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EXECUTIVE BODY FOR THE CONVENTION ON
LONG-RANGE TRANSBOUNDARY AIR POLLUTION
Working Group on Strategies

REPORT OF THE TWENTY-SEVENTH SESSION

Introduction

1. The twenty-seventh session of the Working Group on Strategies was held in Geneva from 31 August to 3 September 1998.
2. The session was attended by representatives of the following Parties to the Convention: Armenia; Austria; Belgium; Bulgaria; Canada; Czech Republic; Denmark; Finland; France; Germany; Greece; Hungary; Ireland; Italy; Netherlands; Norway; Poland; Russian Federation; Slovakia; Slovenia; Spain; Sweden; Switzerland; the former Yugoslav Republic of Macedonia; Turkey; United Kingdom; United States of America; and the European Community (EC).
3. The following non-governmental organizations were represented: the International Institute for Applied Systems Analysis (IIASA); the International Union of Producers and Distributors of Electrical Energy (UNIPEDA); and the World Conservation Union (IUCN).
4. The meeting was chaired by Mr. L. BJÖRKBOM (Sweden).

Documents prepared under the auspices or at the request of the Executive Body for the Convention on Long-range Transboundary Air Pollution for GENERAL circulation should be considered provisional unless APPROVED by the Executive Body.

I. ADOPTION OF THE AGENDA

5. The Working Group adopted the provisional agenda as contained in document EB.AIR/WG.5/55.

II. PREPARATION OF A DRAFT PROTOCOL ON THE REDUCTION OF NITROGEN OXIDES AND RELATED SUBSTANCES

6. The Chairman drew the attention of the Working Group to the Ministerial Declaration on Long-range Transboundary Air Pollution adopted by ministers and senior officials for the environment at the special session of the Executive Body in Aarhus (Denmark) on 24 June 1998 (ECE/EB.AIR/57, annex I). In it they inter alia called for an acceleration of the negotiations on a multi-pollutant/multi-effects protocol with a view to finalizing it by mid-1999.

7. Mr. R. MAAS (Netherlands), Chairman of the Task Force on Integrated Assessment Modelling, introduced the report on integrated assessment modelling (EB.AIR/WG.5/1998/1), including the results of the Task Force's twenty-first meeting held in Helsinki on 25-27 May 1998. He stressed that the results presented were preliminary, as the input data were still being finalized. In particular, the critical load data had been updated since the preparation of the report, and extensive discussions had been held between national and modelling experts on the data underlying the cost function used in the models. All issues of principal nature had now been resolved. While this work had improved the basis for modelling, some uncertainties that were inherent in any projections over a ten-year period would remain. Mr. Maas emphasized the need for guidance for the Task Force on a number of issues, including: the reference scenario to be used for the modelling; the ways in which targets should be set for optimized scenarios; and, if possible, the ambition level that should be examined in the modelling for the three effect areas. He pointed out that a clear presentation of the modelling work to negotiators, on the one hand, and to policy makers, on the other, would be crucial. The Netherlands offered to sponsor work to support this process.

8. Mr. M. AMANN, the representative of IIASA, provided further explanations on the modelling work carried out under the guidance of the Task Force on Integrated Assessment Modelling. He pointed out that during the last two months experts at IIASA had received visits from national experts from nine countries and had been in contact with experts from an additional nine countries to improve the data used in the Regional Acidification Information and Simulation (RAINS) model. Most of what could be done from a modelling perspective to improve the formulation of the environmental targets for model optimization had been accomplished. What remained were the political decisions on the overall ambition level and the distribution of costs and benefits in the region. The options for setting environmental targets had been developed so that modelling results did not rely on the most uncertain model elements, and did not, for instance, focus on extreme events. A combination of gap closure targets and absolute limits made it possible to fairly well spread the costs and benefits of abatement strategies in Europe.

Mr. Amann also highlighted the advantages of optimizing for the three effect areas jointly.

9. Mr. K. BULL (United Kingdom), Chairman of the Working Group on Effects, reported on some of the decisions taken by the Working Group on Effects at its seventeenth session. As noted in the report on integrated assessment modelling (EB.AIR/WG.5/1998/1, para. 47), five Parties had announced that they were revising their critical load data. They had submitted new data to the Coordination Centre for Effects (CCE) and explained to the Working Group on Effects the motivation for the changes. The Working Group had approved the new critical load data, including the revised data which had been communicated to Parties beforehand. CCE would make explanations about the most recent modifications available upon request. The Working Group had decided not to update critical load data during the forthcoming year, though scientific work would continue to improve the mapping methodology. The Working Group had also considered the report on integrated assessment modelling (EB.AIR/WG.5/1998/1) and taken note of the target-setting methods used. It had requested CCE to continue to advise the Task Force on Integrated Assessment Modelling and support Parties in further modelling work. Discussion of the accumulated exceedance measure used in the report had shown that, while the measure seemed useful for modelling, maps of the accumulated exceedance could be misleading and it would be preferable to continue presenting modelling results in terms of the percentage of area exceeded. Concerning ozone modelling, experts had noted a short-fall in the data used, but were not in a position to present a better alternative, as level-II modelling was not sufficiently advanced. Mr. Bull also pointed out that the exposure to particulate matter would be a focus of the work of the newly established Joint Task Force of the World Health Organization/European Centre for Environment and Health (WHO/ECEH) and the Executive Body on Health Aspects of Long-range Transboundary Air Pollution. The group would, as its first task early next year, evaluate the impact of the existing protocols to the Convention and the new multi-pollutant/multi-effects protocol on particulate matter concentrations.

10. With reference to Executive Body decision 1998/4 (ECE/EB.AIR/55, annex) on Guidelines and procedures for data release, CCE informed the Working Group that it had received through the secretariat one request for critical load data and one request by a Party for basic data submitted by national focal centres. Both requests had been dealt with electronically. The representative of IIASA stated that it put great importance to the transparency of the process and was aiming at making all data available via the Internet. The plan was to present the final abatement cost data for NO_x and ammonia by the end of September and to present the revised set of sulphur and VOC data in November.

11. The Meteorological Synthesizing Centre-West (MSC-W) of EMEP informed the Working Group that it had prepared a note on secondary particles with projections up to the year 2010, based on the implementation of the existing protocols. It had also prepared a note on the nitrogen deposition to the Baltic together with MSC-E. Both notes would be presented to the Steering Body of EMEP at its forthcoming session.

12. Many delegations commended the Task Force on Integrated Assessment Modelling and IIASA for their excellent work. Several delegations also expressed their gratitude to experts at IIASA for their cooperation in the review of the abatement cost data that had helped to improve both the cost data in the RAINS model and the data used for modelling at the national level.

13. The delegation of Hungary informed the Working Group that it was still working on a review of the critical load data that it had submitted previously. The result of that review might require an update of the critical load data and would be communicated to modellers in collaboration with CCE.

14. The delegation of Slovenia stated that it was revising its current reduction plan (CRP) data. The data submitted previously needed updating especially because of the expected growth in heavy-duty transit traffic.

15. The delegation of the United Kingdom explained that it had reviewed the ammonia abatement cost data and accepted the data now used by IIASA as the best according to present knowledge. However, it was still unsatisfied with the structure of the ammonia cost calculations employed by IIASA, but it recognized that, as the modelling could not be further improved at this stage, this concern could be accommodated only in the negotiations.

16. The delegation of the Russian Federation informed the Working Group that it was in the process of revising its NOx emission data and also wanted to review the current legislation (CLE) and CRP data presented in the report by the Task Force (EB.AIR/WG.5/1998/1). The emission data that it had submitted previously included only stationary sources, and emission estimates would therefore have to be increased. It expected the review to be finalized in September. The representative of IIASA stated that there were errors in the RAINS CRP data for NOx for the Russian Federation which had been presented in the Task Force's report. These would be corrected for future modelling.

17. The delegations of Hungary, Norway and Poland stated that they did not agree with the CLE data presented and would require further discussions at the expert level. The delegations of the Czech Republic, Finland, France, Germany, Ireland, Italy, and the Netherlands also pointed out that they had presented IIASA with comments on the CLE data, but had not yet seen how those comments had been incorporated into the model and reserved their positions until they had seen the outcome.

18. The Working Group:

(a) Took note of the progress report of the Task Force on Integrated Assessment Modelling (EB.AIR/WG.5/1998/1), expressing its appreciation to the modellers, especially to IIASA, to the Task Force and its Chairman, and to the EC, the Nordic Council of Ministers and Switzerland for the financial support provided to the work that went into the progress report;

(b) Agreed that, while final acceptance of the data could be achieved only once the data sets were made available, the finalization of input data was well under way and it was confident that all remaining issues could be

rapidly resolved at the expert level, and decided that no new issues would be raised at this stage;

(c) Agreed to use the current legislation (CLE) scenario as a reference for modelling, except for those Parties that had expressed disagreement with the estimates presented in tables 1 to 4 of EB.AIR/WG.5/1998/1 and that had not been able to resolve the discrepancies at the expert level. Current reduction plans (CRPs) that were lower than the CLE emissions would be used, if a Party expressed this preference;

(d) Called upon Parties that had not yet studied the data used in integrated assessment modelling to contact the experts at IIASA as quickly as possible;

(e) Agreed, as a basis for final negotiations, to use an optimized scenario covering all the effect areas jointly, while the Task Force would continue to explore single-effect scenarios in the meantime;

(f) Agreed to use those concepts explored by the Task Force and reported in EB.AIR/WG.5/1998/1, for setting the environmental targets in the jointly optimized scenarios.

19. The European Commission stated that, for the EC member States, the reference for the modelling would be the lower emission of the CLE and the CRP scenarios.

20. The delegation of France briefly presented a discussion note that showed, in its view, certain weaknesses of the modelling work, in particular with respect to the optimization and the treatment of uncertainties. The considerations were based on a study covering the EC member States but could be extended to cover all Parties. The delegations of Germany and the United Kingdom welcomed the presentation by France and expressed their hope that the note could be discussed on an appropriate occasion. The Chairman encouraged the delegation of France to distribute the note widely and invited other delegations to provide comments to it. The Task Force on Integrated Assessment Modelling, which had already commented on a preliminary version of the note (EB.AIR/WG.5/1998/1, para. 70), could revert to the discussion note at its next meeting.

21. With reference to the conclusion reached by the Working Group at its twenty-sixth session (EB.AIR/WG.5/54, para. 26 (1)), calling for efforts to be made to improve and simplify the presentation of the modelling work for negotiators and policy makers, the Chairman informed the Working Group that he had asked a small group of experts, led by Mr. C. Ågren (IUCN) and including Mr. Amann (IIASA), the Chairman of the Task Force on Integrated Assessment Modelling and the secretariat, to prepare a note to be made available at the next session of the Executive Body.

22. The representative of the European Commission informed the Working Group that IIASA had prepared for it some further model analysis on ozone after the meeting of the Task Force on Integrated Assessment Modelling. The note (addendum 2 to part B of the fifth IIASA report) could be obtained via the

Internet at: http://www.iiasa.ac.at/~amann/interim_reports.html. The analysis included a scenario with a higher ambition level with respect to human health than scenario E7/1, namely a 65% gap closure and an absolute exposure limit of 2.6 ppm.h. The note also presented calculations for the whole EMEP area (scenario E13). The European Commission intended to pursue this target in its further work and would welcome it if the Task Force could also examine such a scenario.

23. The delegations of Belgium, Italy and the Russian Federation expressed their doubts about the feasibility of such an ambitious set of targets. They considered especially the absolute exposure limit of 2.6 ppm.h to be too costly to achieve. Belgium had estimated the requirements of an exposure limit of 2.6 ppm.h to exceed its maximum feasible reductions.

24. The delegation of Spain pointed out that the last row of cells in the EMEP grid covering the southern tip of the Iberian peninsula was not covered by integrated assessment modelling work and asked whether this omission could be corrected. The representative of the MSC-W pointed out that EMEP now included all of the Iberian peninsula in its calculations, but that data for previous years, which were necessary for integrated assessment modelling, were missing. It was possible to include the missing grid cells only after the optimization in the presentation of the environmental effects.

25. The delegation of the Russian Federation suggested that the ecosystems that were determining the optimized solution in the calculations should be thoroughly studied in order to obtain a good understanding of what would be protected at sometimes a very high cost.

26. In the discussion of further modelling work, delegations also pointed out that it was important to continue considering the impacts of abatement strategies on human exposure to particulate matter and on the nitrogen deposition to the seas. They also noted that it would be useful to continue efforts on dynamic modelling to get a better understanding of the effects of continued damage to ecosystems by depositions above their critical loads and the potential recovery of ecosystems once deposition had been reduced.

27. The Working Group agreed on the following scenarios to be explored further by integrated assessment models:

(a) Three ambition levels should be considered for the four environmental problems under consideration: ozone effects on human health, ozone effects on vegetation, acidification effects and eutrophication effects. A medium ambition level (M) would be given as an indicator for the modelling work. For ozone, this could be a 65% gap closure and an absolute exposure limit of 2.6 ppm.h for AOT60 (human health) and a 35% gap closure and an absolute exposure limit of 10 ppm.h for AOT40 (vegetation). For acidification, the ambition level could be equivalent to a 50% area gap closure. Around these medium targets, modellers would define, in the light of the new input data, an adequate range by selecting one high (H) and one low (L) ambition level;

(b) Three scenarios for each of the four effect areas would be calculated and presented to the Working Group;

(c) Six additional joint scenarios would be examined and presented to the Working Group at its next session:

Scenario no.	Ozone health	Ozone vegetation	Acidification	Eutrophication
1	L	L	L	L
2	M	M	M	M
3	H	H	H	H
4	M	L	M	L
5	H	M	H	M
6	M	L	L	L

(d) Instead of excluding certain receptor areas altogether from the analysis, modellers should try to ease targets in some limited areas, where full achievement of targets would be excessively costly;

(e) In addition, three non-optimized scenarios would be presented: the situation in 1990, the reference scenario, and the maximum feasible emission reductions (MFRs).

28. In view of the large amount of work that it requested from modellers and the need to give as much time as possible to the process of finalizing the abatement cost data, the Working Group agreed that the next meeting of the Task Force on Integrated Assessment Modelling should be moved to the end of November. It would be held from 30 November to 2 December in the United Kingdom. The Working Group recognized that this would not leave sufficient time for the report of the Task Force to be translated and distributed to capitals in due time for its twenty-eighth session, but it requested the secretariat to do its utmost to ensure a timely translation of documents.

29. The delegation of France reserved its position on this procedure, as it did not expect that its Government would agree to a discussion of a document that was not prepared in accordance with United Nations rules and procedures.

30. The secretariat introduced the progress report on economic aspects of abatement strategies (EB.AIR/WG.5/1998/2), including the results of the thirteenth meeting of the Task Force held on 28 May in Helsinki. With respect to the preparation of a guidance document on economic instruments that could accompany the multi-pollutant/multi-effects protocol, the secretariat informed the Working Group that the Netherlands had initiated a project to finalize the background document, taking into account the comments made by experts, and to prepare together with the Task Force's Chairman a first draft of the guidance document for the next meeting of the Task Force. The secretariat had also received some indication from the European Commission that funding for further work on the economic evaluation of benefits could be forthcoming. This would enable the Task Force to present to the Working Group at its next session a new estimate of the economic benefits of air pollution abatement on the basis of a scenario analysed by integrated assessment models. This would, however,

imply that the meeting of the Task Force on Economic Aspects of Abatement Strategies should also be moved so that it could take place in conjunction with the meeting of the Task Force on Integrated Assessment Modelling.

31. The Chairman of the Working Group on Abatement Techniques, referring to the plan of the Task Force on Economic Aspects of Abatement Strategies to examine the possibility of introducing structural change into integrated assessment models (EB.AIR/WG.5/1998/2, para. 13), noted that there were already several studies that showed that the cost of abatement diminished significantly, when structural change was taken into account.

32. The delegation of France briefly presented the results of a study prepared in 1992 on SO₂ emission reduction strategies based on the concept of critical loads, giving an analysis and proposals for improving the RAINS integrated assessment model as applied to France. The study examined the influence of the cost curve on the allocation of national emission reductions and their costs. It employed the energy flow optimization model (EFOM) developed by the French-German Institute for Environmental Research (IFARE) and showed that structural change, if included in the cost calculations, could reduce costs significantly (in this case by a factor of 10, or ECU 3 billion annually). The delegation stated that it had proposed in the Working Group on Abatement Techniques that a separate working structure, for instance a task force, should be established to focus on the methodologies for cost calculations to mirror the structure that now existed for the critical load work.

33. The Working Group:

(a) Took note of the report on economic aspects of abatement strategies (EB.AIR/WG.5/1998/2);

(b) Encouraged the Task Force to continue its work on the development of a guidance document on economic instruments for the multi-pollutant/multi-effects protocol;

(c) Also encouraged the Task Force to continue its work on the evaluation of the economic benefits of abatement strategies and requested it to present to it at its next session an evaluation of a medium-range scenario analysed by integrated assessment modellers.

34. The delegations of Canada and the United States informed the Working Group about their joint efforts in preparing commitments for Parties outside the geographical scope of EMEP that were equivalent to those for European Parties, for inclusion in the protocol on nitrogen oxides and related substances. The bilateral discussions under way focused on ground-level ozone and the emissions of NO_x and VOCs. The joint analysis to be undertaken to support the bilateral negotiations included: air quality data analysis for 1991-1996 to demonstrate the transboundary transport of ozone and its precursors; trajectory analysis to identify major source areas; ozone modelling; modelling of the impact of emission trading; and a legal analysis of emission trading. The delegations would bring proposals to the next

session of the Working Group on Strategies on the focus of commitments in the protocol by the two Parties.

35. The delegation of Canada briefly described its NO_x and VOC control programme and reported that the programme was intended to provide the basis for negotiated commitments on emission reductions for these substances. The range of commitments for NO_x reduction, based on 1990 emission, was expected to be between 20 and 45%, varying for different parts of Canada.

36. The delegation of the United States informed the Working Group that it would issue a rule later in September 1998 that would achieve substantial reductions in emissions of NO_x. The rule would apply to 22 States and the district of Columbia (Washington, D.C.) located in the eastern part of the country. The rule would reduce NO_x emissions in these States by about 35% by the year 2007 based on 1996 emissions. The rule included a mandatory limit on emissions in the affected States and a voluntary emission trading programme.

37. Several delegations expressed their interest in further analysing the transport of pollutants between the continents that may become significant for ozone formation in Europe in the medium term. The representative of MSC-W informed the Working Group that EMEP was preparing a model covering the northern hemisphere. The work was scheduled to continue over the coming year. The Chairman of the Steering Body of EMEP suggested that Canada and the United States could support the work of MSC-W by helping it to develop an emission scenario.

38. Mr. L. LINDAU (Sweden), Chairman of the Working Group on Abatement Techniques, introduced the draft documents on control techniques (EB.AIR/WG.6/1998/5, 8 and 10) and draft annexes on emission limit values (EB.AIR/WG.6/1998/6 and 9) prepared by the Task Forces on the Assessment of Control Options/Techniques for NO_x and for VOCs, and the expert group on ammonia, as presented to the Working Group on Abatement Techniques at its sixth session. He pointed out that the Working Group on Abatement Techniques had commended the groups for their work. As the documents had been received at very short notice, delegations could submit their comments in writing to the secretariat until 1 October 1998. At that stage the Chairmen of the Task Forces and the expert group would decide whether an additional meeting was necessary to finalize the document for presentation to the Working Group on Strategies at its twenty-eighth session. Such a meeting of the Task Forces could possibly be held on 21-23 October. Mr. Lindau also introduced the documents concerning mobile sources of NO_x and VOC emissions (EB.AIR/WG.6/1998/11/Rev.1, 12/Rev.1 and 13/Rev.1) prepared by the secretariat with support from experts from Canada, Sweden and EC. For these documents a similar procedure as for the others was foreseen. Mr. Lindau had contacted the delegations of Canada and the United States to see whether the limit values applied there could also be introduced into document EB.AIR/WG.6/1998/13/Rev.1. The Chairman of the Working Group on Abatement Techniques pointed out that the experts might be able to resolve some of the outstanding issues, but the work would benefit from some policy guidance by the Working Group on Strategies.

39. The secretariat informed the Working Group that in drafting the documents related to NO_x and VOC emissions from mobile sources, it had taken into account documents prepared under the auspices of the UN/ECE Inland Transport Committee, including the results of the Regional Conference on Transport and the Environment held in Vienna in November 1997. It presented the Working Group with some information on the follow-up work to the Vienna Conference and announced that it would present to the Executive Body a note showing the potential links between its work plan and the Programme of Joint Action adopted in Vienna.

40. The delegation of Canada pointed out that it would include the issue of limit values in its bilateral discussion with the United States and report back to the Working Group at its next session.

41. The ensuing discussion focused on the binding or guiding nature of the different annexes and the role of technology-related requirements in the protocol, using the draft composite negotiating text (EB.AIR/WG.5/R.80) as a basis for discussion. The Working Group:

(a) Took note of the documents presented by the Working Group on Abatement Techniques, noting that they provided a very good basis for the technical documents that were needed to accompany the protocol;

(b) Decided that documents that were limited to descriptions of the best available abatement techniques, such as EB.AIR/WG.6/1998/5, 8, 10, 11/Rev.1 and 12/Rev.1, would be of a guiding nature;

(c) Noted that some delegations favoured not including non-mandatory annexes in the protocol, but publishing them separately after adoption by the Executive Body, with a clear reference to these documents in the protocol obligations, and asked the Executive Body for some guidance on this issue;

(d) Noted that it was not in a position at this stage to reach agreement on whether technology-related requirements should be binding, whether specific requirements should be set and, if so, which emission sources should be covered by binding emission limitations and whether these should also include existing sources;

(e) Agreed that further drafting efforts should be made to modify the technical documents to reflect the agreements on the definition of limit values reached in the negotiations of the Protocols on Persistent Organic Pollutants and on Heavy Metals; and

(f) Agreed to invite the ammonia expert group to identify in the document it had prepared elements that might be appropriate for inclusion in a binding annex and elaborate the document to cover in more depth good environmental practices in agriculture, following the examples of the codes of good environmental practice in force in several countries.

III. FUTURE WORK

42. Based on the discussion under agenda item 2, the Working Group agreed that no major changes to relevant elements (1.3 and 1.6) of the 1998 work plan of the Executive Body (ECE/EB.AIR/53, annex V) had to be made except for the time schedule.

43. The Working Group decided to seek guidance from the Executive Body at its next session on how sulphur emission reductions should be dealt with in the negotiations. Modelling had shown that reductions beyond those foreseen by the Oslo Protocol on Further Reduction of Sulphur Emissions to reduce acidification seemed to be cost-effective for many Parties. The Oslo Protocol had now entered into force and, in line with the decision of the Executive Body (ECE/EB.AIR/49, para. 74), Parties (18 Signatories had so far ratified the Protocol) would conclude a review of the Protocol no later than six months after the sixteenth session of the Executive Body, i.e. June 1999. Several issues of a legal character had to be resolved.

44. The next sessions of the Working Group were tentatively scheduled for: 25-29 January, 22-26 March, 31 May - 4 June, and 30 August - 3 September 1999.

45. The Task Force on Integrated Assessment Modelling had provisionally scheduled its twenty-third meeting for 8 - 10 March 1999 to be held in Switzerland.

IV. OTHER BUSINESS

46. The secretariat informed the Working Group that security measures at United Nations premises in Geneva were being reinforced. This might lead to increased difficulties for delegations trying to enter the building on the first day of meetings. To enable the secretariat to inform the security section about the expected participation at meetings, Parties were invited to notify the secretariat about the composition of their delegations in advance.

V. ADOPTION OF THE REPORT

47. The Working Group adopted the report of its twenty-seventh session on 3 September 1998.