8. Operational and institutional arrangements

8.1. FUNCTIONS

A correct and complete evaluation of environmental data is only possible when the environment is treated as a unity. The interactions of the processes in space and time make it necessary to consider information from all different media of air, water, soil, and biota including man. This integrated view is essential when dealing with the situation at a specific locality. The same considerations have to be made – on an even larger scale – when we are dealing with global conditions. In addition, the interactions between the different media and their roles as transport mechanisms must also be considered.

The approach to environmental problems has traditionally been media orientated e.g. air pollution problems, water pollution problems etc. This media approach has been promoted by an interaction between national and international levels. As a result there are well-established or planned media-orientated monitoring systems both on national and international levels. Important co-ordination work has been done by different international agencies, especially within the UN-system.

The co-ordination has been focused on intercalibration and standardization of methods. These activities and the experiences gained from them should be used as guidance for a future integrated global monitoring system. The main task is to establish a high degree of co-ordination and to permit an integrated evaluation of the problems in the total environment both from a national and global point of view.

8.2. CO-ORDINATION

8.2.1. Introduction

In designing a coherent global environmental monitoring system, the basic problem is how to set up the simplest and least costly structure, in terms of money and technical manpower, which is nevertheless effective as regards global coverage, accuracy, reliability, speed and flexibility of response.

Three possibilities exist:

1. To use the data emerging from existing or planned programmes
2. To re-design a completely new global system
3. To develop co-ordination machinery to obtain from existing programmes data on an internationally agreed set of priority variables which may or may not be currently measured globally.

We can benefit from a study of the organization and methods of the large number of ongoing monitoring activities already being carried out by governments, inter-governmental and non-governmental bodies. These current and planned programmes are extremely valuable in covering national envi-

ronments or selected parts of global problems. At present, little or no co-ordination exists between them in terms of standardization of sampling and measurement techniques and hence in the collective evaluation of results. This makes comparisons quite impossible on a global scale at present.

In the present Report, we are more concerned with problems which are becoming global in extent either because they are being simultaneously generated in countries all over the world or because geophysical, geochemical and biological transport mechanisms are spreading contaminant substances globally from point sources. A completely new comprehensive programme to deal with these situations would involve a large number of variables to be monitored in air, water, soils and biota (including man) all over the world. The design of it would raise so many complex financial, organizational and technical problems that it is fairly obvious that no completely new and untried system can be erected in entirety within the near future. There is little doubt that the least wasteful final design will be arrived at by evolving from a modest beginning. This process may take far too long in view of the urgency of obtaining some global overview of at least a few world environmental problems.

International co-ordination appears to be the most practical way forward at present. Since governments will be the users of global monitoring information, it would seem logical to obtain international agreement on a basic set of high priority environmental variables to be measured on a global scale. It might then be appropriate to develop some kind of inter-governmental co-ordination machinery to standardize or inter-calibrate sampling and measurement methodologies so that the basic agreed variables can be measured by existing national and inter-governmental programmes with minimum disturbance and interference to their ongoing internal monitoring priorities.

8.2.2. The Monitoring Office

We are convinced that to succeed, any integrated monitoring system must at first be rigorously selective about which variables to monitor globally. It must choose only those where it is absolutely certain that urgency for global knowledge exists and where reliable and reproducible methods for sampling and measurement can be successfully operated on a global scale. For these and other reasons, a large amount of national monitoring and regional work already being carried out by inter-governmental or non-governmental efforts would be of little or no interest to any proposed global system. However, existing monitoring bodies might be able and willing to modify their current programmes to allow for the collection and transmission of selected data directly useful to a global system.

A practicable method of arranging this would be to invite each government, UN agency or other inter-governmental and non-governmental body actively involved in monitoring to nominate a committee or group (Monitoring Office) to be the correspondent for all matters where its affairs relate to global monitoring. By previous agreement, this might involve selected mate-

rial emerging from a nationally controlled reference or high exposure area, health monitoring data or relevant information obtained in some other agreed manner. Aside from its activities as regards global monitoring, this Office might have the role of co-ordinating all monitoring activities internal and private to its government or agency and of no concern to the global system. By international agreement, this Office would not only transmit certain data to any inter-governmental co-ordinating machinery but would also receive as required all data from the global system. Other matters of concern to the Office would be the adoption of recommended standardized or inter-calibrated sampling and measurement techniques and the interchange and training of scientists and technicians.

All these activities would presuppose that the Office, by permission of its parent body (nation, etc.) had access to the required data via its monitoring programmes, data banks, environmental archives, etc. Future developments might involve its handling any internationally agreed data on quantities of the various potentially hazardous substances released to the environment and such programmes as the monitoring of vegetation boundaries, land-use, soil-erosion, etc. by satellite sensing.

The Office would be able to contribute to the process of international review of all aspects of the global programme as regards current and future content and administration.

8.2.3. A Central Monitoring Co-ordinating Unit

By international agreement, a special Central Monitoring Co-ordinating Unit should be set up immediately. The basis for the work of this body should be the wide range of competent ongoing and planned environmental monitoring programmes. These include (a) territorial monitoring activities which are the sole concern of each national government, (b) regional programmes where a shared resource or region is collaboratively monitored by those governments directly affected and (c) the UN agency and other inter-governmental or non-governmental programmes for climatic change, human health and toxicology, marine conditions, radioactivity, education and training.

This Co-ordinating Unit should have the following functions:

a) Delineate programmes and continuously overview global environmental monitoring activities to make certain that the system operates with maximum efficiency and relevance and that optimum output is achieved.

b) Co-ordinate ongoing monitoring programmes and recommend new activities to ensure that the requirements of the system are satisfied.

c) Standardize the methods of observation in order to ensure comparability of data.

d) Take the necessary steps to provide the monitoring system with appropriate means for data handling and dissemination.

e) Evaluate advice from its independent scientific advisory body, the UN agencies, other international organizations and nations.

f) Report to UN on the state, needs and results of the global environmental monitoring system.

It is quite conceivable that by international agreement, parts of these co-ordinating and evaluating activities for selected media may be specially delegated to a relevant organization e.g., a UN agency or inter-agency alliance with the Monitoring Co-ordinating Unit retaining ultimate overall responsibility.

In addition to the above considerations, a body is necessary to provide technical assistance and serve as a distribution point for supplementary funding of monitoring programmes at scientifically desirable sites where "national" funding is inadequate. Since an important characteristic of the monitoring effort is its global extent, many sites will be required in political jurisdictions where the scientific and technical problems of comprehensive environmental monitoring are new to the country. The Co-ordinating Unit must therefore be responsive to requests for technical assistance in setting up the reference stations. This can be done either by staff attached to the Unit, or by the Unit serving as the co-ordinating body to produce such assistance from another national government or, for example, a UN agency. With respect to supplementary funding, the Co-ordinating Unit should have a strong voice in its allocation. This is to make sure that the money is distributed in the best interest of the total monitoring effort rather than in national interest alone.

8.3. EVALUATION

The most critical point in relation to the monitoring activities is the evaluation of the results. For this reason we think that the UN should ask the International Council of Scientific Unions to establish permanent institutional arrangements to provide scientific assistance in the evolution and design of the global environmental monitoring system and in the analysis and interpretation of data.

8.4. MONITORING AND OTHER UN ACTIVITIES

We recognize that the global environmental monitoring system is an integrated part of a much more comprehensive framework for policies, research and actions in the field of environmental affairs in general and that monitoring cannot operate with maximum efficiency without close connection to these other environmental activities. We also recognize that no organization presently exists with the competence of co-ordinating all global environmental activities.

We therefore recommend that the United Nations seriously consider using an existing body or establishing a separate body directly responsible to the General Assembly of the United Nations with the competence to perform overall co-ordination, integration and policy definition for the whole field of global and international, governmental, inter-governmental and non-governmental environmental programmes and affairs.