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**ECONOMIC COMMISSION FOR EUROPE**

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

Working Group on Effects  
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Item 6 (b) of the provisional agenda

**DRAFT LONG-TERM STRATEGY OF THE EFFECT-ORIENTED ACTIVITIES**

Note by the Bureau of the Working Group on Effects in collaboration with the secretariat

**Introduction**

1. The Convention on Long-range Transboundary Air Pollution aims to protect man and his environment against air pollutions to limit and, as far as possible, gradually reduce and prevent air pollution. The Contracting Parties shall by exchange of information, consultation, research and monitoring, develop without undue delay policies and strategies which shall serve as a means of combating the discharge of air pollutants. The Working Group on Effects, which represents one of the Convention's core activities, considers the main obligations formulated in articles 7 d and 8 f of the Convention as the basis of its work. The Working Group contributes specifically to monitoring, research and development with regard to the effects of major air pollutants on human health and on the environment, including agricultural land, forests, materials, aquatic and other natural ecosystems. One of the aims of the Working Group is to establish a scientific basis that may be used to design and assess environmental policies. It may also provide an example to other regions addressing their air pollution problems.

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.

2. In support of the forthcoming review of the 1999 Protocol to Abate Acidification, Eutrophication and Ground-level Ozone, the 2004 Substantive Report on the Assessment of Air Pollution Effects and their Recorded Trends (EB.AIR/WG.1/2004/14) was published and a Workshop on Review and Assessment of European Air Pollution Policies was held (25–27 October 2004 in Gothenburg, Sweden). Considering these and following decisions of the Executive Body, the Bureau of the Working Group updated its long-term strategy focusing on the years 2005–2015. In particular, this strategy aims to provide scientific substantiation for further work under the Convention. It is in line with the international scientific development and agreed priorities of the Convention's work.

### **I. LONG-TERM AIMS OF THE WORKING GROUP ON EFFECTS**

3. The Working Group on Effects focuses on the effects of acidifying air pollutants, nutrient nitrogen, tropospheric ozone, volatile organic compounds, particulate matter, heavy metals and persistent organic pollutants (POPs) on human health and the environment. It also alerts the Executive Body to any perceived additional, or changed, threats caused by air pollution that might require policy response.

4. The Working Group collects, assesses and further develops environment and health related knowledge and information on:

(a) The present status, long-term trends and dynamics in the degree and geographical extent of the impact of air pollution, particularly, but not exclusively, its long-range transboundary impact;

(b) Exposure-response relationships for agreed air pollutants;

(c) Critical loads, levels and limits for agreed air pollutants;

(d) The links between the effects of air pollution, biodiversity and the effects of climate change.

5. The effect-oriented activities, the prioritization of the problems tackled and the timing of the main tasks, as well as the generation, processing and evaluation of data and the presentation of results provide the necessary up-to-date scientific knowledge and information in order to:

(a) Support the development of air pollution abatement strategies and political decision-making on national and international levels;

(b) Assess the results and effectiveness of the implementation of the existing protocols to the Convention, compile and evaluate available scientific knowledge for its application in integrated assessment models and air pollution policies;

(c) Attract more Parties (also outside Europe) to take part in the effects-oriented work and Convention activities in general, as active involvement of the Parties in the Convention is an essential determinant of the relevance and quality of the products of the Working Group;

(d) Continue to inform stakeholders and the general public about the effects of air pollution on the environment and its impact on human health.

6. The Working Group on Effects works in close collaboration with other subsidiary bodies under the Convention and with other relevant organizations. It also provides information for related scientific activities outside the Convention and/or for joint efforts with other bodies/organizations.

7. In order to review the obligations of the effects-related work under the Convention, the Working Group and its Bureau will oversee the contributions of the individual programmes and Task Forces to the implementation of its long-term strategy. Reassessment of tasks will depend on the outcome of the envisaged review of protocols and on any new priorities of the Executive Body.

## II. METHODS OF WORK

8. The scientific basis of work to assess effects on ecosystems and materials is mainly provided by large-scale transnational monitoring networks, which observe and document the present situation with respect to chemical and biological parameters, generate and collect data and collate the best available information/scientific knowledge (on a regional basis) on the effects of major air pollutants and their recorded trends. This information is used for the creation and validation of models to reflect environmental processes and assess the risks of air pollution. The work includes comprehensive case studies, modelling and mapping of effects and assessment of damage and recovery in a broad context, including the terrestrial, aquatic and the built environment.

9. The work on the effects on human health of air pollutants is based on the comprehensive knowledge gathered and synthesized from inputs from research organizations and EMEP as well as from the World Health Organization (WHO) collaborating networks such as those on exposure assessment and long-term epidemiological studies.

10. Cooperation between individual International Cooperative Programmes (ICPs) concerning monitoring, modelling and mapping is carried out in areas and at sites of common interest. The Bureau will collaborate with ICPs in reviewing/refining monitoring strategies in order to establish criteria which define the greatest risk or to provide additional monitoring where it is required. Shared information systems for effects-oriented activities will enhance assessment capabilities and improve common access to information.

### III. LONG-TERM PRIORITIES

11. In fulfilling its mandate and in meeting the needs of the Executive Body, the Working Group on Effects identifies the following areas of particular importance in the scientific work and in the development of methods and tools for the years 2005–2015:

- (a) Monitoring and assessment of effects on the environment and human health and their trends;
- (b) Derivation of exposure-response functions for chemical and biological effects of air pollutants including investigation of nutrient nitrogen, acidifying compounds and ozone effects on ecosystem functions and biodiversity, including in combination with other stresses (for example, climate change and other confounding factors such as land use/management practices);
- (c) Further development of models and mapping procedures, particularly for effects of nitrogen and ozone on the environment, for particulate matter on human health and for the description of dynamic processes of damage and recovery (acidification, eutrophication, heavy metal accumulation) by including to a larger extent biological effects;
- (d) Further studies on uncertainties and validation of models, data assumptions and uncertainties;
- (e) Gathering information on possible risks from POPs and heavy metals not yet included in the 1998 Protocols;
- (f) Evaluation of environmental benefits of air pollution control policies as well as contribution to economic assessment of damages.

12. Considering the available data on effects within the Convention, the Working Group gives priority to the following pollutants: nitrogen, particulate matter, ozone, sulphur, heavy metals and POPs.

### IV. ORGANIZATION OF WORK

13. The Working Group on Effects and its elected Bureau are responsible for the planning, coordination and reporting of the effect-oriented activities. The operational aspects of the effective implementation of the workplan are dealt with by the Extended Bureau of the Working Group on Effects comprising the Bureau members and representatives of individual programmes/task forces, programme centres and the Joint Expert Group on Dynamic Modelling.

14. The seven international cooperative effect-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 (Federal Research Centre for Forestry and Forest Products, Hamburg, Germany);
- (b) ICP on Assessment and Monitoring of Acidification of Rivers and Lakes, led by Norway (Norwegian Institute for Water Research, Oslo);
- (c) ICP on Effects of Air Pollution on Materials, including Historic and Cultural Monuments, led by Sweden (Swedish Corrosion Institute, Stockholm);
- (d) ICP on Effects of Air Pollution on Natural Vegetation and Crops, led by United Kingdom (Centre for Ecology and Hydrology, Bangor, United Kingdom);
- (e) ICP on Integrated Monitoring of Air Pollution Effects on Ecosystems, led by Sweden (Finnish Environment Institute, Helsinki);
- (f) ICP on Modelling and Mapping of Critical Loads and Levels and Air Pollution Effects, Risks and Trends, led by Germany (National Institute for Public Health and the Environment, Bilthoven, Netherlands);
- (g) Task Force on the Health Aspects of Air Pollution, led by the WHO European Centre for Environment and Health, Bonn Office, Germany.

15. The designated programme centres, associated with each programme, are largely funded by lead or host countries. Programme centres are also funded through the Convention's Trust Fund under Decision 2002/1 of the Executive Body.

16. While striving to develop further the effects-oriented activities and, in particular, to ensure effective use of available resources, the Working Group on Effects also considers options for linking more closely related activities and tasks.

17. Depending on the specific needs identified by the Working Group such options include:

- (a) Joint and preferably pollutant-specific workshops and other meetings of programme task forces;
- (b) Using ad hoc joint expert groups to address specific problems, to undertake short-term tasks, or to carry out particular case studies. These ad hoc groups, however, are not necessarily part of the formal structure of the Convention, but may report on clearly defined tasks through one or more of the programmes with clear timetables for completion of their work.

18. Special attention is given to the effective collaboration with other bodies/groups under the Convention and with relevant bodies/programmes outside the Convention. This includes cooperation with the European Commission's Clean Air for Europe (CAFE) programme, the activities of the European Environment Agency, the United Nations Framework Convention on Climate Change, the Convention on Biological Diversity and the Acid Deposition Monitoring Network in East Asia (EANET). Considering that an increased number of Parties to the Convention are Member States of the European Community, the synergies between the Convention and European Community work are taken into account. The Working Group also

looks for methods to increase the involvement of countries of Eastern Europe, Caucasus and Central Asia as this is a priority region for the Convention.

19. While continuing to further improve its geographical coverage of the entire ECE region, attention is given to intensified cooperation with other regions, for example Asia, to the specific problems of the Mediterranean basin and to establishing collaboration with new Parties to the Convention.

## **V. CONCLUSION**

20. The achievements of the Convention leading to reduced emissions and mitigation of air pollutant effects on the environment and health have only been reached by efficient use of knowledge from research and monitoring. In gathering this knowledge, the Working Group on Effects provides the framework for a unique science-based and comprehensive monitoring system. This allows observation of the evolution of environmental and health issues over the ECE region under multi-pollutant influences. It is essential that monitoring and scientific studies continue and that the current work is maintained, further developed under the long-term strategy and supported by a long-term stable financing mechanism.