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Transboundary Air Pollution

Working Group on Effects

Thirty-first session

Geneva, 20–21 September 2012

Report of the Working Group on Effects on its thirty-first session

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I. Introduction

1. The thirtieth session of the Working Group on Effects was held from 20 to 21 September 2012 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, Azerbaijan, Belarus, Croatia, Czech Republic, Denmark, European Union, Finland, France, Germany, Ireland, Italy, Kyrgyzstan, Lithuania, Montenegro, Netherlands, Norway, Poland, Republic of Moldova, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, United Kingdom of Great Britain and Northern Ireland and The United States of America. Representatives of the Convention's all International Cooperative Programmes (ICPs)/Programme Centres/Task Force on Health, Joint Expert Group on Dynamic Modelling and Centre for Integrated Assessment Modelling also participated.

3. Representatives of Japan, 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. P. Grennfelt (Sweden) chaired the meeting.

5. The agenda (ECE/EB.AIR/WG.1/2012/1) was adopted.

6. The Working Group adopted the report of its thirtieth session (EB.AIR/WG.1/2011/2) as amended.

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-sixth session. She focused on the thematic part of the session - which was held in form of a workshop - that had been prepared by the Task Force on Emission Inventories and Projections and the Centre for Emission Inventories and Projections (CEIP), and was devoted to emission inventories. The Steering Body considered various resource and funding needs of the Task Force in view of new tasks facing the Task Force and CEIP related to the change of the EMEP grid and the application of the adjustment procedure for the Gothenburg Protocol and invited Parties to expand their support to the work of Task Force and CEIP. Other key items of the session agenda included: spatial resolution of the EMEP domain and its implications for emissions and effects work, adjustment under the Gothenburg Protocol to emission reduction commitments or to inventories for the purposes of comparing total national emissions with them and progress in activities in 2012 and future work.

8. The Chair of the Working Group and the Chair of the EMEP Steering Body presented information about a joint EMEP – Working Group on Effects technical workshop

held during the thirty-sixth session of the Steering Body to EMEP. The purpose of the workshop was to allow for an in-depth presentation and discussion of activities relevant to both the EMEP Steering Body and the Working Group on Effects. Six presentations were provided covering issues of common interest: on developing an integrated approach for reactive nitrogen - a guest presentation by Mr. Mark Sutton and Mr. Oene Oenema the co-chairs of the Task Force on Reactive Nitrogen, on assessing the impacts of hemispheric transport of air pollution, proposal for a new EMEP grid, on the guidance document on health and environmental improvements, as a contribution to the Gothenburg Protocol revision and on impacts of air pollution on biodiversity and ecosystem services. The Chair of the Executive Body informed about the ongoing review of the Convention with a focus on policy development through integrated assessment modelling. Presentations were followed by a discussion with a focus on common issues relevant to both the Working Group on Effects and EMEP, bearing in mind the relevance of effects-based research for the implementation of the long-term strategy of the Convention.

9. Following a discussion on the topics presented, the Working Group recommended that both groups should continue to organize joint workshops and produce joint reports on issues of common interest including country reports. The joint reports should be aimed at policymakers inside and outside of the Convention.

10. The secretariat presented the main outcomes of the twenty-ninth and thirtieth sessions of the Executive Body for the Convention that were of relevance for the Working Group, including the revision of the 1999 Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (Gothenburg Protocol) and the further work on the revision of the Protocol on Heavy. The secretariat also reported on the relevant conclusions of the Working Group on Strategies and Review from its fiftieth session.

11. 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

a) Noted that the use of effect based indicators in support of the revision of the Gothenburg Protocol was reviewed by the Working Group at its thirty-first session;

b) Further noted that these indicators had been used to evaluate emission reduction scenarios that had primarily been based on techno-economic considerations. As such, effect based indicators have provided improved knowledge on the trade-off between these considerations and effects to human health and the environment;

c) Noted also that available indicators had not sufficiently been explored for inclusion in the development of effect-based emission reduction alternatives;

d) Recommended to seek further guidance from the Executive Body on information required so that effect-based indicators may be of greater use in the future development of effect-based scenarios and related policy support, in accordance with the Long-Term Strategy of the Convention (Executive Body Decision 2010/18).

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 thirtieth and thirty-first, highlighting the continuous cooperation with the EMEP Programme and the need for more integration.

III. Recent results and updating of scientific and technical knowledge

A. Recent effects-oriented activities

13. The representatives from the lead country or coordination centre of each programme presented their recent and planned activities, information on events including task force meetings, on 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 improve and harmonize the structure and content of the presented technical reports (ECE/EB.AIR/WG.1/2012/5-12); and noted with satisfaction the continuing functions of all programme centres;

(b) Took note of the twenty-eighth session of the ICP Forests Task Force; noted the results of work on species diversity of epiphytic lichens, on tree response to critical limit exceedances and on large-scale critical loads exceedances; and welcomed broader participation of countries of Eastern Europe, the Caucasus and Central Asia in the activities of ICP Forests;

(c) Took note of the twenty-seventh session of ICP Waters Task Force; noted the result of work on economic evaluation of damage to freshwater ecosystems and their services, new findings on long-term trends in surface water chemistry and biology, and on air pollution and climate change effects on aquatic biodiversity;

(d) Took note of the twenty-eighth session of ICP Materials Task Force, and noted its latest results presented in recent reports on the effects of black carbon on soiling of materials, on trends in pollution, corrosion and soiling (an updated report) and on the pilot study on inventory and condition of stock of materials at risk at UNESCO cultural heritage sites (an updated report);

(e) Took note of the twenty-fifth session of ICP Vegetation Task Force, noted the work on ozone impacts on food security, welcomed its recent brochures on impacts of air pollution on human health, ecosystems and cultural heritage, on ozone impacts on carbon sequestration, and welcomed the results of the 2010/2011 moss survey of heavy metals and persistent organic pollutants;

(f) Took note of the twentieth session of ICP Integrated Monitoring Task Force, noted its recent results of work on sulphur and nitrogen input-output budgets, on biological sub-programmes, on relationship between changes in abundance of understory species and nitrogen critical load exceedances as well as on field monitoring and dynamic soil-vegetation modelling using VSD+ model;

(g) Took note of the twenty-eighth session of ICP Modelling and Mapping Task Force and the twenty-second Coordination Centre for Effects workshop; noted its work on impacts of climate and land use changes on ecological conditions - in view of the changing conditions a return to favourable conditions (Natura 2000) would be challenging, noted its continued efforts to develop widely accepted biodiversity indicators, and welcomed its proposal for joint report to be elaborated by ICP Modelling and Mapping in collaboration with all the other ICPs, Task Force on Health and the Joint Expert Group on Dynamic Modelling on historical trends of air pollution impacts on health, materials and ecosystems;

(h) Took note of the fifteenth session of the Task Force on Health, noted its progress in recent research on health impacts of particulate matter and ozone, noted the information about its work for the revision of the European Union (EU) air quality

legislation (project on evidence of health aspects of air pollution to review EU policies (REVIHAAP)¹ and Health risks of air pollution in Europe (HRAPIE)² project), welcomed the policy 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 (informal document No. 1) and decided to forward it as an official document to the Executive Body for consideration and approval at its thirty-first session.

(i) Took note of the twelfth meeting of the Joint Expert Group on Dynamic Modelling and outcome of work presented at the session, namely on interactions between air pollution and climate change, guidelines for reporting ecosystem effects and progress in assessment work, as well as the outcome of the call for data 2010/2011; 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 and Updating of scientific and technical knowledge

14. A representative of the Coordination Centre for Effects presented a summary of the Working Group information provided to policy negotiators to support the revision of the Gothenburg Protocol over the last few years. He noted that the Working Group Impacts of air pollution on ecosystems, human health and materials under different Gothenburg Protocol scenarios report (informal document No. 2) brought new elements to the revision process compared to those showed in reporting by the Task Force on Integrated Assessment Modelling and the Centre for Integrated Assessment Modelling. These new elements were: ozone flux approach to better assess the impacts of ozone, impacts of air pollution on materials (especially at fine – urban scale). He also stressed the contribution of the Working Group work to annex I of the Amended Gothenburg Protocol as well as the draft guidance document on health and environmental improvements. A number of non-technical documents and brochures (e.g. on nitrogen effects, ozone impacts) have also been developed.

15. The Working Group welcomed with appreciation the broad and significant contribution by ICPs, the Task Force on Health and the Joint Expert Group on Dynamic Modelling to the revision of the Gothenburg Protocol. The Working Group welcomed the proposal put forward by the Working Group on Strategies and Review to update the Guidance Document on health and environmental improvements (informal document No. 1) and to use in the analysis the 2005 as the base year and the 2020 emission reduction commitments. The updated guidance document should be forwarded to the Working Group on Strategies and Review and the Executive Body for their consideration.

16. The Chair of the Working Group 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.

¹ See <http://www.euro.who.int/en/what-we-do/health-topics/environment-and-health/air-quality/activities/evidence-on-health-aspects-of-air-pollution-to-review-eu-policies-the-revihaap-project>.

² See <http://www.euro.who.int/en/what-we-do/health-topics/environment-and-health/air-quality/activities/health-aspects-of-air-pollution-and-review-of-eu-policies-the-revihaap-and-hrapie-projects>

18. 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 amended version. Integration of air pollution effects with climate change, land use and other drivers would also be essential.

19. 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. Information on national work on effects of air pollution

20. A representative of Ireland presented information on transboundary air quality activities. He focused on current monitoring sites providing detailed information about their instrumentation. He also informed about research on acidification of lakes, critical loads for nutrient nitrogen and key ongoing research projects including plans to join the 2015 planned moss survey.

21. A representative of Denmark informed about national developments with respect to calculated critical loads for selected Habitat Nature types with “No Net Loss of Biodiversity” as endpoint - a study based on Danish monitoring data.

22. The Working Group welcomed the information presented by Ireland and Denmark on their national work and invited other Parties to provide information on their national effects work at the next session of the Working Group. An Exchange of information on national work should become a regular agenda item at future sessions of the Working Group.

D. Information on forthcoming workshops and technical meetings

23. The secretariat provided a brief update on forthcoming workshops and technical meetings relevant for the Convention later in 2012 and in 2013. 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.

24. The Working Group welcomed the preparations for various workshops and meetings relevant to the effects-oriented activities. It requested their organizers to collaborate closely 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. Proposed call for data by the Coordination Centre for Effects and ICP Modelling and Mapping

25. Representatives of the Coordination Centre for Effects (CCE) and the ICP Modelling and Mapping presented a proposal for a 2012-2014 call for data that would link air pollution to biodiversity. Modelling air pollution impacts on vegetation and biodiversity requires a broad agreement on biodiversity indicators. CCE and ICP Modelling and Mapping proposed a generic indicator namely ‘no net loss of biodiversity’. The proposed call for data would focus on this simple generic biodiversity indicator. National Focal

Centres (NFCs) would be encouraged to help develop simple “regional” dose-response functions based on EUNIS classification and dynamic soil-vegetation modelling. The proposal for the call was adopted at the twenty-eighth ICP Modelling and Mapping Task Force session that was held in Warsaw between 16 and 18 April 2012. The call would be issued in the autumn 2012 for response in the spring of 2014 to help NFCs the planning and to ensure broad response.

26. Following the recommendation of CCE and the ICP Modelling and Mapping, the Working Group welcomed the proposal for a call to National Focal Centres to help develop a regional simple EUNIS class³ specific “biodiversity function”. In view of the expected complexity of the call, the deadline for submission of the required information to the Coordination Centre for Effects is set to spring 2014. The details of the call are given in the Annex.

B. Proposed policy report on impacts of air pollution on biodiversity and ecosystem services

27. A representative of ICP Vegetation Ireland presented an outline of a planned policy report on impacts of air pollution on biodiversity and ecosystem services. The aim of the report is to review and extend the knowledge on endpoints and indicators for use in future integrated assessments in support of effects based policies.

28. The Working Group welcomed the proposal for the joint report to be elaborated by the ICP Vegetation in collaboration with all the other ICPs and JEG and the input from Parties on biodiversity and ecosystem services, to serve urgent policy needs within and outside of the Convention with the aim to be submitted for the consideration of the Working Group at its 33rd session.

C. Further evidence of adverse effects of mercury

29. The Working Group took note of further evidence of adverse effects of mercury in particular on fish population, its long term persistence in soils in the northern hemisphere, and the exceedance of critical loads of mercury in many regions in Europe. The Working Group recommends that the ongoing revision of the Heavy Metal Protocol takes stock of the available information on the risks of heavy metals in general and mercury in particular.

D. Country reports

29. The Working Group agreed that there was need for providing more country-specific information on effects related work preferably in form of country reports. It requested the Extended Bureau of the Working Group to elaborate further, in collaboration with the Extended Bureau of EMEP Steering Body a template for the content and layout of effects related information to be included in possible joint EMEP-Working Group country reports. The Extended Bureau of the Working Group WGE is requested to report the result of the work to the Working Group at its thirty-second session.

³ http://www.leidenuniv.nl/cml/bieb_internet/publications/cml_notities/cml%20notitie%2042%20comparison_EUNIS-classes.pdf

V. Status of the review of the Convention. Possible modifications to 2012–2013 workplan for the implementation of the Convention

30. The Chair of the Working Group informed about the status of the review of the Convention concentrating on the matters related to the Working Group. The ad-hoc group of experts that carries out the review stresses the need for more integration among various scientific activities under the Convention. One possible development could be a merger of EMEP Steering Body and the Working Group into a single body. He stressed that the new biannual workplan 2014-2015 for the implementation of the Convention should be oriented towards deliverables and be developed along various areas of activities (like science, policy, compliance, communication) rather than reflect activities carried out by the respective bodies, centres and technical groups. He also informed about the idea of carrying out a review of the work and functioning of the ICPs.

31. The Working Group supported the review of the work and functioning of the ICPs and hoped that the results would be beneficial for the discussion on re-structuring of the Convention. The Working Group recommended that such a review should precede any decision on a restructuring of the science related elements of the Convention.

32. The Working Group did not propose any changes to the 2012-2013 workplan for the implementation of the Convention for 2013.

VI. Financing of effects-oriented activities

33. 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.1/2014/4). The secretariat presented updated information on cash contributions to the trust fund in 2011 and 2012, and pointed out to the decreasing trend.

34. The secretariat also presented the information on the implementation (including payments) of contracts (Memoranda of Understanding) for 2012, and preparation of contracts for 2013.

35. 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 2013 international coordination costs of \$2,152,700 for different elements of effects-oriented activities and the provisional estimate of \$2,152,700 for 2014 and 2015 costs, for submission to the Executive Body;

(c) Invited the secretariat to provide the information on the status of contributions to the trust fund for the effects-oriented activities as of 30 November 2012, and make it available to the Executive Body at its thirty-first session. The Working Group recommends that the status of contributions be used as a basis for the budget to co-fund the effects-oriented activities in 2013.

(d) Requested the Executive Body to encourage Parties to make the contributions to the trust fund before 30 November each year;

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

(f) 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;

(g) Noted with appreciation the amount of voluntary cash contributions available in 2011 and 2012, 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.

VII. Election of officers

36. The Working Group noted with appreciation the support from Isaura Rabago (Spain) who had stepped down from the Vice-Chair post. The Working Group elected Ms. Sabine Augustin (Switzerland) as a new as Vice-Chair.⁴

VIII. Other business

37. The secretariat updated the Working Group on transboundary air pollution activities supported by the Subregional Office for East and North-East Asia of the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) and its North-East Asian Subregional Programme for Environmental Cooperation (NEASPEC). A one-year project being carried out by the Russian Federation within the NEASPEC framework aimed to study existing subregional and international mechanisms on transboundary air pollution and to identify gaps in knowledge, priority needs and to propose a set of options for a strengthened multilateral approach.

38. During a recent expert meeting (Saint Petersburg, Russian Federation, July 2012), the Russian Federation announced that a project proposal was forthcoming that, among others, would look into policy aspects of transboundary air pollution. It was expected that the developments in North East Asia might lead to the establishment of a policy-type umbrella framework that would cover the existing monitoring and modelling programmes like the Joint Research Project on Long-range Transboundary Air Pollutants and the Acid Deposition Monitoring Network in East Asia.⁵ The six countries in North-East Asia (China, the Republic of Korea, North Korea, Japan, Mongolia and the Russian Federation), accounted for one fourth of the world's population, gross domestic product and trade. Adverse effects of air pollution, in particular PM_{2.5}, black carbon and ground-level ozone, caused damage to crops and affected millions of people, leading to premature deaths, breathing problems, asthma and other chronic respiratory diseases.

39. The Working Group took note of the information provided by the secretariat regarding cooperation with the ESCAP and welcomed developments conducive to furthering cooperation with North-East Asia in addressing transboundary air pollution.

⁴ 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 is three years (election in 2011).

⁵ See <http://www.eanet.asia/>

40. The secretariat informed about the forthcoming convention meetings for October-December 2012 and for 2013, which are kept updated on the Convention website, and invited all Parties and programmes to communicate to it any amendments or new information.

41. The Chair informed the Working Group that its thirty-second session was tentatively scheduled to be held from 12 to 13 September 2013 in Geneva, starting on Thursday, 12 September at 10 a.m., pending the decision of the thirtieth session of the Executive Body. The meeting of the Extended Bureau was tentatively scheduled to be held from 21 to 22 February 2013.

IX. Adoption of the decisions of the Working Group

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

Annex

Call for data by the Coordination Centre for Effects and ICP Modelling and Mapping

The function is aimed to establish a relationship between the nitrogen deposition and “no net loss of biodiversity” (NNLB) for each EUNIS class in a country. Results should assist in a simple support of broad scale integrated assessments of changes of biodiversity caused by nitrogen emission scenarios (under climate change). The method for deriving the function is hypothesized to follow from selecting (at least) three deposition points within one EUNIS class. One deposition point is the lowest (for instance background) deposition, while another reflects the highest deposition in 2000 within one EUNIS class. The third may be an in between deposition value.

The no net loss index for each deposition point is the result of a simulation of any soil-vegetation model towards 2100. The index is set to a maximum of 1 for the simulation result in 2100 using the lowest (background) deposition. The minimum value of the index results from a similar simulation towards 2100 using the highest deposition in a EUNIS class. NFC tests are needed to verify whether the biodiversity function can be used as response surface of EUNIS specific relations between nitrogen deposition and NNLB. A list of relevant EUNIS class may be provided by the CCE. It is recommended that the sites are chosen in protected areas, that they cover a wide range of sensitivity and that they are located in the widest possible range of deposition.
