an expert meeting on land-cover data and ecosystem classification harmonization (EB.AIR/WG.1/2004/10/Add.1) proposing that a harmonized land-cover map should be used in the Convention's work based on CORINE (Coordination and Information on the Environment) data and land-cover information from the Stockholm Environment Institute using EUNIS (European Nature Information System) to classify ecosystems.

38. Mr. Hettelingh also noted work by CCE on the derivation and evaluation of impact factors, which relate country-specific emissions to changes in unprotected ecosystem areas. Impact factors could be used for impact assessments but he recommended caution for use in cost-benefit analyses.

39. Mr. S. Doytchinov (Italy) described the activities of the new sub-centre of ICP Materials and demonstrated the links between UNESCO cultural heritage sites in Europe and modelled air pollution concentrations of sulphur and nitrogen compounds and particulate matter.

40. The secretariat outlined the results from the workshop on emissions, transport, deposition and effects of base cations in relation to acidification (EB.AIR/WG.1/2004/15) held in

cooperation with EMEP. A first draft base cation deposition map for Europe was providing background information for comparison with national data used in the calculation of critical loads and dynamic acidification modelling.

41. The Working Group on Effects acknowledged the importance of the collaborative and harmonizing work on cross-cutting issues and:

(a) Took note of the expert meeting on land-cover data and ecosystem classification harmonization (EB.AIR/WG.1/2004/10/Add.1) and recommended the harmonized land-cover map for use in work under the Convention. It stressed the need for further harmonization and invited efforts to complement the map with other information such as nature conservation areas and population data;

(b) Noted with appreciation the work carried out by ICP Materials on the mapping and assessment of cultural heritage objects at risk;

(c) Welcomed the advances made by CCE on applying critical loads data to derive impact factors for the use in, for example, life-cycle and multi-criteria analyses;

(d) Took note of the workshop report on emissions, transport, deposition and effects of base cations in relation to acidification (EB.AIR/WG.1/2004/15), stressed the need for further collaboration and recommended the common base cation deposition data for use in work under the Convention.

#### **H. Information on forthcoming workshops/technical meetings**

42. Organizers and/or representatives of the host countries provided information on proposed forthcoming workshops and technical meetings:

(a) ICP Waters workshop on confounding factors (to be held 2005/2006);

(b) ICP Vegetation workshop on critical levels of ozone: further applying and developing the flux-based concept (15-19 November 2005, Obergurgl, Austria).

43. The Working Group agreed to add these to its work-plan and the provisional list of meetings for 2004/2005.

#### **V. RECENT OUTPUTS AND PROPOSED SHORT-TERM GOALS OF THE EFFECT-ORIENTED ACTIVITIES**

44. The secretariat introduced the 2004 Joint Report of the ICPs and the Task Force on Health on progress in the effect-oriented activities (EB.AIR/WG.1/2004/3), which was aimed to contribute to the twenty-fifth anniversary of the Convention by describing the history of its effects-oriented activities.

45. The Working Group on Effects welcomed the contribution to the Convention's anniversary (EB.AIR/WG.1/2004/3) and recommended that it should be made available to the Executive Body at its twenty-second session.

**A. International Cooperative Programme (ICP) on Assessment and Monitoring of Air Pollution Effects on Forests**

46. Mr. T. Haußmann (Germany), Chairman of the Task Force of ICP Forests, reviewed the recent results and short-term goals of ICP Forests.

47. The Working Group on Effects:

(a) Took note of the recent activities and the short-term goals of the programme (EB.AIR/WG.1/2004/3/Add.1, annex I);

(b) Noted with satisfaction the work of ICP Forests funded by the Trust Fund (see EB.AIR/WG.1/2004/12).

**B. International Cooperative Programme (ICP) on Assessment and Monitoring of Acidification of Rivers and Lakes**

48. Ms. B. Kvaeven (Norway), Chairwoman of the Task Force of ICP Waters, and Ms. Ulstein reviewed the recent results and short-term goals of ICP Waters.

49. The Working Group on Effects:

(a) Took note of the recent activities and short-term goals of the programme (EB.AIR/WG.1/2004/3/Add.1, annex II);

(b) Noted with satisfaction the work of ICP Waters funded by the Trust Fund (see document EB.AIR/WG.1/2004/12).

**C. International Cooperative Programme (ICP) on Effects of Air Pollution on Materials, including Historic and Cultural Monuments**

50. Mr. Kucera reviewed the recent results and short-term goals of ICP Materials.

51. The Working Group on Effects:

(a) Took note of the recent activities and short-term goals of the programme (EB.AIR/WG.1/2004/3/Add.1, annex III);

(b) Noted the proceedings of the workshop on the release of metals due to corrosion of materials, held in 2003 in Munich, Germany;

(c) Welcomed the new work of the programme sub-centre on cultural heritage and stock at risk established in Italy at the Italian National Agency for New Technologies, Energy

and the Environment (ENEA) and noted that future responsibility for the programme would be shared between Sweden and Italy, which would Co-Chair the programme starting in January 2005;

(d) Invited Parties to join the new work of ICP Materials on trend exposure research;

(e) Noted with satisfaction the work of ICP Materials funded by the Trust Fund (see document EB.AIR/WG.1/2004/12).

**D. International Cooperative Programme (ICP) on Effects of Air Pollution on Natural Vegetation and Crops**

52. Mr. Harmens reviewed the recent results and short-term goals of ICP Vegetation.

53. The Working Group on Effects:

(a) Took note of the recent activities and short-term goals of the programme (EB.AIR/WG.1/2004/3/Add.1, annex IV);

(b) Took note with satisfaction of the work of ICP Vegetation funded by the Trust Fund (see document EB.AIR/WG.1/2004/12).

**E. International Cooperative Programme (ICP) on Integrated Monitoring of Air Pollution Effects on Ecosystems**

54. Mr. Lundin reviewed the recent results and short-term goals of ICP Integrated Monitoring.

55. The Working Group on Effects:

(a) Took note of the recent activities and short-term goals of the programme (EB.AIR/WG.1/2004/3/Add.1, annex V);

(b) Noted with satisfaction the work of ICP Integrated Monitoring funded by the Trust Fund (see document EB.AIR/WG.1/2004/12).

**F. International Cooperative Programme (ICP) on Modelling and Mapping of Critical Levels and Loads and Air Pollution Effects, Risks and Trends**

56. Mr. T. Spranger (Germany), Chairman of the Task Force of ICP Modelling and Mapping, reviewed the recent results and short-term goals of ICP Modelling and Mapping.

57. The Working Group on Effects:

(a) Took note of the recent activities and short-term goals of the programme (EB.AIR/WG.1/2004/3/Add.1, annex VI);

(b) Noted with appreciation the review and revision of the programme's Mapping Manual and recommended its future use to Parties;

(c) Approved calls for data for the critical loads of heavy metals (in 2004) and for the critical loads of acidification and eutrophication and target loads (in early 2005), noting the additional burden on CCE and national focal centres dealing with simultaneous calls for data;

(d) Noted with satisfaction the work of ICP Modelling and Mapping funded by the Trust Fund (see document EB.AIR/WG.1/2004/12).

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

58. Mr. Krzyzanowski reviewed the recent results and short-term goals of the Task Force on Health.

59. The Working Group on Effects:

(a) Took note of the recent activities and short-term goals Task Force (EB.AIR/WG.1/2004/3/Add.1, annex VII);

(b) Noted the Task Force's plans for further developing its activities, especially with regard to ozone and particulate matter, and reiterated its invitation to all interested countries to nominate their experts and actively participate in the work of the Task Force;

(c) Expressed appreciation to the WHO European Centre for Environment and Health, Bonn Office, for its continuing leading role in the Task Force's activities;

(d) Welcomed the efforts of the Task Force to assess the health impacts of particulate matter and ozone (EB.AIR/WG.1/2004/11) in collaboration with the Centre for Integrated Assessment Modelling (CIAM);

(e) Noted with satisfaction of the work of the Task Force on Health funded by the Trust Fund (see document EB.AIR/WG.1/2004/12).

### **H. Joint Expert Group on Dynamic Modelling**

60. Mr. Jenkins reviewed the recent results and short-term goals of the Joint Expert Group on Dynamic Modelling.

61. The Working Group on Effects:

(a) Took note of the conclusions and recommendations from the fourth meeting of the Group (EB.AIR/WG.1/2004/13) and decided to present them to the Executive Body for information;

(b) Welcomed the important work done by the Joint Expert Group on Dynamic Modelling and noted the active participation of ICPs and national experts in its activities;

(c) Noted with appreciation the proposals from the Joint Expert Group to continue its work welcoming the broad participation in its activities and focus on issues relevant to ICP work.

## **I. Common aspects of International Cooperative Programmes**

62. The Chairman drew attention to the growing participation of countries in the effect-oriented activities and noted the positive results of closer and more effective cooperation among ICPs, as well as with EMEP and other bodies under the Convention.

63. A number of delegations voiced support for the new structure of the session, considering it more informative than the previous programme-oriented structure. However, they noted some repetition in presentations and the need for more in-depth discussion.

64. The Working Group on Effects:

(a) Took note of the document on the review of recent results and short-term goals of the effect-oriented activities (EB.AIR/WG.1/2004/3/Add.1);

(b) Welcomed the efforts of ICPs and the Task Force on Health to address priority tasks supporting effective implementation of the Convention, in particular preparing for the forthcoming review of protocols;

(c) Stressed once more the importance of the work carried out by national focal centres and of the support provided by the lead countries and coordinating centres;

(d) Welcomed the increased level of participation at the session and noted the continuing trend of Parties to participate in the activities of the programmes;

(e) Stressed the importance of the active participation of all Parties to the Convention in the effect-oriented activities for providing the sound knowledge and high-quality representative database required for effective implementation and future reviewing of the Convention and its protocols;

(f) 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;

(g) Requested its Bureau to consider further the presentation structure for the next session of the Working Group.

## **VI. REVIEW AND ASSESSMENT OF PRESENT AIR POLLUTION EFFECTS AND THEIR RECORDED TRENDS**

65. The Chairman introduced the final draft of the 2004 substantive report on the review and assessment of air pollution effects and their recorded trends and its executive summary (EB.AIR/WG.1/2004/14). Mr. G. Fenech, the consultant assisting in the preparation of the report, outlined the work done.

66. The Working Group of Effects:

(a) Expressed its appreciation to the Bureau, to Mr. Fenech and to the ICP programme centres for their active participation in the work;

- (b) Took note of the suggestions for minor edits provided in writing to the secretariat;
- (c) Agreed to accept any further proposed amendments made in writing and submitted to the secretariat within one week;
- (d) Agreed that its Bureau, in collaboration with the secretariat, would be responsible for the final edits and take the necessary steps to ensure that the report was printed in readiness for the twenty-second session of the Executive Body and the Convention's twenty-fifth anniversary;
- (e) Approved the 2004 substantive report on the review and assessment of air pollution effects and their recorded trends, as amended, and requested its submission to the Executive Body (in English only);
- (f) Approved the executive summary (EB.AIR/WG.1/2004/14), taking into account the edits provided in writing, and decided to submit the revised version to the Executive Body.

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

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

67. In introducing the updated medium-term work-plan for the further development of the effect-oriented activities (EB.AIR/WG.1/2004/4), the Chairman noted preparation had followed the Executive Body's invitation to harmonize as much as possible the work-plans of the Working Group and the EMEP Steering Body, taking into account the timetable of the European Commission's Clean Air for Europe (CAFE) programme. He emphasized the harmonization of common input data, the need to link observations from ICP sites to critical load mapping and the need for commonly agreed land-cover data as well as pollutant loads and their scenarios.

68. The Working Group agreed the following changes to EB.AIR/WG.1/2004/4:

- (a) Paragraph 8: replace the second subparagraph with "Collaboration with ICP Modelling and Mapping with respect to assessment of critical loads on ICP Forest sites" and "Collaboration with the United States Department of Agriculture's Forest Service with respect to assessment of critical loads in Northern America";
- (b) Paragraph 8: add "Further development of studies on forest biodiversity (e.g. ground vegetation and epiphytic lichens) and its relationship to air pollution";
- (c) Paragraph 12: replace the last subparagraph with "Calculation of critical loads using monitoring site data, with emphasis first on heavy metals and later on sulphur and nitrogen";
- (d) Paragraph 13: replace the second subparagraph with "Large-scale dynamic modelling related to acidification and development of methodologies for dynamic modelling of nutrient nitrogen";
- (e) Paragraph 13: add "Provide methods and data to the Centre for Integrated Assessment Modelling".

69. The Working Group agreed amendments to the table in EB.AIR/WG.1/2004/4 as incorporated in the table below.

70. The Working Group of Effects:

- (a) Took note of the results of the joint meeting of its Extended Bureau and the Bureau of the EMEP Steering Body in March 2004;
- (b) Approved the updated medium-term work-plan for the further development of the effect-oriented activities (EB.AIR/WG.1/2004/4), as amended, and decided to submit it to the Executive Body;
- (c) Agreed on the importance of continued collaboration with the EMEP Steering Body, in particular with its Bureau and programme centres, to ensure the Convention's priorities were addressed effectively.

#### **B. Discussion on elements for long-term strategy**

71. The Chairman referred to the long-term strategy (EB.AIR/WG.1/2001/4) noting the intention to initiate revision of the strategy this year. The Bureau would bring forward suggestions to the next session of the Working Group for its consideration.

72. Several delegations commented on items that might be considered in the preparation of the strategy, inter alia, pollutant-specific workshops, the inclusion of pollutants originating from outside the UNECE region, inclusion of biological components in terrestrial ecosystems, the ICP Waters workshop on confounding factors, long-term financing in view of the enlarged region of the European Community and sharing of monitoring sites with other programmes and projects.

73. The Working Group requested its Bureau to take note of the comments and prepare a long-term strategy for its consideration at its twenty-fourth session.

### **VIII. FUNDING OF EFFECT-ORIENTED ACTIVITIES**

74. 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.1/2004/12) 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 and announced that there were two recent contributions in kind from Switzerland to the Task Force on Health and CIAM of US\$ 19,193 and US\$ 27,344, respectively. The secretariat drew attention to some missing costs in table 5, which should read 4,545 and 17,164 for "Substantive reporting" in 2002 and 2003 respectively, and 146,545, 122,164 and 340,000 for "Total" in 2002, 2003 and 2004 respectively. It also emphasized that in line with the decision of the Extended Bureau in 2004 the contributions in cash and in kind were shown in separate tables.

## 75. The Working Group on Effects:

- (a) Approved the note on the funding of the effect-oriented activities (EB.AIR/WG.1/2004/12) as amended and decided to submit it to the Executive Body;
- (b) Approved the table showing the 2005 essential coordination costs of US\$ 2,152,700 for different elements of the effect-oriented activities and the provisional estimates of US\$ 2,152,700 for the 2006 and 2007 costs for submission to the Executive Body;
- (c) Noted with appreciation the essential support provided to the Working Group and its effect-oriented activities by lead countries, countries hosting coordinating centres and organizing meetings, and countries funding activities of their national focal centres and active participation of their national experts in the work under the Convention;
- (d) Noted with appreciation the voluntary cash contributions made in 2004 but reiterated its invitation to all Parties which have not yet done so, to consider providing voluntary contributions to the Trust Fund for financing the effect-oriented activities without undue delay;
- (e) Decided to ask the secretariat to prepare additional tables comprising all earmarked and non-earmarked contributions in cash and in kind along with the programme centre budgets, separated by country and programme, for the consideration of the Bureau when preparing a possible report to the Executive Body regarding its decision 2002/1.

76. The secretariat informed the Working Group that voluntary contributions could be made in four currencies (US dollar, Swiss franc, euro and pound sterling) and they should be sent to:

A. US dollars deposit

Account number: 485-001802  
 Account currency: USD  
 Account title: UN Geneva General Fund  
 Bank name and address: JP Morgan Chase Bank, New York  
 International Agencies Banking  
 1166, Avenue of the Americas, 17th Floor  
 New York, N.Y. 10036-2708, USA  
 ABA (US Bank Code): 021000021 (Specific for US use)  
 Swift Code: CHAS US 33  
 Reference: Indicate clearly "Credit LUA Trust....."

B. Swiss franc deposit

Account number: 240-C0590160.0  
 Account currency: CHF  
 Account title: UN Geneva General Fund  
 Bank name and address: UBS AG  
 Rue de Rhone 8  
 CH-1211 Geneva 2  
 Bank clearing code : 240  
 Swift Code: UBSW CH ZH 12A  
 IBAN Number: CH92 0024 0240 C059 0160.0  
 Reference: Indicate clearly "Credit LUA Trust....."

C. Euro deposit

Account number: 23961901  
Account currency: EUR  
Account title: UN Office at Geneva  
Bank name and address: JP Morgan Chase Bank  
125 London Wall, London  
EC2Y 5AJ,  
United Kingdom  
Swift Code: CHAS GB 2L  
Sorting Code: 60-92-42  
IBAN Number: GB25 CHAS 6092 4223 9619 01  
Reference: Indicate clearly "Credit LUA Trust....."

D. Pound sterling deposit

Account number: 23961903  
Account currency: GBP  
Account title: UN Office at Geneva  
Bank name and address: J.P. Morgan Chase Bank  
125 London Wall, London  
EC2Y 5AJ  
United Kingdom  
Swift Code: CHASGB2L  
Sorting Code: 60-92-42  
IBAN Number: GB68 CHAS 6092 4223 9619 03  
Reference: Indicate clearly "Credit LUA Trust....."

Each contribution must be clearly referenced: "Credit LUA Trust Fund ECE/EOA, Allotment account: LUC-25-270".

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

78. Contributions made by cheque are not encouraged by the United Nations. They can, if necessary, be made payable to "UN Economic Commission for Europe" and clearly earmarked as indicated above, addressed to:

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

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

### **IX. ELECTION OF OFFICERS**

80. Mr. H.-D. Gregor (Germany) was re-elected Chairman. Mr. B. Achermann (Switzerland), Mr. T. Johannessen (Norway), Mr. W. Mill (Poland) and Mr. F. Conway (Canada) were re-elected Vice-Chairmen. The Working Group noted with appreciation the support from Mr. R. Farret (France), who retired after serving as Vice-Chairman. It elected Ms. A.-C. Le Gall (France) as its new Vice-Chairwoman. The Working Group appreciated the important contribution of its Bureau to the recent impressive results and expressed its gratitude.

### **X. OTHER BUSINESS**

81. 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.

82. The delegation of Poland reiterated that its Ministry of Environment had offered to translate the Modelling and Mapping Manual into Russian. The Working Group and the representatives of the ICP Modelling and Mapping expressed their appreciation of the offer.

83. The Chairman informed the Working Group that its twenty-fourth session was tentatively scheduled to be held from 31 August to 2 September 2005, starting on Wednesday, 31 August 2005, at 10 a.m.

**Table.** Intended main deliverables of the effect-oriented activities for the medium-term work-plan (changes to EB.AIR/WG.1/2004/4 underlined>

	2004	2005	2006
<b>Acidity</b>	<ul style="list-style-type: none"> <li>• Trends and links to chemistry in biological recovery (W)</li> <li>• Progress report on biological dynamic modelling (W)</li> <li>• Multi-pollutant dose/response functions (MAT)</li> <li>• Updated critical loads maps (M&amp;M)</li> <li>• Results of dynamic modelling on European scale to Task Force on Integrated Assessment Modelling (M&amp;M; CIAM)</li> </ul>	<ul style="list-style-type: none"> <li>• Progress report on dynamic modelling of recovery of surface water chemistry and biology (W)</li> <li>• Report on alkalinity (W)</li> <li>• Update of critical load of waters (W)</li> <li>• Threshold levels for multi-pollutant effects and mapping of areas of exceedance (MAT)</li> <li>• Network for trend analysis (MAT)</li> <li>• Updated critical loads and <u>large-scale</u> dynamic modelling results (M&amp;M)</li> <li>• Acidification effects on vegetation (IM; F)</li> <li>• Progress report on dynamic modelling (IM)</li> <li>• Report on observed trends in S and N fluxes at IM sites (IM) (see Nutrient N)</li> <li>• Synergies in dynamic modelling (JEG; M&amp;M, IM, W, F)</li> </ul>	<ul style="list-style-type: none"> <li>• 18-year report (W)</li> <li>• Trends in acidity, growth and defoliation (F)</li> <li>• Updated trends in multi-pollutant corrosion effects (MAT)</li> <li>• Economic assessment of air pollution damage to materials including cultural heritage (MAT)</li> <li>• Updated critical loads and dynamic modelling, particularly synergy with heavy metals (M&amp;M)</li> </ul>
<b>Nutrient nitrogen</b>	<ul style="list-style-type: none"> <li>• Trend analysis (F)</li> <li>• Updated maps of critical loads (M&amp;M)</li> <li>• Progress report on N studies (IM)</li> </ul>	<ul style="list-style-type: none"> <li>• Report/papers on N effects and C/N interaction (F; IM, M&amp;M)</li> <li>• Relationships between N depositions, forest stand structure and species composition of ground vegetation (F)</li> <li>• Temporal trends in N content of mosses in Europe (V)</li> <li>• Updated critical loads (M&amp;M)</li> <li>• <u>Development of dynamic modelling methodologies</u> (M&amp;M)</li> <li>• Eutrophication effects on vegetation (IM; F)</li> <li>• Report on observed trends in S and N fluxes at IM sites (IM) (see: Acidity)</li> </ul>	<ul style="list-style-type: none"> <li>• Trends in nutrient N, growth and defoliation (F)</li> <li>• Report on interactive impacts of ozone and nitrogen on crops and (semi)-natural vegetation (see Ozone) (V)</li> <li>• Assessment of threats from N deposition to biodiversity (M&amp;M)</li> <li>• Updated critical loads and dynamic modelling (M&amp;M)</li> </ul>
<b>Ozone (O<sub>3</sub>)</b>	<ul style="list-style-type: none"> <li>• Trends in injury and biomass reduction (V)</li> <li>• Concentration- and flux-effect models for crops, semi-natural vegetation and trees (V; F)</li> <li>• Maps of revised critical levels of O<sub>3</sub> for Task Force on Integrated Assessment Modelling (V; F, M&amp;M)</li> <li>• Exposure assessment and health risk (H)</li> </ul>	<ul style="list-style-type: none"> <li>• Final geographical distribution of O<sub>3</sub> injuries in forests, incl. list of sensitive species (F)</li> <li>• Relationships between O<sub>3</sub> concentrations and ozone symptoms on forest vegetation (F)</li> <li>• Flux-effect model for clover (V)</li> <li>• Comparison of economic impacts on crops using concentration-based and flux-based approaches (V)</li> <li>• Identification of communities of (semi)-natural vegetation at risk (V)</li> <li>• Report on exposure assessment and health risk (H)</li> </ul>	<ul style="list-style-type: none"> <li>• Intercalibration of passive sampling and ozone injury (F)</li> <li>• Report on interactive impacts of ozone and nitrogen on crops and (semi)-natural vegetation (see Nutrient N) (V)</li> <li>• Flux-effect models for additional crop species (V)</li> <li>• Flux-effect maps for agricultural species (V)</li> <li>• Risk assessment for (semi)-natural vegetation that includes the influence of modifying factors and improved mapping procedures (V)</li> </ul>
<b>PM</b>	<ul style="list-style-type: none"> <li>• Assessment of health effects of exposure (H)</li> </ul>	<ul style="list-style-type: none"> <li>• Report on assessment of health effects of exposure (H)</li> <li>• Threshold levels for effects of PM on materials (MAT)</li> </ul>	<ul style="list-style-type: none"> <li>• Costs and extent of soiling of monuments (MAT)</li> </ul>
<b>Heavy metals</b>	<ul style="list-style-type: none"> <li>• Report on factors influencing heavy metal content in mosses (V)</li> <li>• Agreed methodology for mapping critical loads of Pb, Cd and Hg (M&amp;M)</li> </ul>	<ul style="list-style-type: none"> <li>• Advanced maps of critical loads of Cd, Pb and Hg (M&amp;M)</li> <li>• Second report on critical loads exceedances for Cd, Pb and Hg with improved maps (M&amp;M; MSC-E)</li> <li>• Material for possible review of the Protocol (critical loads maps, risk assessment of other heavy metals (M&amp;M, F, W, MAT, IM, V, H)</li> <li>• Report on heavy metal deposition and potential contamination of food crops (V)</li> <li>• <u>Scientific report on heavy metal (IM)</u></li> </ul>	<ul style="list-style-type: none"> <li>• Monitoring of heavy metal in soil on forest sites (F)</li> <li>• Trends in heavy metal in mosses (V)</li> <li>• Update on progress with the 2005 moss survey (V)</li> <li>• Updated health risk assessment of heavy metal (H)</li> <li>• Updated critical loads and preliminary dynamic modelling, particularly synergy with acidity (M&amp;M)</li> </ul>
<b>POPs</b>	<ul style="list-style-type: none"> <li>• Assessment of POPs in aquatic biota (W)</li> </ul>	<ul style="list-style-type: none"> <li>• Material for possible review of the Protocol (for existing and new substances) (H)</li> </ul>	<ul style="list-style-type: none"> <li>• Health aspects of new POPs (H)</li> </ul>

(W): ICP Waters; (F): ICP Forests; (MAT): ICP Materials; (V): ICP Vegetation; (M&M): ICP Modelling and Mapping; (IM): ICP Integrated Monitoring; (H): Task Force on the Health Aspects of Air Pollution. (JEG): Joint Expert Group on Dynamic Modelling; (MSC-E): EMEP Meteorological Synthesizing Centre - East; (CIAM) EMEP Centre for Integrated Assessment Modelling.

**Annex I**

## PROVISIONAL LIST OF MEETINGS FOR 2004/2005

6-8 September 2004 Geneva	EMEP Steering Body (twenty-eighth session)
13-16 September 2004 Geneva	Working Group on Strategies and Review (thirty-sixth session)
29 November-3 December 2004 Geneva	Executive Body for the Convention (twenty-second session)

31 August - 2 September 2005 Geneva	Working Group on Effects (twenty-fourth session)
5-7 September 2005 Geneva	EMEP Steering Body (twenty-ninth session)
26-30 September 2005 Geneva	Working Group on Strategies and Review (thirty-seventh session)
12-16 December 2005 Geneva	Executive Body for the Convention (twenty-third session)

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18-20 October 2004 Falun (Sweden)	Programme Task Force, ICP Waters on Assessment and Monitoring of Acidification of Rivers and Lakes (twentieth meeting)
25-27 October 2004 Gothenburg (Sweden)	Review and Assessment of European Air Pollution Policies
28-29 October 2004 Sitges (Spain)	Joint Expert Group on Dynamic Modelling (fifth meeting)
25-26 November 2004 Zvolen (Slovakia)	Workshop on data harmonization in bordering areas
January 2005 Laxenburg (Austria) (tentative)	Task Force on Integrated Assessment Modelling / Workshop on the integrated assessment methodologies related to the RAINS model
1-4 February 2005 Almeria (Spain)	Programme Task Force, ICP on Effects of Air Pollution on Natural Vegetation and Crops (eighteenth meeting)
Spring 2005 Bonn (Germany) (tentative)	Joint Task Force on the Health Aspects of Air Pollution (eighth meeting)
4-6 April 2005 Cracow (Poland)	Programme Task Force, ICP on Effects of Air Pollution on Materials, Including Historic and Cultural Monuments (twenty-first meeting)
25-27 April 2005 Dessau (Germany) (tentative)	CCE workshop (fifteenth)
28-29 April 2005 Dessau (Germany) (tentative)	Programme Task Force, ICP on Modelling and Mapping of Critical Levels and Loads and Air Pollution Effects, Risks and Trends (twenty-first meeting)
12-14 May 2005 Reykjavik	Programme Task Force, ICP on Integrated Monitoring of Air Pollution Effects on Ecosystems (thirteenth meeting)

23-26 May 2005 Rome	Programme Task Force, ICP on Assessment and Monitoring of Air Pollution Effects on Forests (twenty-first meeting)
15-19 November 2005 Obergurgl (Austria)	Workshop on critical levels of ozone: further applying and developing the flux-based concept
2005/2006 Italy (tentative)	Workshop on material damage to cultural heritage (tentatively in cooperation with ICP Materials, the Centre for Integrated Assessment Modelling and Network of Experts on Benefits and Economic Instruments)
2005/2006 (tentative)	Workshop on confounding factors