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Working Group on Effects

Thirtieth session

Geneva, 27–29 September 2011

Report of the Working Group on Effects on its thirtieth session

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I. Introduction

1. The thirtieth session of the Working Group on Effects was held from 27 to 29 September 2011 in Geneva.

A. Attendance

2. It was attended by representatives of the following Parties to the Convention on Long-range Transboundary Air Pollution (the Convention): Austria, Czech Republic, Denmark, Finland, France, Germany, Italy, Netherlands, Norway, Poland, Slovenia, Spain, Sweden, Switzerland and United Kingdom of Great Britain and Northern Ireland. Representatives of the Convention's all International Cooperative Programmes (ICPs)/Programme Centres/Task Force on Health and Joint Expert Group on Dynamic Modelling also participated.

3. Representatives of the World Health Organization's European Centre for Environment and Health (WHO/ECEH) Bonn Office, the Coordination Centre for Effects and the Chair of the Steering Body to the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP) also participated.

B. Organizational matters

4. Mr. T. Johannessen (Norway) chaired the meeting.

5. The agenda (ECE/EB.AIR/WG.1/2011/1) was adopted

6. The Working Group adopted the report of its twenty-ninth session (EB.AIR/WG.1/2010/2).

II. Matters arising from recent meetings of the Executive Body and its subsidiary bodies

7. The Chair of the EMEP Steering Body provided information on the Steering Body's thirty-fifth session. She focused on the thematic part of the session - which was held in form of a workshop - that had been devoted entirely to issues of common interest to the Steering Body and the Working Group. The purpose of the workshop was to allow for an in-depth presentation and discussion of activities relevant to both the Steering Body and the Working Group. Eight presentations were provided by representatives of the two subsidiary bodies, covering issues such as generation and exchange of data and their application, current and future needs and ways to meet them. In addition to highlighting the extent of existing collaboration, challenges and gaps in the current collaboration were identified. Each presentation was followed by a discussion with a focus on common issues relevant to both the Working Group and EMEP, bearing in mind the relevance of effects-based research (both monitoring and modelling) for the implementation of the Long-term strategy of the Convention.

8. The Working Group, in consultation with the Chair of the EMEP Steering Body, agreed to further strengthen the collaboration between the Working Group and the Steering Body and urged Parties to continue to support the monitoring and modelling activities of

these scientific and technical subsidiary bodies. Their knowledge, monitoring and modelling activities and developed tools are essential for the:

- a) Revision of the Protocols and assessing demonstrable improvements of the environment, human health and materials in the future;
- b) Development, implementation and assessment of the success of the European Union legislation e.g. Thematic Strategy on Air Pollution¹, Habitats Directive², Reach Regulation³ and Climate and Energy Package⁴;
- (c) Evaluation of the success of the implementation of other policies at both the national and international levels (e.g. Convention on Biological Diversity, United Nations' Framework Convention on Climate Change), Stockholm Convention on Persistent Organic Pollutants, policies for Short Lived Climate Forcers under the Arctic Council/Arctic Monitoring and assessment Programme and the United Nations Environment Program). The framework of the Working Group and EMEP enables the integration of various policies at the national level in a cost-effective way.

9. The monitoring infrastructure of both the Steering Body and the Working Group with respect to air quality and the state of environmental media (waters, vegetation, soils, materials), is of vital importance for the successful implementation of the programmes of both bodies and allows for the quantification of air pollution impacts and the success of policy implementation. The Working Group and the Steering Body endeavour to enhance their close collaboration, coordinate priorities for future work and provide joint outputs relevant to policy. The recently established "Effects of Climate Change on Air Pollution and Response Strategies for European Ecosystems" (ECLAIRE) project⁵ under the European Union 7th Framework Programme, provides an excellent example of the cost-effective implementation of such a collaboration.

10. The Steering Body requested the Working Group to provide further evidence on the impacts of air pollution on policy-relevant indicators (i.e., express impacts in terms relevant to policy) and clearly demonstrate and communicate why added costs for improvement of air quality beyond the baseline scenario were justified (either in monetary terms, if feasible, or in terms of quality of the environment and human well-being). EMEP members had also discussed increasing the horizontal grid resolution and change of projection, as well as updating maps of historic pollutant depositions, all of which would be beneficial for the future work of Working Group.

11. The secretariat presented the main outcomes of the twenty-eighth session of the Executive Body for the Convention that were of relevance for the Working Group, including decisions related to the revisions of the 1999 Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (Gothenburg Protocol) and the Protocol on Heavy Metals, and the adoption of the Long-term Strategy of the Convention. The secretariat also reported on the relevant conclusions of the Working Group on Strategies and Review from its forty-eighth and forty-ninth sessions.

12. The Chair of the Working Group then presented a brief summary of the work of the Bureau of the Working Group between the Working Group's twenty-ninth and thirtieth sessions, highlighting the continuous cooperation with the EMEP Programme.

¹ http://europa.eu/legislation_summaries/environment/air_pollution/128159_en.htm

² http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm

³ http://ec.europa.eu/environment/chemicals/reach/reach_intro.htm

⁴ http://ec.europa.eu/clima/policies/package/index_en.htm

⁵ <http://www.eclair-fp7.eu/>

13. The Working Group took note of the decisions made by the Executive Body, as well as the deliberations of the subsidiary bodies under the Convention, and agreed to bear them in mind when discussing its future activities, in particular when preparing effects-related amendments to the text of the Gothenburg Protocol and the Protocol on Heavy Metals.

14. The Working Group expressed its concerns about its documents not being translated into all official languages. Not having the documents in Russian hampers a broader participation from the Eastern Europe, Caucasus and Central Asia countries in the meetings of the Working Group. The Working Group asked the secretariat for guidance on how to produce reports that will be accepted for translation in the future. The Working Group also expressed the need for a better communication between the secretariat and the Chair/bureau before decisions on translation are taken.

15. The Working Group also expressed its concern about the reduced time allocated for its next meeting in 2012, and requested the secretariat to look for another time slot, preferably before the meetings of EMEP Steering Body and the Working Group on Strategies and Review, to enable the Working Group to have a full three day meeting and a Bureau meeting the day prior to the meeting of the Working Group, like in previous years.

III. Recent results and updating of scientific and technical knowledge

A. Recent effects-oriented activities

16. A representative of the ICP Modelling and Mapping Task Force introduced the 2011 Joint report by the International Cooperative Programmes (ICPs),⁶ the Joint Task Force on the Health Aspects of Air Pollution (Task Force on Health) and the Joint Expert Group on Dynamic Modelling, on Impacts of air pollution on ecosystems, human health and materials under different Gothenburg Protocol scenarios (ECE/EB.AIR/WG.1/2011/3). The impact analyses will be carried out further by all ICPs, using pollutant load data for scenarios from models of EMEP and the Centre for Integrated Assessment Modelling (CIAM).

17. The representatives from the lead country or coordination centre of each programme presented their recent activities, plans, achievements and recent publications. The Working Group:

(a) Took note of the recent activities and publications of the ICPs and their task forces, the Task Force on Health and the Joint Expert Group; expressed the need to further harmonize the structure and content of the presented technical reports (ECE/EB.AIR/WG.1/2011/5-12); and noted with satisfaction the continuing functions of all programme centres;

(b) Took note of the twenty-seventh session of the ICP Forests Task Force, ICP Forest participation in various international projects, including a EU-level Forest

⁶ Namely, the ICP on Assessment and Monitoring of Air Pollution Effects on Forests (ICP Forests), the ICP on Assessment and Monitoring of the Effects of Air Pollution on Rivers and Lakes (ICP Waters), the ICP on Effects of Air Pollution on Materials, including Historic and Cultural Monuments (ICP Materials), the ICP on Effects of Air Pollution on Natural Vegetation and Crops (ICP Vegetation), the ICP on Integrated Monitoring of Air Pollution Effects on Ecosystems (ICP Integrated Monitoring), the ICP on Modelling and Mapping of Critical Levels and Loads and Air Pollution Effects, Risks and Trends (ICP Modelling and Mapping).

Monitoring System project (FutMon)⁷ and a more intensive participation of the United States; as well as of several journal papers and publications in 2010-2011;

(c) Took note of the twenty-sixth session of the ICP Waters Task Force; and welcomed several recent publications of ICP Waters (20010-2011), including ICP Waters Programme Manual;

(d) Took note of the results of the twenty-seventh session of the ICP Materials Task Force, which was held in Prague, Czech Republic on 6-8 April 2011; and noted that the Russian Federation is now represented in the ICP Task Force and will contribute with a new test site in St. Petersburg; congratulated to the ICP on its twenty-fifth anniversary publication: Effects of air Pollution on Materials and Cultural Heritage;

(e) Took note of the twenty-fourth session of the ICP Vegetation Task Force and the workshop on ozone workshop on applying the flux method at the national and local scale, welcomed the work by ICP Vegetation on outreach activities in regions outside UN ECE, and took note of several journal papers published in 2010-2011 on ozone, heavy metals and nitrogen in mosses and also its latest annual report;

(f) Took note of the nineteenth session of the ICP Integrated Monitoring Task Force and an accompanying workshop on the assessment of programme data, noted the participation of ICP Integrated Monitoring in several international research projects, including ALTER-Net II⁸, LTER-Europe network⁹, FutMon, EnvEurope¹⁰ and LifeWatch¹¹; and took note of its 2011 annual report and other publications;

(g) Took note of the twenty-seventh session of ICP Modelling and Mapping Task Force and the twenty-first Coordination Centre for Effects (CCE) workshop; welcomed ICP Modelling and Mapping's contribution to the work on the revision of the Gothenburg Protocol, continuing collaboration with Natura 2000¹² experts for the reporting to the EU Habitats Directive, collaboration with the European Topic Centre on Biological Diversity¹³; and took note of several recent publications by the ICP;

(h) Noted the results of the call for data issued in 2010 by CCE. In the call the National Focal Centres (NFCs) were encouraged:

(i) to revise their computed and empirical critical loads and to provide them in at least 5x5 km² resolution,

(ii) to apply the VSD+ - Veg model¹⁴ to their national dataset and

(iii) to collaborate with the EU Habitats Directive experts.

Eighteen NFCs submitted data and background documentation and most calculated acidification and nutrient nitrogen critical loads. Eight countries indicated their collaboration with the Habitats Directive experts. Nine countries reported results for soil-vegetation modelling;

⁷ <http://www.futmon.org/>

⁸ <http://www.alter-net.info/>

⁹ <http://www.lter-europe.net/>

¹⁰ <http://www.enveurope.eu/>

¹¹ <http://www.lifewatch.eu/web/guest/home>

¹² http://ec.europa.eu/environment/nature/natura2000/index_en.htm

¹³ <http://bd.eionet.europa.eu/>

¹⁴ http://www.rivm.nl/thema/images/SR2010_Ch4_tcm61-49675.pdf

(j) Following the recommendation of the ICP Modelling and Mapping Task Force, considered the following possible objectives of a proposed call for contribution on dynamic modelling applications:

(i) An overview of endpoints considered by the NFCs;

(ii) Application of applicable biodiversity indices as summarized in the CCE Status Report 2010;

(iii) The comparison of simulation results using different models: NFCs are encouraged to apply the VSD+ - Vegetation (made available by CCE model) as a common modelling basis;

(iv) The comparison of simulation results using different sites: NFCs are invited to make sites data available to other NFCs, via the CCE-website;

(v) Policy relevance: countries are invited to include nature protection areas (such as Natura 2000 areas) in their model testing;

(vi) Regionalization: NFCs are recommended to review the possibilities to use EUNIS classes¹⁵, Natura 2000 and eco-regions as a basis for regionalization;

(vii) Complete the Vegetation database including the review of (a) the possible quantification of Ellenberg indices¹⁶ and (b) the applicability of the TRY database¹⁷.

(k) Concluded that computed effects of emission reduction scenarios for the revision of the Gothenburg Protocol¹⁸ presented at forty-seventh and forty-ninth sessions of the Working Group on Strategies and Review do not significantly vary;

(l) Noted that the computed risk of nutrient nitrogen – under the MID scenario - is widespread, affecting 29% of ecosystems in the EMEP domain, and 48% of natural areas both in the EU27 and Natura 2000 areas;

(m) Noted that deposition values, that are required for recovery before 2050, are exceeded under the MID scenario in 30% and 50% of ecosystems in the EMEP domain and the 27 Member States of the European Union, respectively;

(n) As a response to the request by the Executive Body to have more analysis with biodiversity as an endpoint, noted that an analysis was made for ecosystem types where dose effect relationships can be established. This analysis shows that nitrogen deposition might lead to a loss of biodiversity that is not totally reflected by the calculated critical load exceedances. For the most sensitive and rare ecosystem types the effect of nitrogen (N) deposition can be a loss of these nature types as they change into more common grassland or forest types. For grasslands and forest ecosystems where dose effect relationships can be established, an analysis shows that a significant species change can be expected at up to 10% of the ecosystem area at 2000 deposition levels. These 10% do not include the loss in biodiversity caused by the change in the most sensitive ecosystem types like raised bogs, heathlands and dunes which has already been observed

¹⁵

http://www.leidenuniv.nl/cml/bieb_internet/publications/cml_notities/cml%20notitie%2042%20comparison_EUNIS-classes.pdf

¹⁶ <http://www.apis.ac.uk/node/1198>

¹⁷ <http://www.try-db.org/index.php?n=Site.Database>

¹⁸

http://www.unece.org/fileadmin/DAM/env/documents/2011/eb/wg5/WGSR49/Informal%20docs/5_CIAM2011-4-v1.pdf

(o) Following the request from the Executive Body to improve biological indicators, took note that the change of plant species diversity has very tentatively been assessed for about half of the terrestrial European ecosystems. It turns out that a significant change may occur to an estimation of up to about 10% of this area at deposition values around the 2000 level. The estimation is subject to a high uncertainty;

(p) Took note of the fourteenth session of the Task Force on Health and welcomed its plans for the report on assessment of health impacts of particulate matter and health benefits of particulate matter reduction in countries of Eastern Europe, the Caucasus and Central Asia; noted the recent publications by the Task Force;

(q) Took note of the eleventh session of Joint Expert Group on Dynamic Modelling and outcome of work presented at the session, and requested it to continue to report on progress made to the Working Group at its next session.

B. Common aspects of the International Cooperative Programmes, the Task Force on Health and the Joint Expert Group on Dynamic Modelling

18. The Chair noted the closer and more effective cooperation between the ICPs, as well as with the EMEP Steering Body and its centres and with other subsidiary bodies of the Convention, and presented the need to consider the future role and activities of the Working Group, in particular after revisions to the three most recent protocols.

19. The Working Group reiterated that effects-oriented activities would remain important for evaluating the sufficiency and effectiveness of emission reductions, in particular for those set out in the Gothenburg Protocol and its possible amended version. Integration of air pollution effects with climate change, land use and other drivers would also be essential.

20. The Working Group appreciated the efforts and contributions from all programmes to the policy-relevant processes of the Convention, in particular the efforts on impact analyses for the revision of the Gothenburg Protocol and the identification of policy-relevant indicators for air pollution effects on biodiversity.

C. Updating of scientific and technical knowledge

21. The Chair drew attention to the pollutant-specific topics for the presentations on recent results from the activities of the ICPs. The presentations drew largely from the technical reports of the ICPs and from the 2011 joint report.

1. Acidification and eutrophication

22. The Working Group noted with appreciation the range and quality of the work being done on acidification and eutrophication, and:

(a) Took note of the continuation of work of ICP Forests on trends in deposition and forest biodiversity; noted its work on soil surveys and modelling with the use of VSD+ and BERN models¹⁹; requested the ICP Forest Programme Coordinating Centre to further encourage its national focal points to make available their critical loads data and calculations to the national focal centres of ICP Modelling and Mapping;

¹⁹ http://www.climate.unibe.ch/~joos/model_description/model_description.html

(b) Noted the results of ICP Waters on trends in precipitation and water chemistry and on assessment of biological recovery over the 1990-2008. Observed increases in pH, alkalinity and acid-neutralizing capacity (ANC) levels indicate that biological recovery can be expected and is being documented in many places in Europe. In other places, however the recovery is not going to happen unless further emissions reductions - beyond those resulting from the current legislation - are implemented;

(c) Took note of the ICP Integrated Monitoring (ICP IM) information on acidification and eutrophication studies and biodiversity assessment. At majority (72%) of ICP IM sites critical loads (CL) for acidity were not exceeded, while empirical CL eutrophication and nutrient nitrogen were exceeded at 75-78% of the sites. Species changes were found to be highly variable between sites. The found significant changes are restricted to few species and the relationship with air pollution is not clear;

(d) Took note of the continuing efforts of the Joint Expert Group on Dynamic Modelling to facilitate the exchange of information and harmonization of the development of dynamic models across all ICPs. A focus of dynamic modelling was to take into account the combined effects of air pollution, climate change and land use. The dynamic models have been tested and provide policy- relevant outputs e.g. target loads. The support for dynamic modelling of ozone effects was given e.g. within EU ECLAIRE project.

(e) Recognized the need for an in-depth discussion on end-points and biodiversity indicators that were relevant to the Convention, as mentioned in the long-term strategy for the Convention).

2. Ozone

23. The Head of the Programme Centre of ICP Vegetation presented estimates of ozone impacts on vegetation that are used in the Gothenburg Protocol review process. She also presented examples of field evidence of effects in areas of high ozone fluxes. Studies confirm that important staple food crops are ozone sensitive with economic implications for food supply within ECE region.

24. The Chair of Task Force Health presented updated results on the evidence for adverse health effects related to both long-term and short-term exposure to ozone. In view of existing uncertainties on long-term effects of ozone, the Task Force recommended to continue calculation of impacts based on short-term effects, observed in time series studies until new data from epidemiological studies are available.

25. The Working Group on Effects welcomed the progress made and the new results obtained regarding ozone effects, and:

(a) Noted the results from ICP Vegetation on gathering evidence of impacts of ozone to vegetation, and took note that flux-based ozone assessment give more accurate results on impacts on vegetation compared to the concentration-based approach;

(b) Reiterated, based on further analysis during the past year, the conclusions related to the ozone effects, and decided to remind the Executive Body on the necessary action, namely that policies aiming only at health effects would not protect vegetation from ozone effects in large areas in Europe, and recommended that flux-based methods be used in integrated assessment modelling for vegetation effects, in particular in work for the revision of the Gothenburg Protocol.

3. Particulate matter, heavy metals, persistent organic pollutants, soiling of materials and cross-cutting issues

26. The Chair of the Task Force of ICP Integrated Monitoring presented the results of updated annual budgets for cadmium, lead and mercury at a dozen sites in central and

Northern Europe for one or more years over the 1996-2008 period. He also presented updated critical loads for the three metals as well statistics of their exceedances on soil ecotoxicological endpoints..

27. The Chair of the Task Force of ICP Materials presented the trends in pollution, limestone, zinc and carbon steel corrosion and soiling over the period 1987-2009, as well as effects of black carbon on stone materials. He also presented the objectives of a pilot study on inventory and condition of stock of materials at risk at selected UNESCO²⁰ cultural heritage sites.

28. The Chair of the Task Force of ICP Vegetation presented the results of the European moss survey 2010/2011 on heavy metals, nitrogen and a pilot study on persistent organic pollutants (POPs) with a focus on polycyclic aromatic hydrocarbons. The use of mosses as biomonitors for POPs was stressed. He also presented estimates of direct and indirect impacts of black carbon on vegetation.

29. The Chair of Task Force on Health presented estimates of loss of life expectancy due to PM_{2.5} exposure in Europe – confronting cause-of-death-specific data with estimates for all cause estimates. He also presented a review of health effects of black carbon. The Task Force recommended to continue to use PM_{2.5} as the primary approach in quantifying the human exposure to PM and its health effects, and for predicting the benefits of exposure reduction measures.

30. The Working Group noted with appreciation the range and quality of the work being done on particulate matter, heavy metals, persistent organic and soiling of materials, and:

(a) Took note of the ICP Integrated Monitoring (ICP IM) information on updated trace metal budgets for mercury, cadmium and lead; noted a broad analysis of possible endpoints for the respective critical load calculations;

(b) Noted the results of the ICP Materials on trends in corrosion and soiling over the period 1987-2009 and took note of the pilot study on materials at UNESCO cultural heritage sites; noted that the long-term trends of corrosion of limestone and zinc has not decreased since 2000;

(c) Took note of the ICP Vegetation pilot study on persistent organic pollutants and recommended to repeat a POPs survey in the future possibly with participation of more countries to establish temporal trends;

(d) Recommended to continue to use PM_{2.5} as the primary approach in quantifying the human exposure to PM and its health effects, and for predicting the benefits of exposure reduction measures.

D. Information on forthcoming workshops and technical meetings

31. The secretariat provided a brief update on forthcoming workshops and technical meetings relevant for the Convention later in 2011 and in 2012. The Chair encouraged Parties and organizers to provide to the secretariat information on any changes to the current list of meetings that was continuously updated on the UNECE website.

32. The Working Group welcomed the preparations for various workshops and meetings relevant to the effects-oriented activities. It requested their organizers to collaborate closely

²⁰ <http://www.unesco.org/new/en/>

with the respective bodies and the secretariat in the preparations and to invite Parties to actively participate in them.

IV. Further development of effects-oriented activities

A. Outreach activities

33. Outreach activities and cooperation with Parties within and outside the Convention had been on the agenda of the Working Group sessions since the Executive Body, at its twenty-fifth session in 2007, had invited all bodies to review all their current activities linked to outreach and to explore opportunities for including items on outreach in their future workplans.

34. The Working Group on Effects took note of the outreach activities and cooperation with Malé Declaration²¹, Air Pollution Information Network for Africa (APINA) and EANET²² Parties, as reported by programmes, and encouraged the programmes to continue and enhance their outreach activities.

B. Draft 2012-2013 workplan for implementation of the Convention

35. In introducing the draft 2012-2013 workplan for the for implementation of the Convention in relation to further development of the effects-oriented activities (ECE/EB.AIR/GE.1/2011/10)/ECE/EB.AIR/2011/5), the secretariat noted its two new features: biannual time frame and distinction between ongoing and new activities.

36. The Working Group considered the draft 2012-2013 workplan for the implementation of the Convention, in particular section 3 relating to effects-oriented activities, and agreed to recommend to the Executive Body to approve it with the following amendments:

(a) Replace subparagraph 3.1 a) with "Submit relevant information and reports to the secretariat, in particular contributions to the revision of the Gothenburg and Heavy Metals Protocols;" in chapter 3.1 on page 14;

(b) Replace subparagraph 3.1 d) (ii) with "Final version of the report on impact analysis by the Working Group on Effects;" on page 15;

(c) Add a new subparagraph (d) (iv) "Report on biodiversity and ecosystems services." on page 15.

37. The Working Group:

(a) Approved the draft 2012-2013 workplan for the implementation of the Convention in relation to effects-oriented activities (ECE/EB.AIR/GE.1/2011/10)/ECE/EB.AIR/2011/5), as amended, and agreed to submit it as a revised document to the Executive Body;

²¹ <http://www.rrcap.ait.asia/male/>

²² <http://www.eanet.asia/>

(b) Agreed that the 2012-2013 workplan items might be used as a basis for the partial financing of the programmes by the trust fund for core activities not covered by the EMEP Protocol²³ (hereinafter, the trust fund);

(c) Agreed on the importance of continued collaboration with the EMEP Steering Body, in particular with its Bureau and programme centres, to ensure that the Convention's priorities, including the work on the revision of the three most recent protocols, were addressed effectively, and agreed to bear that in mind when considering plans for its future activities, and invited all programmes to do the same.

C. Draft long-term strategy of the effects oriented activities

38. In view of the Long-term strategy for the Convention adopted by the Executive Body at its twenty-eighth session (Decision 2010/18), the Working Group considered the draft long-term strategy of the effects oriented activities (ECE/EB.AIR/2009/17), and agreed to recommend to the Executive Body to approve it with the following amendments:

(a) Add two new sentences "At its thirtieth session the Working Group decided to make further amendments to the draft strategy and decided to submit it to the twenty-ninth session of the Executive Body in December 2011 for adoption. The amended strategy now covers the time frame 2010 - 2020 and beyond." to paragraph 1 on page 2;

(b) Replace paragraph 2 on page 2 with "The unique way in which science supports policy development is considered as a core strength of the Convention. Together with EMEP, the Working Group on Effects forms the two pillars of scientific work that deliver the required scientific information in an efficient way." on page 2;

(c) Delete words "specific health" in paragraph 3 on page 2;

(d) At the end of subparagraph 5 (a) add ", land use change and the protection of biodiversity" on page 2;

(e) Replace paragraph 6 with "The Working Group focuses on the effects of nutrient nitrogen and acidifying air pollutants, tropospheric ozone, volatile organic compounds, particulate matter including black carbon, heavy metals and POPs on the environment and health. It also alerts the Executive Body to any perceived additional – or changed – threats caused by air pollution that might require policy response." on page 2;

(f) At the end of subparagraph 7 (d) replace "climate change" with "changes in climate and land use" on page 3;

(g) At the end of paragraph 8 (i) add "investigate and enhance where needed the robustness of effects assessments," on page 3;

(h) Replace paragraph 9 (b) with "Derivation of exposure-response functions for chemical and biological effects of air pollutants, inter alia for effects of nutrient nitrogen, ozone and acidifying pollutants and ecosystems' functioning and biodiversity, in combination with other stresses such as land management and climate change;" on page 3;

(i) Add new paragraph 9 e) "Investigate the relevance of short lived climate forcers from the viewpoint of human and ecosystem health as well as detrimental effects on materials." on page 4;

²³ 1984 Geneva Protocol on Long-term Financing of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe.

(j) Replace subparagraph 9 (e) with " Further development of modelling and mapping procedures, in particular for effects of nitrogen and ozone on the environment, ozone and particulate matter on health, multi pollutant effects on environment and materials, and of dynamic processes of damage and recovery due to, eutrophication, acidification and heavy metal accumulation, including biological effects;" on page 4;

(k) Replace subparagraph 9 (g) with "Gathering information on possible risks from POPs and heavy metals not regulated in global agreements;" on page 4;

(l) In subparagraph 10 after "particulate matter" add " including black carbon";

(m) Replace subparagraph 11 with " In line with the long-term strategy for the Convention decided by the Executive Body (ECE/EB.AIR/106/Add.1, Decision 2010/18) and considering new scientific knowledge, available data and new emerging issues, areas for inclusion in the long-term strategy of the effects-oriented activities are, inter alia:" on page 4;

(n) add new subparagraph 11 (a) " Further strengthen the cooperation with the EMEP Programme;" on page 4;

(o) In subparagraph 11 (d) after "policy-relevant" add "and user friendly" on page 4;

(p) Replace paragraphs 17 and 17 (a) with "The international cooperative effects-related activities under the Convention (and their designated programme centres), are:

(a) ICP on Assessment and Monitoring of Air Pollution Effects on Forests, led by Germany (Johann Heinrich von Thünen-Institute (vTI), Federal Research Institute for Rural Areas, Forestry and;" on page 6;

(q) Delete footnotes 2 and 3 on page 6;

(r) In subparagraph 17 (e) delete "Netherlands Environmental Assessment Agency, earlier: "

(s) At the end of subparagraph 26 (c) add "of effects and recovery" on page 8.

(t) At the end of subparagraph 26 (d) add "if required" on page 8.

V. Financing of effects-oriented activities

39. In line with the revised decision 2002/1 of the Executive Body, the secretariat introduced the key elements of the note on the financing of effects-oriented activities prepared by the secretariat (ECE/EB.AIR/WG.1/2011/4). The secretariat presented updated information on cash contributions to the trust fund in 2010 and 2011, and pointed out to the decreasing trend compared to 2009 level.

40. The secretariat also presented the information on the implementation (including payments) of contracts (Memoranda of Understanding) for 2010, and preparation of contracts for 2011 and the following years in a changed format.

41. The Working Group:

(a) Approved the key elements of the note on the financing of the effects-oriented activities, and decided to submit the information to the Executive Body;

(b) Approved the 2012 international coordination costs of \$2,152,700 for different elements of effects-oriented activities and the provisional estimate of \$2,152,700 for 2013 and 2014 costs, for submission to the Executive Body;

(c) Approved the use of the draft 2012-2013 workplan items as the basis for partial funding from the trust fund in 2012;

(d) Noted with appreciation the essential support provided to the Working Group on Effects and its effects-oriented activities by lead countries, countries and organizations hosting coordinating centres and organizing meetings, by countries funding activities of their national focal centres and by the active participation of their national experts in the work under the Convention;

(e) Noted with appreciation the amount of voluntary cash contributions available in 2010 and 2011, but reiterated its invitation to all Parties which had not yet done so to provide to the trust fund for financing of the effects-oriented activities, without undue delay, the contributions decided by the Executive Body in its revised decision 2002/1.

VI. Election of officers

42. Following elections, Mr. Peringe Grennfelt (Sweden) was elected as new Chair, and Mr. Jesper Bak (Denmark), Mr. Christian Nagl (Austria), Ms. Isaura Rabago (Spain) and Ms. Gudrun Schuetze (Germany) were re-elected as Vice-Chairs. Ms. Sonja Vidič (Croatia) was elected as new Vice-Chair²⁴. The Working Group noted with appreciation the support from Mr. Tor Johannessen (Norway) who had stepped down from the Chair post.

VII. Other business

43. The secretariat informed the Working Group about activities of the Subregional Office for East and North-East Asia of the United Nations Economic and Social Commission for Asia and the Pacific related to air pollution. Meeting on 1 and 2 September 2011, the sixteenth Senior Officials Meeting of the North-East Asian Subregional Programme of Environmental Cooperation had approved a project proposal submitted by the Russian Federation, "Review of Existing and required Capacities for Addressing Adverse Environmental Impact of Transboundary Air Pollution in North-East Asia". The project — which would run for approximately a year — was of direct relevance for the EMEP Programme and the Working Group on Effects. The secretariat had helped to finalize the project proposal by providing input to the draft presented during the Expert Consultation meeting held at Incheon, Republic of Korea, on 20 and 21 January 2011.

44. The secretariat informed about the forthcoming convention meetings for October-December 2011 and for 2012, which are kept updated on the Convention website, and invited all Parties and programmes to communicate to it any amendments or new information.

²⁴ Following the rules of procedure adopted by the Executive Body for the Convention at its twenty-eighth session (decision 2010/19), which apply also to the EMEP Steering Body (para. 2), Chairs and vice-Chairs are elected for a two-year term of office and are eligible for re-election, but may not serve more than two consecutive terms unless the Executive Body decides otherwise. Exceptionally, the first term of office for the first vice-Chairs elected under the rules (i.e. the present Vice-Chairs) is three years.

45. The Chair informed the Working Group that its thirty-first session was tentatively scheduled to be held from 20 to 21 September 2012 in Geneva, starting on Thursday, 20 September at 10 a.m., pending the decision of the twenty-ninth session of the Executive Body.

VIII. Adoption of the decisions of the Working Group

46. The Working Group on Effects adopted the decisions taken during the session.
