

Protection of the Environment: Cooperation in the ECE

Countries of the Economic Commission for Europe (ECE) region (Europe and North America), despite their different political systems, levels of economic development, geographical situation, natural resource endowment, and environmental quality, are confronted with a number of common environmental problems and trends. The urgency, interdisciplinary character, and wide scope, of these problems and trends, call for intensification and expansion of international cooperation for their solution.

Environmental cooperation within the ECE has been shaped by a three-decades' history of dialogue, negotiation, and cooperative action. It includes, in particular, efforts of ECE Governments to implement the environmental components of the Final Act of the Conference on Security and Cooperation in Europe (CSCE) and of the Concluding Document of the Madrid Meeting of representatives of the participating States of the CSCE.

Air Pollution

In 1979, the Convention on Long-range Transboundary Air Pollution was signed at a high-level meeting within the framework of ECE; it came into force in 1983. Thirty-one countries now implement the Convention, with the focus on reduction of the long-range transport of sulphur and nitrogen oxides and their transformation products, and of precursors of photochemical oxidants, as the main sources of adverse effects on materials, vegetation, and natural ecosystems. A protocol on the reduction of sulphur emissions or their transboundary fluxes by at least 30% by 1993 was adopted in 1985, and draft protocol concerning control of emissions of nitrogen oxides or their transboundary fluxes is currently being elaborated.

The Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP) provides regular information on the transport and deposition of selected air-pollutants, as well as on the quantity and significance of the long-range transmission of pollutants and fluxes across national boundaries. This programme currently operates a network of 90 measuring stations in 24 countries. For the assessment and monitoring of air pollution effects on forests, on rivers and lakes, and on materials, including historic and cultural monuments, three international cooperative programmes have been launched.

A series of practical recommendations have been formulated on control technologies for sulphur and nitrogen oxides from stationary sources such as power-plants. Studies are now under way on new and promising measures, such as the application of fluidized bed combustion, and on the economic utilization of by-products generated from desulphurization technologies.

Water Management

The prevention of water pollution and the rational use of water are cornerstones of integrated water management. The ECE Committee on Water Problems has examined critical industrial sectors such as the chemical industry and energy plants, in order to analyse factors that contribute to the reduction of water-borne pollutants and to determine ways and means for the recycling of process-waters. This work has resulted in a set of recommendations to ECE Governments on rational use of water in industrial processes.

Ground-water is of vital importance as a prime source of drinking-water. Serious hazards arise from the long-term

effects of ground-water pollution and depletion. To combat dangers for the supply of water, a set of guidelines on ground-water management is currently being prepared. The ECE attaches great importance to the application of advanced technologies that would increase wastewater purification and process efficiency in treatment facilities. Guidelines for wastewater management are under preparation.

For the cooperation in control and prevention of transboundary water pollution—an increasingly important matter for countries in the region—principles have been endorsed by the Commission which would provide for the harmonious development, use, and conservation, of these resources, both surface- and ground-waters. In 1987 the ECE began work on the problems of liability in cases of transboundary water pollution and flood management, of which the first case-study concerns the River Rhine. In addition, work was initiated on accidental pollution in inland waters.

Natural Resources

ECE member countries are increasingly aware of the need to strive for careful husbandry of natural resources. The ECE programme in this field focuses on the recovery, re-use, and valorization, of residuals, the utilization of residuals in industrial production processes, product design to facilitate recovery and re-use, and feedstock substitution to extend scarce raw-material resources. Special attention is given to technological measures which either prevent the generation of hazardous substances, or transfer or recover them from industrial synthesis and processing activities. A Compendium on Low- and Non-waste Technology is being compiled with a view to improved dissemination of technical and managerial information and to setting up an international data-bank on low- and non-waste technology. This Compendium now contains descriptions of 134 technologies that are used in major industrial sectors. Projects have been developed or are under way on incentives for, and evaluation of, the application of low-waste technologies.

An important environmental problem, which receives special emphasis, is the management of hazardous wastes. Aspects related to their generation are being considered, together with those of treatment, re-utilization, transportation, intermediate- or long-term storage, or final disposal, of hazardous wastes.

Flora, Fauna, and their Habitats

With the aim of encouraging more positive action for strengthening sustainable use of genetic resources in the region, the elaboration of a comprehensive Declaration on the Protection of Flora, Fauna, and their Habitats in Europe was undertaken. The adoption of such a Declaration will provide for the sustainable use of biological resources in the interests of present and future generations. A number of cooperative programmes have been launched recently to enhance the protection of flora, fauna, and their habitats: also the compilation of a European Red Book on endangered and migratory species, and the elaboration of national and regional 'responsibility lists'—thereby acknowledging species of flora and fauna whose conservation is the country's international responsibility. The setting up of an all-European monitoring system of flora, fauna, and their habitats, and the elaboration of a study on the relationships between economic development and the protection of flora, fauna, and their habitats, have been undertaken.

Environmental Impact Assessment

The ECE provides a forum for the elaboration of guidelines and principles on Environmental Impact Assessment (EIA). A study on the application of EIA to major projects on civil works, hydroelectric power, flood-control dams, reservoirs, highways, and road networks, has recently been completed. The work in progress covers such topics as criteria for determining environmental significance of projects, hazard analysis in EIA, approaches to post-project analysis, and practical application of EIA related to specific types of activities—particularly oil and gas development and sports and touristic facilities. Increased attention is being paid to the use of EIA in connection with transboundary issues.

Long-term Strategy

Through elaboration and subsequent vigorous implementation of a Long-term Strategy for Environmental Protection and Rational Use of Natural Resources in ECE Member Countries for the Period up to the Year 2000 and Beyond, Governments aspire to achieve, in the early part of

the next century, conditions whereby economic growth and social development are compatible with a sustainable use of the environment. The Strategy will establish a series of achievable medium- and long-term goals to stimulate and guide future ECE work in environmental protection, and to construct a framework for the development of future work programmes within the ECE. The first part of the Strategy has involved the elaboration and publication of a consensus statement on current environmental trends and policies in the ECE region.

The work on the Long-term Strategy reflects the view of Governments that environmental management, including sustainable use of natural resources, is an integral part of economic and social development. It also emphasizes that continuing and emerging environmental management problems, as well as new scientific, technological, and institutional, opportunities, can benefit from closer, more concentrated, cooperative action by ECE member countries.

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Concern for Sustained Ecological Research

More than 60 prominent scientists from 11 nations participated in a Cary Conference in Millbrook, New York, during May 1987, to consider the unique value of long-term, sustained studies in ecology. At the conclusion of the Conference, the participants endorsed the subjoined statement on the need for *Sustained Ecological Research*, which is vital in order to monitor, calibrate, and interpret, ecological data. This type of sustained research activity, however, is relatively rare and falls far short of meeting the need to understand and to manage complex natural ecosystems.

To those who are involved in environmental and public policy issues, I wish to send this preview of the statement and to invite their comments. A book will be forthcoming from the Conference, detailing the value of long-term studies in science as well as describing various alternatives that can supplement the knowledge gained from ecological research which is sustained over long periods of time of at least several years. The subjoined statement will appear as the frontispiece for this important book emanating from the Cary Conference.

A critical component of this statement is a call for a new partnership between research scientists and resource managers. Goals of such a partnership include the presentation of scientific information and concepts in a form that can be understood and used, and integration by users of this scientific information with societal, economic, and political, considerations in a responsible way.

The participants of our Conference concluded that each nation has major informational needs relative to the management of natural resources, and that sustained ecological research can provide unique understanding for the development of sound management policies. Thus, conferees agreed that the requirement of sustained ecological research for this partnership represents a critical need in nations throughout the world.

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Sustained Ecological Research: A Critical Need†

Ecological understanding is required to develop environmental policies and to manage resources for the benefit of Humankind. Sustained ecological research is one of the essential approaches for developing this understanding, and for predicting the effects of human activities on ecological processes. Sustained research is especially important for understanding ecological processes that vary over long periods of time. However, to fulfill its promise, sustained ecological research requires a new commitment on the part of both management agencies and research institutions. This new commitment should include longer funding-cycles, new sources of funding, and increased emphasis and support from academic and research institutions.

Because they have common long-term goals, we propose a new partnership between scientists and resource managers. Elements of this partnership include:

- (1) Agreement by scientists to answer the questions put to them by managers, while making clear the level of uncertainty that exists and what additional research needs to be done.
- (2) Agreement by managers to give serious consideration to these answers and to support the continuing research towards better answers.

Sustained Ecological Research supported by this new partnership can contribute significantly to the resolution of critical environmental problems.

† Statement adopted at the Cary Conference in Millbrook, New York, on 13 May 1987; Revised 4 July 1987.

There follows an account of the Institute of Ecosystem Studies which is headed by Dr Likens and warmly welcomed as an encouraging development of a much-needed nature.—Ed.