



# United Nations Conference on the human environment

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## The UN system and the human environment

consolidated document submitted by the ACC



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on the  
UNITED NATIONS SYSTEM AND THE HUMAN ENVIRONMENT  
submitted by the  
Administrative Committee on Co-ordination

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<sup>1/</sup> Available in Conference library.

## PREAMBLE

Environmental questions and how to deal with them within the United Nations system have concerned the Administrative Committee on Co-ordination (ACC) for some time, and at the 47th session of the Economic and Social Council (ECOSOC) when the idea of the United Nations Conference on the Human Environment was being considered, the ACC in a statement circulated to the Council<sup>1/</sup> suggested certain guidelines and principles. Emphasis was placed on the urgency and complexity of environmental questions and attention was drawn to the knowledge and experience of such questions already available in the system. In its initial statement the ACC referred to the variety and extent of problems of the human environment, some of which had global impact, noting that these demanded "intergovernmental co-operation for their solution" and necessarily would constitute "a major area for action by the United Nations organizations".

The same statement drew attention to the need for United Nations organizations to "adopt as far as possible an ecological and integrated approach in their activities relating to utilization of resources and environmental management", and to "promote preventive action and effective application of existing knowledge in dealing with environmental problems" whilst encouraging further research where necessary. Finally, ACC expressed its belief that the "complexity and magnitude of the problems of the human environment and their interdisciplinary nature call for even more effective inter-agency co-operation within the United Nations System".

Thereafter many of the organizations of the system were extensively involved in preparations for the 1972 Conference, some of them having assumed responsibility for preparation of basic papers. The intergovernmental arrangements for the Conference have been paralleled by inter-secretariat arrangements to assure that all necessary resources of the system are brought to bear in an orderly manner.

In its report to the forty-ninth session of the Council<sup>2/</sup> the ACC again drew attention to the principles and guidelines it had suggested in 1969. It welcomed the view of the Preparatory Committee of the Conference that "the Conference should make full use of work already going on or planned in the various international organizations

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<sup>1/</sup> see document E/4710

<sup>2/</sup> see document E/4840

concerned, and that the preparations should, inter alia, be designed to give the organizations "additional support, fresh impetus, a common outlook and direction". ACC shared the hope of the Preparatory Committee "that full consideration will be given to the environmental problems of the developing countries", and reaffirmed the willingness of the organizations of the system "to make available to the Conference knowledge about such problems derived from technical co-operation projects undertaken in various developing countries".

The ACC reported to the ECOSOC at its fifty-first session<sup>1/</sup> on the state of its preparations for the Conference, indicating that, on the basis of discussions with the Secretary-General of the Conference, it had been agreed that a consolidated document on the activities of the United Nations system of organizations in relation to the human environment would be presented by the ACC directly to the Conference in order to complement the official Conference documentation.

Hence an effort has been made in this document to present in a consolidated form an overview of the activities currently in progress, and of the technical resources available within the system which can be utilized in the implementation of such programme activities as may be proposed by the Conference and agreed by the competent organs of the organizations in the United Nations system. It is significant that the process of preparation in itself, which has taken place under the auspices of the ACC Functional Group on the Human Environment, with the World Meteorological Organization (WMO) acting as the responsible agency, has required an extensive internal reappraisal within the organizations concerned of their own resources and relevant programme undertakings. The pre-Conference period has thus served to stimulate the readiness of the organizations of the system to carry their appropriate responsibilities in a concerted manner, in the period of activity after the Conference itself.

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<sup>1/</sup> see document E/5012

## I N T R O D U C T I O N

1. When the United Nations and most of the specialized agencies were created some twenty-five years ago, the world was just emerging from the most widespread and devastating war which had ever scarred this planet. The time was for reconstruction, development and peace. The main economic and social problems were building and housing, increase in food production, stimulation of industry, supply of water and sanitation. Many aspects of these problems would today be called problems of the human environment, in the sense of the Stockholm Conference. These words, however, were not used and the stress in these early international efforts was more on quantity and economic growth. Yet, while progress was taking place a shift in priorities appeared, and more emphasis was placed on development of natural resources and on quality and social welfare. It is a fact that the UN system of organizations has been dealing in a rapidly expanding way with a large set of problems of the human environment.
2. Broadly speaking, the UN organizations have been created on the traditional sectoral pattern which had been developed, and still prevails, in most national governments, where one finds ministries for agriculture, for health, for labour, for education, for public works and so on. Within its own area of responsibility each UN body has therefore been led to develop activities relating to the human environment as far as its particular sector was concerned.
3. Each organization had to do this because many problems of the human environment have an international dimension, either because of their geographic scope (i.e. the pollution of the oceans), or because of their ubiquity (i.e. the planning of urban areas) or because of their cumulative effects and significance to the whole of mankind (i.e. the rational development and use of natural resources). In fact, the constitution of several UN organizations makes specific reference to their responsibility in certain environmental problems.
4. It should be recognized that, even today, this "sectoral" approach remains adequate to deal with a number of these problems, both nationally and internationally, as it can also provide the flexibility required to combine on an ad hoc basis, these sectoral activities according to different natural conditions and to changing socio-economic requirements.

5. At the same time it has become increasingly clear that many problems of the human environment are of an intersectoral nature, and, in fact, have often been the result of taking too narrow a sectoral approach. This situation has been recognized in the UN system for several years and has led to a number of efforts toward greater co-ordination of activities, for instance in relation to UNDP supported projects in developing countries. A definite, though relatively recent, trend towards interdisciplinary approaches has taken place in such fields as water resource development, population problems and environmental research. Moreover in the UN regional Commissions, and in the Economic Commission for Europe in particular, both a sectoral and intersectoral or horizontal approach to environmental problems is being followed.

6. Fundamentally, however, the UN system has retained its sectoral structure and approach to major areas and problems of human activity - a structure which might be called a "vertical" one. When one considers the totality of the very broad and complex problems of the human environment, as the Stockholm Conference proposes to do, a horizontal "cut" across all areas of human activity has to be made which necessarily transcends the activities of the whole UN system.

7. It becomes obvious that all UN organizations have some kind of interest or involvement in some aspect of this total subject. This appears quite reasonable, indeed it would be surprising if each organization was not interested and involved in a particular aspect of it.

8. The UN system as it exists now has therefore a broad experience and a constitutional concern for most problems of the human environment. It provides a major basis for any additional activities which the Member States, in the light of the present world situation, may wish to establish.

9. As environmental control is to a large extent an administrative and managerial problem, the Administrative Committee on Co-ordination felt it would be useful for the UN Conference on the Human Environment to have before it consolidated information on both the ongoing and planned activities in this field within the system. It considered that this would be particularly helpful to the Conference in considering the question of the international organizational implications of action proposals.

10. Chapter I of this report outlines briefly the current activities of the UN system of organizations in relation to the environment and as defined by the respective governing bodies of these organizations. This information is arranged according to the main agenda items of the Conference. The chapter also gives some examples of the trend toward multidisciplinary approaches within the UN system. Chapter II describes the functions to be performed by the UN system in relation to national and international aspects of the problems of the human environment and attempts to analyse these functions in a prospective way, related to activities and programmes which are already planned. Some final remarks are given in Chapter III.

11. In order to give a general picture of how the organizations see their involvement with the problems of the human environment in relation to their terms of reference, short summarizing notes presented by each organization on this subject are listed in Annex I. A detailed but, of course, not exhaustive presentation of the activities of the organizations or units of the UN system is presented in Annex II<sup>1/</sup> in accordance with the proposed agenda for the Conference, as agreed upon by the second session of the Preparatory Committee for the Conference in February 1971. Whilst there is inevitably some duplication as between chapters and annex of the report, the self-contained nature of each part will facilitate its use as a reference document by Member governments and the UN Conference secretariat, especially when analysing the bearing of any particular action proposal on UN institutions.

12. It is hoped that this report will help to reveal possible gaps in the treatment of certain problems and also indicate possibilities for further co-ordination of efforts within the system as well as with organizations outside the UN system. If environmental management and control is to be effective, there will need to be an unbroken chain of action at local, national, regional and global levels. To this end, this document is an attempt to provide a full appreciation of the potentialities offered by the UN system for broadened world-wide efforts toward a better human environment.

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<sup>1/</sup> Available in the Conference library.



## Chapter I

### CURRENT ACTIVITIES OF THE UNITED NATIONS SYSTEM

#### 1. The planning and management of human settlements for environmental quality

13. Among the most serious environmental problems which the rapidly growing population of the world is facing are those related to human settlements.

14. The problems arise from population growth, from population distribution within urban and rural zones, and from complex human activities associated with social and economic progress. The overwhelming majority of these activities are concentrated within the physical framework of human settlements, and therefore the main conflicts between human activities, natural qualities of the environment and human biological needs arise exactly there.

15. Extensive and continuous interplay of physical aspects of the environment of human settlements with the economic activities and social behaviour of its inhabitants caused many of the United Nations family of organizations to become involved with the environmental aspects of settlements and settlements networks development.

16. Of the matters of concern dealt with by the United Nations system under this item, the Department of Economic and Social Affairs is deeply involved in population problems, as well as such planning and management questions related to the human settlements as land-use policies, transport development, economics of urbanization, housing and building problems, and redevelopment of slums.

17. The Department has also directed a substantial part of its activities towards the basic issues related to the environment of human settlements. Various specialized divisions are collecting and processing data, initiating research, developing exchange of experiences and disseminating knowledge. Last but not least they are expanding technical co-operation programmes in such crucial aspects of environmental development as policies in population growth and distribution, processes of urbanization and of modernization of rural settlements, administrative and legal aspects of settlements evolution and growth. A great deal of attention is also given to the social aspects of the above processes.

18. The aspects of planning of housing and building for environmental development have been for a long time issues of major importance handled by the Department particularly in the Centre for Housing, Building and Planning.

19. The environmental planning for settlements development aims at expressing the complex social and economic goals of development in physical terms and environmental qualities of a settlement, or of a system of settlements, which will be related to the regional or national scale.

20. Housing, together with its related facilities and services, involves those components of all settlements which are most directly related to living standards, to human health and to social satisfaction. Finally, the building industry and technology is an important physical tool in settlements development, and progress and improvement of settlements, in terms of both quantity and quality, depend extensively upon the efficiency of that tool.

21. The extensive involvement of the United Nations in settlements development is related to research such issues as the economics of urbanization, urban land tenure and land-use policies. It is also related to advising on preventive and remedial measures in planning for the development of tourism, or promoting pilot projects in improvement and redevelopment of slums and transitional settlements. Operational activities and studies include also, assessment of transport problems in the context of physical environment and human activities, and the implications for the environment of transport measures for specific sectors of the economy. Investigations in connexion with implementation of projects often include ecological considerations. Various transport alternatives are considered before recommending a solution. In carrying out these functions, the United Nations co-operates with various non-governmental organizations and academic institutions.

22. In addition, the Economic Commission for Europe has a comprehensive and long-term research and study programme which is institutionalized through formal intergovernmental machinery to deal with human settlement problems such as regional and urban development, the provision of housing and community facilities, land-use policies, urban and sub-urban transport, urban renewal, water resources management, air pollution, etc.

23. The industrial component in the planning of human settlements and environmental problems of industrial origin also deserves special attention. In this context, the United Nations Industrial Development Organization (UNIDO) provides advice and assistance regarding the appropriate location and siting of industrial plants, and has been giving attention to various means of abating the effects of pollution, including improvements in waste-disposal systems.

24. In the past, assistance from the United Nations Children's Fund (UNICEF) has been devoted mainly to children in rural areas. While such assistance will continue to be the most important part of UNICEF's work with developing countries, in view of rapid urban growth, UNICEF has recently adopted new guidelines for assisting programmes for the well-being of children and adolescents in slums and shanty-towns. In co-operation with other agencies of the United Nations, a special effort is made to take an overall view of the human, social and physical developmental aspects of slums and shanty-towns.

25. In addition to the above activities of United Nations bodies several specialized United Nations agencies deal with the planning and management of human settlements development, with pre-investment and technical assistance offered by the United Nations Development Programme.

26. The World Health Organization (WHO), for example, in order to promote human health and welfare, aims at the prevention and control of transmission of infectious agents, freedom from chemical and physical hazards and stress, as well as at the promotion of physical and social well-being through appropriate measures in the planning of human settlements. It has taken significant action in recommending environmental health criteria in this planning process and for housing; in promoting the planning and control of public water supplies, waste disposal and the control of environmental pollution associated with human settlements and in the formulation of international standards of water quality as well as the development of methods of eliminating noxious substances from water. Studies have been completed on urban industrial effects on health and on epidemiological and public health factors in housing and town planning, including the aspect of occupational health. WHO is particularly interested in the assessment and control of urban air pollution. An International Advisory Committee on Environmental Carcinogenesis has been established by the International Agency for Research on Cancer (IARC) to provide governments with advice on the potential carcinogenic effect of chemical compounds in the environment. Approximately 60 compounds are reviewed each year. The IARC is also using its Regional Centres as key areas for co-operative studies between industrial and non-industrial environments relative to cancer in man.

27. The International Labour Organisation (ILO) is traditionally concerned with the siting of workers' housing, house design, the provision of utilities and amenities as well as social services. Of particular concern are the physical conditions of the work place. The safety, health and well-being of workers, whether in factories,

mines, fields or offices, are primary subjects for action. Other aspects relevant to the workers' environment are also covered - job satisfaction, the fitting of work to the human being, housing, recreation facilities and the use of leisure.

28. The Food and Agriculture Organization (FAO) has a large responsibility in formulating guidelines for the settlement and resettlement of rural population. Under its programme for agrarian reform and integrated rural development, FAO has various projects dealing with measures to improve living standards and to ensure full employment of the rural population. The World Food Programme is significantly active in support of infrastructural and community development works both rural and urban.

29. The World Meteorological Organization (MO) promotes the application of meteorology to planning for environmental development of settlements, pointing out that the process of urbanization gives rise to local modifications in weather and climate. In planning urban areas climatological information and knowledge may be applied, for instance, in the siting of industrial areas, the appropriate spatial distribution of green and open spaces as well as in the design of buildings to ensure satisfactory thermal and comfort conditions.

30. The varied activities of the United Nations Educational, Scientific and Cultural Organization (UNESCO) relate not only to the scientific aspects of the environment, but also to the social, cultural and aesthetic factors of the environment and their behavioural implications. Concerning the latter, UNESCO is currently undertaking an interdisciplinary project (i.e. Man and his Environment - Design for Living), which focuses on the micro-environment and on the creation of favourable social relationships in a genuinely human environment. Furthermore, UNESCO is continuing studies and actions related to the cultural preservation of cities, monuments, sites and other artistic and historical heritage which has led to the preparation of a Convention and recommendation on the protection of monuments and sites of universal value.

31. The work of the agencies of the United Nations system would be severely handicapped without the co-operation of the regional economic commissions. Many of the studies and surveys which form part of major programmes are supported, or

complemented, by work carried out on a regional level by the Economic Commissions for Africa, Asia and the Far East, Europe, Latin America and by the Economic and Social Office at Beirut. The Economic Commission for Europe, for example, has permanent intergovernmental bodies for carrying out a research and study programme and promoting international co-operation on: water management problems, including water pollution; housing, building and physical planning; air pollution; a series of industrial sectors; and most recently a new body of senior environmental advisors to governments.

32. Moreover, the United Nations Development Programme (UNDP), providing pre-investment and technical assistance to those countries needing and requesting such aid, has approved so far more than twenty projects for improving water supply, sewage disposal and pollution prevention, which have been carried out in co-operation with the appropriate United Nations organizations. Numerous other UNDP projects are concerned with helping Governments in systematic urban planning and in some cases rehabilitation. One of the major problems in overcrowded cities is the uncontrolled urban sprawl; UNDP support has attempted, particularly in many low-income countries, to provide a greater measure of control of this problem.

B. The environmental aspects of natural resources management

33. When natural resources are exploited, there is an inevitable effect on the environment because the resources are used up or degraded, and because the balance between different resources is disturbed. While these effects are not always detrimental, in all too many cases they have given rise to difficult problems.

34. Since in certain instances one country's use of its natural resources (or common natural resources as, for instance, fisheries) can affect the economy and the environment of another, the countries have seen the need to develop a global framework for joint planning and management of natural resources. As a consequence, this has become a major function of organizations of the United Nations system. The requirements for such a framework include basic studies and research on these resources (see further UNESCO, WMO), specific inventories and surveys of the uses of natural resources (see further the United Nations and FAO), and the development of guidelines for planning and managing these resources in each sector of the activities of the United Nations system. Moreover, as governments of developing countries have made requests to the United Nations system to assist them in formulating and in implementing the countries' development plans, many United Nations bodies and agencies have become more directly involved in the management of natural resources.

35. As explained in the introduction, the distribution of the tasks among international institutions follows, in the main, the pattern followed in national institutions. FAO is the main United Nations agency dealing with the management of natural resources for agriculture, forestry and fisheries. In these sectors, the need for sustained long-term productivity requires that environmental considerations be incorporated into comprehensive planning and management of crop lands, livestock and grazing lands, forests, water resources for agriculture, fisheries, wild life, national parks and other natural resources used for recreation:

- (a) At the planning stage, a proper assessment of the potentialities and limitations of the use of these resources is required, to ensure that future use will not lead to their deterioration or depletion. To this end, FAO is engaged in several natural resources assessment programmes. At global levels this is often carried out co-operatively, as in the case of the soil map of the world, which is being produced jointly with

UNESCO. At national and local levels, these inventories are part of development feasibility studies, and projects are carried out with the support of UNDP at the request of and together with governments. Survey information is collected and processed by FAO in order to outline global development plans, such as the Indicative World Plan for Agricultural Development;

- (b) At the management level the promotion of sound management and conservation methods and practices in agriculture, forestry and fisheries is one of the major tasks of FAO. In the main, this is achieved with the support of UNDP through field programmes and projects of applied research, experimentation, demonstration and extension work aiming at better use and adaptation of new technology to local conditions, local ecological conditions in particular. Other contributions are made by programmes of assistance to governments in developing adequate legislation, administration and institutions for the conservation of their resources. Moreover, FAO has for many years also been responsible for activities in the field of conservation in a more narrow sense, such as soil erosion control, water resources conservation, protection of genetic resources, protection of crops, livestock, forests and fishes against pests and diseases, wild life management, forest conservation.

36. Several projects related to natural resources management in developing countries have received support from the World Food Programme under which food assistance is provided largely as part-payment of wages for labour, engaged, for example, in various forms of afforestation, erosion control, flood control, drought control and watershed management.

37. Natural resources management, including its environmental aspects, is one of the major areas of concern also of the United Nations and includes by far the largest part of its field operations. Here the emphasis is placed on water resources, mineral resources and energy resources. In its studies of the environmental aspects of the use of various types of resources, the United Nations has pointed out that there often exist alternative possibilities, particularly in the field of energy where there are a number of resources available to produce energy which are far less damaging to the environment than, say, burning fossil fuels. As regards mineral production,

attention is drawn to the desirability of not only extracting and exporting raw minerals from developing countries but also, where practicable, processing them in the producer countries. Moreover, it is necessary to bear in mind the self-cleaning capacity of the water and air used in industrial and other activities, and that only where this self-cleaning capacity has been reached or exceeded will it be necessary to introduce technological means to reduce or to prevent further water and air pollution.

38. The substantive activities in the United Nations dealing with the environmental aspects of natural resources management are primarily carried out by the Resources and Transport Division, notably with regard to non-agricultural resources and uses, and on a regional basis through the Regional Economic Commissions. They are guided by the standing Committee on Natural Resources at the global level and corresponding inter-governmental bodies in several of the regions. Thus, in the Economic Commission for Europe there are permanent intergovernmental bodies dealing with coal, gas, agricultural land, forests and water, including hydropower, all of whom give considerable attention to environmental problems in their sectors. In the area of comprehensive water management, policy recommendations are further made to Governments, in particular as regards the pollution and depletion of water resources. The IAEA has primary responsibility in the exploration of radioactive minerals as well as in assisting Governments in the exploitation of such resources. All these bodies carry out research and study and organize seminars, expert working parties, study tours.

39. The activities of the Resources and Transport Division are essentially directed towards meeting the needs and challenges of developing countries, with an increasing emphasis on environmental aspects, in such areas as overall management of water resources, energy resources and electrification, mineral resources, including those of the oceans and their pollution, and basic mapping and surveying. This includes exploring new resources, stimulating new technology, strengthening administrative and technical services in governments, organizing applied technical and economic research, seminars, conferences and publications.

40. The Advisory Committee on the Application of Science and Technology to Development has provided developing countries with policy guidelines for the investigation, development and rational utilization of their natural resources on the basis of an integrated approach to the subject, taking into account the accumulated experience of the United Nations system as a whole.



41. Knowledge of weather and climate is crucial to the use of natural resources. Through atmospheric and surface-water monitoring systems and Technical Commissions, WMO often, in co-operation with UNDP, provides means and advice to governments in applying meteorological forecasting and climatological information to the efficient use of land for agriculture and forestry as well as to the development of other natural resources. Several special projects in this area are also carried out in co-operation with FAO, UNESCO and UNDP in the Inter-agency Group on Agricultural Biometeorology.

42. A major intergovernmental enterprise operated by UNESCO and implemented in co-operation with the United Nations, FAO and WMO, is the International Hydrological Decade, which created for the first time a suitable framework for a world-wide concerted action aimed at intensifying research in all branches of hydrology and improving the training of hydrologists so that each country, and hence the international community, could better evaluate and exploit its water resources. Its purpose is to encourage the international community to evaluate the potential of its water resources and utilize them with a minimum of damage. This is being carried out by promoting, in co-operation with WMO, the establishment of basic networks to observe and measure various elements of the water cycle, and by studying the structure of the cycle in basins situated in well-defined topographical and climatic areas. As a result of this research, UNESCO is developing a general inventory of superficial and groundwater resources to evaluate the modification of the water cycle by human activities. There are many examples of how the misuse of natural resources has already led to a rapid and sometimes irreversible deterioration. The extent of environmental deterioration and its effect upon the biosphere has recently become the subject of a long-term programme of an interdisciplinary character launched and co-ordinated under the auspices of UNESCO. This programme, the Man and the Biosphere Programme (MAB), seeks the support of all governments for co-operative research projects, for the training of specialists, and for the building up of observation, research and training institutions. Its main objective is to develop a scientific basis for the rational use and conservation of the resources of the biosphere, and for improving the global relationship between man and the environment. Although various aspects of the MAB have still to be elaborated, it is likely that the following activities will be carried out:

- (a) Research on the structure and functioning of the biosphere and its ecosystems;
- (b) Assessment of the extent to which the biosphere and the ecosystems can be modified by man without deterioration of its functional structure;
- (c) Study of the effects on human populations of man-made changes in the environment; and
- (d) Related education and training.

43. As part of its marine sciences programme, UNESCO in co-operation with agencies such as FAO, IAEA, WHO and WMO, supports the work of the Intergovernmental Oceanographic Commission in encouraging a rational use of the oceans. The Commission promotes and facilitates scientific investigations in order to learn more about the nature and resources of the oceans. Some of its activities include international co-operative expeditions such as the International Indian Ocean Expedition, with subsequent analysis and publishing of results.

44. In this connexion, it should be mentioned that the United Nations is considering the establishment of an international regime to safeguard the use of the sea bed. For this purpose a special intergovernmental committee is proposed; the principles on which the regime would be based include prevention of contamination of the oceans and the protection of marine resources.

4. Identification and control of pollutants of broad international significance

15. In the past few years the world first came to the truly global consequences of the pollution activities of individual nations as a result of the radioactive fallout from nuclear tests in the atmosphere, when a significantly increased level of attention was given interest in such harmful elements as milk and vegetables from the contamination of these products from the fallout of any such tests.

16. The Commission has been the first point for all data and information coming from Members and observers in the world to the United Nations Family on this little-known but important issue. In the United Nations set up in 1955 the Scientific Committee on the Effects of Atomic Radiation (SCEAR), and it was partly as a result of the findings of this committee on the danger level of radioactive contamination and its effects on health that the first international agreement was reached between the then under "United Nations" family, namely, the atmosphere. The Committee continues to act as a focal point for all data on radiation and radioactivity in the environment.

17. The International Commission on the Protection of the Environment (ICPE), is responsible for all aspects of the environment, including the environment, bringing the greatest benefits afforded by such a decision to the world and at the same time ensuring the safety of the environment, health and the protection of the environment in general from the effects of the environment, including the environment. The global trend of radioactivity in the atmosphere is controlled by the ICPE in co-operation with IAEA through a global network of stations monitoring the content in the atmosphere.

18. Activities in the field of water and cycles were chosen to introduce this item on environmental pollution because, for as things such pollution can be transported in all types of water of the environment - atmosphere, hydrosphere and lithosphere - but also in the atmosphere, water and cycles, and already been taken by nations, through the United Nations, in accordance to the above threat to the environment caused by the atmospheric fallout of radioactive materials. The measures taken have been effective, that if the problems involved with the disposal of waste are solved, the environment is not unduly considered as "clean" concentration.

19. The Commission has been the first point for all data and information coming from Members and observers in the world to the United Nations Family on this little-known but important issue. In the United Nations set up in 1955 the Scientific Committee on the Effects of Atomic Radiation (SCEAR), and it was partly as a result of the findings of this committee on the danger level of radioactive contamination and its effects on health that the first international agreement was reached between the then under "United Nations" family, namely, the atmosphere. The Committee continues to act as a focal point for all data on radiation and radioactivity in the environment.

of expertise on a sub-contractual basis for UNDP projects. The IAEA, jointly with FAO, also promotes the use of nuclear techniques (radiation and isotope tracers) in agriculture for studying the fate of environmental chemical (pesticides) and radioactive contaminants, in development of non-chemical insect control (sterile male technique) and food preservation (irradiation) methods, in improvement of crop varieties (radiation induced mutants), as well as in increase of efficiency of use of fertilizer and water and in improvement of animal husbandry practices.

50. In the following paragraphs of this chapter other forms of environmental pollution will be considered under the headings of the media in which they are normally present, namely the air, water and land. The presentation varies from that of the agenda of the Stockholm Conference in that it includes for each medium the identification, assessment and control of pollution.

51. Before entering into the discussion on activities of the United Nations system in relation to pollution in the various media, some general statements regarding the involvements of various agencies should help to clarify the picture. By virtue of its convention, WHO is the agency taking special responsibilities for following trends and changes in the atmospheric environment. These responsibilities are shared with WHO, which organization has the responsibility for health aspects of atmospheric pollution. WHO has similar duties in relation to pollution of the sea, inland waters and soils as well as for contamination of the food chain. Marine pollution is a field where several other agencies are involved, such as above all IMO and UNESCO (through IOC), but also FAO in view of its responsibilities for the world fisheries, WHO because of the close interaction between the ocean and the atmosphere and the United Nations in view of its interest in the exploitation aspects of the sea. Pollution of inland waters is mainly a concern of UNESCO, WHO and the United Nations considering respectively the scientific, operational and exploitation aspects. Pollution of soils and contamination of the food chain are problems of obvious concern to FAO, while general scientific and research aspects are dealt with by UNESCO. The control aspects of pollution, in addition to what is done by the agencies mentioned above, is a great concern of, for instance, the Economic Commission for Europe.

52. In addition UNITAR carries out policy-oriented research concerned with the design both of remedial action for specific problems and of overall strategic approaches to pollution problems of international significance.

(i) Pollution of the atmosphere

53. Air pollution of the type formed by the combinations of sulphur-containing fuels became a severe problem in several developed countries following the industrial revolution, and further technological developments, particularly the automobile, have added to the range of noxious substances contained in the air around large cities and regions of heavy industry.

54. In relation to such local problems of air pollution in fairly high concentration, work is being carried out by WHO to identify and assess, through continuous monitoring in a network of cities, the levels and trends of specific air pollutants, as well as their effect on the health of people, especially on the respiratory system. On this basis environmental health criteria and guidelines are formulated by WHO to aid governments in the establishment of environmental health standards for air. Particular attention is given in this respect by both WHO and ILO to the working environment in which the working man spends most of his life. ILO has carried out studies relating to the quality of air in industrial establishments and the prevention and suppression of airborne dust in mining, tunnelling and quarrying, and has established international classification of radiographs of the pneumoconioses. Assessment of high concentration air pollution and its effect on air quality standards are greatly influenced by meteorological factors and hence WHO makes an important contribution in this field by promoting the development of methods for investigating dispersion and transformation of pollution in cities and industrial areas as well as at longer distances. In this connexion, WHO is also promoting climatological studies of air pollution potential in connexion with the siting of new industries and new towns.

55. Whilst the most severe effects of air pollution are felt in the vicinity of the emitting sources, concern has been expressed as to the effect upon climate of the increased global amount of pollution, especially carbon dioxide and particulate matter, present in the atmosphere. Accordingly, WHO is sponsoring the establishment of a network of stations to measure the background air pollution as a necessary first step in the study of this problem. In addition, it promotes research on effects on regional and global climates of atmospheric pollution and changes in the composition of the atmosphere.

56. Measures to reduce air pollution are mostly the responsibility of the United Nations. The Economic Commission for Europe has undertaken considerable work on the reduction of sulphur oxides from the emissions of power and heat installations. It

has also studied the elimination of fly-ash from coking operations and the reduction of sulphur oxides, dust, carbon monoxide, etc. from the smoke of iron and steel plants. The control of emissions of such pollutants as fluorides, arsenic, sulphur oxides, metal oxides and dust from the non-ferrous metallurgical industries and of a large variety of pollutants arising from the chemical industries are being studied by the ECE. These methods are advocated by the Research and Transport Division of the United Nations, which also advises on alternative "clean" operations. UNIDO is active in controlling pollution at source within the industrial sector and, with this in view, in providing assistance in assessing the extent of industrial pollution and advising on ways and means of reducing industrial pollution and nuisances. This refers not only to air pollution but also to pollution of waters.

57. A number of recently approved UNDP projects are assisting authorities in developing countries such as Chile, Brazil, Poland, Romania and Czechoslovakia to monitor and control the problem of air pollution.

(ii) Pollution of the sea and inland waters

58. Among contaminations of the sea the disposal of waste products in rivers and coastal waters gives rise to the most considerable problems and the pollution added from the atmosphere is also significant. Furthermore, as a result of the rising number of incidents involving tankers and other maritime traffic, oil, either deliberately or accidentally discharged has become an important source of pollution of the oceans and coastal water causing concern both from the point of view of marine life and on account of the fouling of beaches.

59. A joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP) in which seven United Nations organizations - IMCO, FAO, UNESCO, WMO, WHO, IAEA and the United Nations - participate is dedicated to a thorough study of the problem of marine pollution from a scientific viewpoint. This includes studying the relation between atmospheric and ocean pollution, analysing the potentially toxic substances in the sea and determining how they got there, studying their effects on marine organisms and on humans and considering scientific and technical aspects of pollution control. A substantial contribution to the work of this group is being made by IAEA at the International Laboratory on Marine Radioactivity at Monaco.

60. The Intergovernmental Oceanographic Commission (IOC) is organizing the Global Investigation of Pollution in the Marine Environment in which various organizations and bodies interested in oceanographic programmes would participate. It is expected

that the Integrated Global Ocean Station System (IGOSS) which is being developed by IOC with the support of the WMO monitoring systems in order to provide real-time oceanographic and meteorological data might become a basic monitoring component in this investigation.

61. Individually, too, the organizations are engaged in various activities to combat marine pollution. The Intergovernmental Maritime Consultative Organization (IMCO), at grips with the problem of oil pollution, has brought about several international conventions relating to the discharge by ships of oil and other noxious substances into the sea, and work is going ahead on preparations for further international legislation in this field, with the aim of eliminating all such deliberate discharging and minimizing accidental spillages by the end of the present decade and for providing compensation for the victims of pollution. FIO is studying the effects of oil and other forms of pollution with respect to the productivity of the aquatic environment and in particular to the fisheries of the world; UNESCO supports zoo-plankton and other biological studies within the framework of research into the functioning of marine life and the changes taking place therein. WMO is studying the movement of oil spills under the combined effect of wind and currents.

62. UNESCO is also engaged in studies to assess the effects of mankind's activities on the normal ecology of aquatic organisms through its Man and the Biosphere programme, and, as part of its International Hydrological Decade programme, efforts are being made to promote the establishment of pollution monitoring systems for inland waters.

63. WHO is undertaking work to pinpoint problems of specific pollutants in water bodies which affect public water supplies and which are dangerous to man seeking recreation on or in the water, or which can reach him through the food chain. Research is also under way to study methods for removing deleterious substances from water and to formulate environmental health criteria for surface waters as a basis for the establishment by governments of water quality standards. Already twenty UNDP assisted projects are aimed at helping developing countries preserve the purity of their water supplies and safely dispose of sewage. Two UNDP/WHO projects are directly aimed at reducing water pollution in Romania and Poland.

64. Measures to reduce water pollution consist of either finding an alternative process to that which produces the pollution, or in treating the water after use to extract harmful substances at least to a level at which the self-cleaning capacity of the water is effective. As regards thermal effluents, there are various means by

which the excess heat could be utilized which in some cases could make the overall economics of a project more attractive. The United Nations and its branches are advising on such measures to safeguard deposits of fresh water from pollution, and FAO maintains a programme aimed at reducing any excessive or uncontrolled uses of fertilizers and pesticides.

65. The United Nations Economic Commission for Europe is studying problems of inland water pollution from domestic and various industrial sources such as the pulp and paper, chemical, textile, iron and steel, coal, thermal power and oil refining industries. Attention has also been given to pollution by detergents, and the study of pollution caused by agriculture and forestry including the use of pesticides and fertilizers is receiving high priority.

(iii) Pollution of the land

66. It has already been pointed out that rain or other forms of precipitation falling through polluted air will take into solution some of the toxic substances. The same holds true to an even greater extent as the rainwater leaches through polluted soil before replenishing the rivers, lakes or reservoirs from which man draws his fresh water supply. Therefore to ensure greater purity of water supplies it is essential to take precautions to protect the soil and all things on it from any source of pollution. Such measures are therefore a component of the activities outlined in the preceding sub-item on pollution of fresh water supplies.

67. The environmental problem of land pollution can be exemplified by open-cast mining activities which upset the natural drainage system as well as vegetation covering good agricultural land. The Resources and Transport Division of the United Nations is promoting the inclusion of environmental considerations in all such projects. WHO maintains surveillance also on soil contamination through its Reference Centres and a network of collaborating institutions.

68. As mentioned earlier, FAO is greatly involved in avoiding degradation of soil through ill-considered actions of man. The control of application of biocides and other agrochemicals, already referred to under water pollution as a concern of FAO, is no less relevant in the context of soil pollution.

69. The effects of pollution on vegetation and livestock have been studied by FAO and WHO. FAO is currently working on various problems to agriculture and food of waste disposal and contaminants, including their legal aspects. Numerous UNDP financed projects are already assisting developing countries to tackle the problem of food



contamination. To ensure that food products reach the consumer without being significantly contaminated by additives, pesticides, etc., the FAO and the WHO have jointly established the Codex Alimentarius Commission whose task it is to draw up food standards at an international level.

(iv) Noise

70. The problem of noise is also receiving some attention. ICAO is doing research on the effects of aircraft noise and the degree to which the population is affected; this applies to both the noise in the vicinity of airports and to the sonic boom of future commercial supersonic air transport. "An annex (No. 16) to the Convention on International Civil Aviation has recently been developed and published by ICAO. It contains international standards and recommended practices related to: aircraft noise certification, noise measurement and noise abatement operating procedures." Agreements as regards acceptable noise limits from road and inland waterway traffic have been drawn up by the United Nations Economic Commission for Europe, which also controls radio interference from motor vehicles.

D. Educational, informational, social and cultural aspects of environmental issues

71. The importance of educating experts and informing the public on environmental issues cannot be over-emphasized. It is only by getting across to the public the facts related to the problems created by wholesale destruction, exploitation and pollution of elements of the natural environment, that we can hope to solve the problem of the human environment.

72. The United Nations system can be a very useful mechanism for carrying out such a programme of enlightenment, both in training experts and informing the layman. All United Nations agencies are engaged in some form of educational activity within their respective fields, and already a considerable number have included environmental aspects within their programmes. However, in view of the relatively recent development of an integrated concept of the human environment, comparatively few attempts have yet been made to develop courses and training programmes of a multidisciplinary nature with increased emphasis on the environment.

73. UNESCO, in view of its responsibilities, is the primary agency which has taken steps in this direction. An important part of UNESCO's activities are in support of post-graduate courses given in universities around the world, especially courses relating to the natural sciences. Particular emphasis is being put on the training of specialists in environmental sciences and in ecological and integrated natural resources studies. The integration of environmental aspects into existing courses is another approach and ecological principles are progressively introduced in the training activities of UNESCO relating not only to hydrology and oceanography but also to engineering and architecture.

74. It is interesting to note that education, at the primary and secondary level, is becoming oriented more towards the environment, and UNESCO is encouraging this trend. It was recognized long ago, particularly by FAO, that, to be beneficial, appreciation and understanding of nature should be taught and that for a sustained long-term food and agricultural development, extension work and training regarding adoption of new technologies to local conditions are essential.

75. The education of the working man to improve his working conditions is a major aim of the ILO. Classical tenets of the worker's education include collective bargaining for better working and living conditions, self-discipline with respect to safety and health and a number of measures aimed at improving the quality of life.

(housing, recreation, social courses). Close contact is maintained with unions, labour colleges, universities and worker's associations throughout the world by producing educational material related directly or indirectly to the working and living environment.

76. In general, the specialized agencies include both education of experts and information for the general public as components of their programme aimed at improving the quality of the environment. This is accomplished through fellowships, special training courses, films, lectures, conferences, seminars, study tours, etc., by publishing reports and guidance material, and by providing equipment. Most of FAO's activities have, in addition, social objectives for the improvement of rural life. Studies of rural sociology and traditions are carried out in order to understand the viewpoints of local people before trying to induce them to accept and support necessary measures aimed at improving environment (see also Chapter II, Section 8).

77. One of the major efforts in the cultural field is the establishment, by UNESCO, of international instruments for the protection of cultural property. Missions are sent out and research is undertaken to examine and recommend treatment for the preservation of monuments and sites. In some cases international protection campaigns are organised. In these efforts, the trend is to combine the protection of historical and cultural remains with that of natural areas of scientific, aesthetic, and recreational interest. In this context a number of UNDP projects are helping developing countries to preserve relics of their past heritage and make them accessible to their peoples and to visitors.

78. An ECE Committee has done considerable work on the preservation of sites of historical or architectural value, especially under the pressure of urban renewal schemes. The ECE Symposium on Environmental Problems dealt to some extent with training in environmental disciplines; public education, information and participation.

79. With respect to environment-related training at the policy-making levels both within the United Nations itself and for national officials involved with international organisations, UNITAR intends to undertake special environment training activities and to incorporate environment-related material into its on-going training activities.

E. Development and the environment

80. It cannot be over-emphasized that all programmes of development must be based on suitable and consistent policies which, inter alia, are designed to safeguard the environment in the implementation of the various projects. The programmes, moreover, must have clearly defined objectives and an unequivocal set of priorities.

81. The activities of the United Nations system of organizations are geared to development and it is a fact that virtually all the organizations are concerned with development programmes which have some bearing on the environment. Environmental considerations have in a number of cases been integrated into the operational and non-operational activities of these organizations, and reference to Annex II<sup>1/</sup> will reveal several examples of development projects in which environmental protection measures are incorporated. The World Plan of Action prepared by the United Nations Advisory Committee on the Application of Science and Technology to Development with the assistance of specialized agencies and other United Nations bodies, as an adjunct to the strategy for the second Development Decade, is a prominent example which demonstrates this approach. However, much remains to be done, and the United Nations is adopting more and more the use of interdisciplinary teams of technical and economic personnel in framing and implementing development projects. Such an interdisciplinary approach has proved to be more effective in view of the increasing number of alternative technical solutions with differing economic implications which can be applied to individual projects.

82. The United Nations in its field operations is fully aware that the basic requirement of developing countries is economic and social development. On a long-term basis there is no inherent conflict between such development, provided it is properly planned, and the protection of the human environment. Even in the case of industrial development there are often enough options and technological possibilities to allow exploitation with minimal environmental damage. The development of local sources of energy is often of particular interest. A geothermal power station will, for instance, operate both "cleaner" and, at a lower cost than a conventional one, burning fuel, so that its application will imply benefit both from the economic and the environmental points of view.

83. As regards industry, employers' and workers' organizations have particular interest in questions relating to development and the environment. As partners in the productive process, they can make a major contribution to ensuring that development takes account of environmental considerations. Both national and international employers' and workers' organizations are fully associated with the work of the ILO.

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<sup>1/</sup> Available in the Conference library.

11. An important factor in environmental considerations in planning development projects is the economic implications of carrying out the protective measures proposed. Feasibility studies are under way in many agencies to determine a methodology according to which cost/benefit studies could be made in an objective and meaningful way and where environmental protection aspects are included. UNILQ, for instance, is carrying out a study of the economics of environmental quality and its implication for the industrial sector which will focus on pollution as a distortion of the allocation of productive resources.

12. Environmental issues are going to exercise a growing influence on international economic relations. They are not only a competitor for development resources but they are also a factor which is going to influence the pattern of world trade, the international location of industries and the competitive position of different groups of countries. Environmental actions by developed countries are going to have a profound and long-term impact on the growth and external economic relations of developing countries. UNCTAD is conducting studies which aim at investigating these problems with special reference to the possible growth of tariff and non-tariff barriers, to shifts in primary commodity markets, to the impact of re-cycling on trade and to new relationships between synthetic and natural products.

13. An essential element in modern development is transportation, and it is important that planners of transport systems take into account environmental considerations. Water transportation in certain forms is likely to increase in view of its minimal pollution characteristics, and in developing countries irrigation canals can be designed to allow barge traffic; also in the development of river basin areas the rivers can be used for transport purposes. In the conveyance of oil and certain chemicals the pipe-line offers a means of reducing costs and at the same time of reducing the risk of spillage. These are some of the ideas which are being promoted by the United Nations in its many development programmes.

14. Pollution control standards imposed by governments will almost inevitably affect the competitive position of individual industries engaged in international trade. To a certain extent cost differences, such as those arising from introduction of new or more stringent pollution control requirements, may be absorbed, especially where a period of time is provided for industrial adjustment, by the working of the market mechanism. Nevertheless, there will certainly be pressure from affected industries to seek Governmental assistance to protect them against increased competition, or assist in bearing the new costs, or both. The magnitude of these costs, their uneven

distribution, the basic character of some of the industries which will be among the hardest hit (steel and chemicals in particular), and the social aspects of the case for pollution control will all constitute powerful arguments for a sympathetic response. Yet many if not most of the measures which governments might take to cushion the competitive impact or to redistribute the costs, would be likely to affect the legitimate trade interests of foreign suppliers of the products in question and could, accordingly, have adverse repercussions on the country's own export trade.

88. GATT is an international agreement subscribed to by seventy-eight countries, the main aim of which is to ensure that maximum scope is safeguarded for the play of cost differences in, and thus for the expansion of international trade, consistent with the most efficient use of resources in maximizing real incomes and living standards. All possible governmental measures which might restrict the flow of trade are within GATT's purview and GATT rules generally tend to limit the grant of protection to domestic industry. Accordingly, GATT may be expected to play a role in studying the implications of various possible lines of national policy in regard to public assistance in industrial pollution control, with a view to avoiding ill-considered or premature use by individual governments of aids which might prove to be unnecessarily harmful to international trade. This is a role which is of importance also for the trade of developing countries, for whom pollution control standards in relation to the present needs for protection of environment might conceivably be different from those required by the highly industrialized countries.

89. In particular, the developing countries' participation in GATT (some fifty-odd developing countries are contracting parties) entitles them to specific rights with respect to their treatment by other GATT countries in trade policy matters. GATT will consequently also offer them an effective forum in which to seek relief from any adverse effects on their exports of measures adopted by industrialized countries for pollution control.

90. The ECE has embarked on a study of the impact of national environmental measures upon foreign trade. In addition, in the framework of an examination of environmental problems - industry by industry - with an aim to treating or preventing environmental disfunctions caused by economic activities, preparations have started for a seminar on the relationships between activities in the agricultural and forestry sector and environmental quality.

d. It seems relevant to give at the end of this section on development a brief survey of the UNDP activities to support environmental issues in its various projects. Development projects carried out by the United Nations family of organizations under the auspices of the inter alia, with such ecological problem areas as the development and utilization of natural resources, development of agriculture, urban growth, and industrial expansion. Development progress can and must be achieved without environmental deterioration. Major UNDP-WF assisted projects are mentioned briefly. In addition, a greater number of UNDP technical assistance projects also form part of the overall picture. Although they cannot all be singled out for special mention, the UNDP-WF projects with their provision of experts, fellowships and sometimes seminars on environment, and related problems have also played an important part.

e. Out of the vast reservoir of natural resources in the developing world, no less than 50 per cent is considered to be under-utilized. These include potentially fertile soil, mineral deposits, fishing grounds, forest lands, rivers for power production and irrigation. The experience of the industrialized nations, however, argues for a rational use of these resources, and this is the approach being stressed by international development experts and by the Administrator of UNDP.

f. Directed as its activities are to the acceleration of the economic and social development of the economically developing countries, the approach of the UNDP to the conservation and wise use of the environment is determined by the developing countries themselves. Heretofore, governments of these countries have sometimes been inclined to view problems of environmental deterioration as a price that might have to be paid for development. There has been a natural tendency to eschew adding such problems to the already formidable list of development hurdles to be cleared as part of the process of economic growth. Recent experience, however, suggests that such matters are now receiving greater attention, not only from governments, but also from international agencies and programmes as the harmful environmental side-effects of poorly planned and executed development - as well as the positive opportunities which frequently offer themselves in such properly planned situations - become immediately apparent.

94. UNDP and the Executing Agencies have already provided assistance for projects which are addressed to solving some types of "environment" problems. Among these are the man-made lakes projects in Africa whose very purpose is to help governments cope with the human and environmental consequences and opportunities arising from the construction of large hydro-electric power dams. Some are meteorological projects devoted to the study of the atmospheric environment. Other projects seek to improve the management of land and water resources and thereby help achieve environmental conservation objectives to the extent that they help reverse the deterioration of renewable natural resources. Still others are concerned with problems such as occupational health and safety or the provision of proper water and sewerage facilities in cities.



3. Multidisciplinary aspects of ongoing activities within the United Nations system of organizations

95. There are at present only a few fields of human activity which do not have implications for man's environment, and this is largely due to the rapid growth of mechanization and the intensification of production in response to the ever-increasing demand for food, water, housing, transport, and other necessities of modern life.

96. As has become obvious from the earlier sections of this chapter the United Nations system, challenging this threat of environmental degeneration, has made use of its many and diverse organs over a very wide field. Generally speaking, the agencies concerned with the natural and life sciences are the ones which have undertaken the task of identifying factors which contribute to environmental deterioration, assessing the effects in each case, suggesting and sometimes taking appropriate remedial action. On the other hand, the agencies concerned with planning and management as well as economic and social development are the ones which have been mainly involved in the administrative and financial aspects of safeguarding the environment from a continued onslaught.

97. In the face of this situation there has been an unprecedented opportunity and need for co-operation and co-ordination between various organizations in the United Nations system. Co-operation and multidisciplinary approaches already exist in many instances such as in the World Plan of Action for the Application of Science and Technology to Development and in different ways, particularly in those cases where the structure of the organizations involved provides for such approaches but, in view of the horizontal structure of the concept of the human environment, the need for further developments is obvious and will be dealt with later on in this document. In the meantime, it has been felt pertinent here to conclude the presentation of the current activities of the United Nations system of organizations with some examples of ongoing interdisciplinary, co-ordinated efforts towards environmental protection and efficient use of natural resources.

98. In the field of human settlements several population problems have been dealt with in an integrated manner, and joint efforts between United Nations bodies have been made to cover different aspects of the migrations and growth of world population.

99. With regard to the protection of natural resources, the UNESCO programmes on the International Hydrological Decade, on Man and the Biosphere and the establishment of the Intergovernmental Oceanographic Commission operating in close collaboration with

and with the support of various other United Nations organizations, represent major efforts to co-ordinate both interdisciplinary and international research on the hydrosphere and the biosphere. This has paved the way for further integrated international activities in relation to these aspects of the human environment.

100. The agroclimatological surveys to study the climatological potentialities for agriculture in different parts of the world are a similar example. Since 1961 they have been carried out in co-operation between FAO, UNESCO and WMO. Further interdisciplinary co-operation is evident in the application of meteorological information to various problems of world food production. This is provided by the FAO/UNESCO/UNDP/WMO Interagency Group on Agricultural Biometeorology. The FAO/UNESCO joint project for preparing the Soil Map of the World and the WMO project for a World Climatic Atlas, in co-operation with UNESCO, provide important basic information to the efficient use of natural resources.

101. In the field of water resources, the United Nations Water Resources Development Centre (within the Resources and Transport Division) has served for many years as a focal point for inter-agency co-ordination of activities carried out by the United Nations system of organizations. Special attention is given by this centre to problems of international water resources development, including environmental questions, and particularly to the collections and dissemination of information through publications and the convening of annual meetings at which representatives from United Nations agencies (FAO, IAEA, UNESCO, WHO, WMO, etc.) attend to exchange information and to discuss co-ordination questions related to water resources development and policies.

102. In the area of energy development the respective advantages and disadvantages of nuclear and fossil fuel plants with regard to environmental safety are considered jointly by IAEA and WHO. More generally the IAEA, FAO, WHO and UNSCEAR collaboratively study the possible environmental hazards from peaceful uses of nuclear energy. A joint IAEA/FAO/WHO/ILO Emergency Assistance System was set up to ensure help in the event of a nuclear plant accident.

103. On the subject of environmental pollution, inter-agency co-operation has been organized in relation to marine pollution where the Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP) involves seven agencies: UN, FAO, IAEA, IMCO, UNESCO, WHO, WMO; moreover, in the specialized field of radioactivity, UNESCO and FAO contribute to the IAEA Monaco Laboratory on Marine Radioactivity. Additionally, IMCO collaborates with IAEA in the operation of nuclear powered vessels and the maritime transport of radioactive substances.

104. Air pollution involves potential effects both to human health, plants, animals and the world's climate, and co-ordination of monitoring activities has been initiated between various agencies involved such as IAEA, WHO and WMO. Such organizations are either already operating networks for monitoring of air pollution or are planning to develop activities in this field.

105. With the object of setting international standards for food quality, FAO and WHO have jointly formed the Codex Alimentarius Commission. The standards will have special provisions for food activities, contaminants, pesticide residues, etc.

106. Whilst most of the organizations' programmes related to the subject of the environment are designed for world-wide application, it should also be remembered that many special studies at the regional level are carried out by the United Nations Economic Commissions, the structure of which provides opportunities for a multidisciplinary approach to environmental issues. In many of these studies particular attention has been paid to environmental problems involved in the development of natural resources and particularly water resources.

107. A recent example in this respect is the Seminar organized by the Economic Commission for Europe on the protection of surface and ground waters against pollution by oil and oil products at which experts from the oil industry and water experts jointly elaborated recommendations to Governments.

108. WHO is involved in assisting Member countries with diversified environmental problems, ranging from those common to developing countries to those faced by developed industrialized countries. WHO assistance comes mainly under three categories: provision of direct services, education and training of technical personnel, and grants for research activities. In addition, WHO is involved in promoting and co-ordinating research, and developing guidelines and standards of international application. At the national level, the areas of assistance cover urban and rural community water supply and wastes disposal, control of water and air pollution, environmental aspects of urban industrialization and of development of water resources for agricultural use, vector biology, communicable disease control, community mental health, family health, etc.

109. It should also be mentioned that the support of UNDP for operation by agencies of various development projects often provides excellent opportunities for bringing about a multidisciplinary approach to environmental problems sometimes achieved through joint execution of projects between relevant agencies.

## Chapter II

### ENVIRONMENTAL ORIENTATION OF THE UNITED NATIONS SYSTEM: FUNCTIONS AND PERSPECTIVES

110. In this chapter we analyse the programmes dedicated to the rational use and conservation of the human environment in terms of the component functions, and discuss the roles played by the organizations of the United Nations system in supporting these functions. This should help to identify the goals which need emphasis, to recognize places where organizational forms need to be modified or where there might be duplications of effort and to locate gaps in the overall programme for which available resources or existing organizational structures are inadequate. A functional analysis may also help in the formulation of a description of the contributions the United Nations system might make in solving problems of the human environment.

111. Unquestionably, the primary function of any international programme is to implement actions furthering the aims of the participating countries, but each action requires the best available objective knowledge in each sectoral facet. A scientific basis for rational decision-making is a requirement of all countries, even though the degree of emphasis each country assigns to a particular problem and the choice of alternative actions will depend on an assessment of the urgency of the problem, the level of development of the country, (the degree of concern over the quality of the environment) and other economic, cultural and social determinants.

112. The functions contributing to an understanding of problems of the human environment, that is, to the information base, are:

- A. Information collection, interpretation, analysis and dissemination  
Included within this category are the functions of exchange of information and national experience.
- B. Monitoring and surveillance, including the development of sensors and indices of environmental change.
- C. Research on environmental changes: their causes and effects
- D. Development of scientific criteria and guides relative to environmental quality  
Before actions can be planned in terms of the information available consideration needs to be given to:
- E. Development of policy guidelines, including environmental economics  
Functions more directly related to the implementation of actions are:

- F. Establishment of national environmental institutions, legislation and standards, including enforcement
- G. Establishment of regional and international agreements
- H. Development of technology, including transfer of technology from the developed to the developing countries.
- I. Education, training and public information
- J. Co-operation on technical aspects
- K. Funding

113. In the following sections general approaches to the performance of tasks within each of these functions are discussed. The special role of the organizations of the United Nations system is presented, and illustrative examples of specific agency or divisional activities are cited, together with instances of their immediate future plans. An attempt is also made to describe the current capabilities of the United Nations system as well as the functional gaps and problems which will require the attention of the Stockholm Conference.

a. Information collection, interpretation, analysis and dissemination

114. Problems related to rational use of the human environment invariably cut across conventional disciplinary lines; the facts, insights and methodologies of many specialists have to be used. There is already a great quantity of information on many aspects of the environment. However, it has been gathered by discipline and in relative isolation from other disciplines. Facts and experiences garnered within one sector need to be organized into an information system before they can contribute most effectively to other sectors.

115. Primary information is collected largely on a sectoral or disciplinary basis by government organizations or academic and scientific bodies within countries. A disciplinary approach is to be expected because specialized professional knowledge and skills is required in the personnel carrying out information handling tasks. Each organization of the United Nations system carries out its information handling role for areas within the specific range of its statutory responsibilities. Included within this function are the tasks of collecting information and collating information received from different sources, performing analyses and exchanging results. In particular, a crucial function is to encourage and assist governments in the collection of appropriate primary information. This is important because collecting adequate and accurate primary data is a costly procedure but can be justified in terms of the specific needs of the countries.

116. The United Nations system of organizations has made various efforts towards co-ordination of exchange of information and is extending its activities in several instances. Co-ordination is needed to standardize terminology, assure compatibility of primary data formats, and to establish agreements on the indices of environmental change that need to be reported and on the techniques and instruments for making the observations.

117. Many environmental problems have their primary impact within one sector and the germane information functions are carried out by the agency with sectoral responsibility. For example, FAO continues to exchange environmental data relating to policies and planning in agriculture, forestry, fisheries, and other components of food production. Nevertheless, even here the problems cannot be dealt with in sectoral isolation. Instrumentalities and procedures for inter-sectoral co-ordination are required. For example, specialized information relevant to the atmospheric environment, the statutory responsibility of WMO, goes beyond the question of global factors and provides additional information to the study of agricultural meteorology with reference to land-use planning and agricultural management, and high-concentration air pollution with reference to the dispersion of pollutants.

118. A number of projects have gone forward under joint responsibility or with the aid of a collaborative or liaison mechanism. For example, WHO acts as the focal point for the compilation of basic documentation on subjects of direct health relevance, e.g. air and water quality, human waste disposal, acute and long-term health effects of pollutants, and health aspects of urbanization. ILO shares an interest with WHO in information on hazards of the working environment; and a liaison mechanism has been initiated.

119. Another instance of co-ordination is found in the area of nuclear reactions. IAEA collects information relevant to its broad aim of securing safe development of the peaceful uses of nuclear energy, while UNSCEAR analyses physical information contributing to the assessment of radiation risks.

120. A system for information collection and exchange about marine pollution is being developed by IMCO. A co-ordinated mechanism for providing scientific advice and information has been established; IMCO being the central administrative organization for the IMCO/FAO/UNESCO/WMO/WHO/IAEA and United Nations joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP).

121. UNIDO proposes to collect information on the availability of industrial wastes and the technological processes that can turn them into profitable products. Thus UNIDO's primary role in assisting industry of developing countries is extended to be consistent with their priorities.

122. The exchange of information between scientists and engineers from different countries is an important aspect of UNESCO's long-term programme. A feasibility study (UNLIST) on the establishment of a world science information system has recently been completed. The report furnishes guides for the collection and dissemination of information on the scientific problems of the human environment.

123. UNESCO is further concerned with the use of communication media in individual countries to promote an understanding of environmental issues and to enlist public support in a change of attitudes and policies which affect the conditions of human environment. Its communication programmes for popularization of science in out-of-school education projects aim at imbuing in the youth in particular, and the community in general, a scientific outlook basic to the attainment of harmony between man and his environment.

124. We repeat what has been stated earlier. Strengthening the information gathering systems within countries to ensure reliable exchange of information on local, national and regional conditions is of primary importance. The sectoral information systems of the organizations of the United Nations family are already functioning to integrate and disseminate information provided by national sources. Thus several agencies have proposed to extend this function to include greater participation from national information systems and to strengthen their part in promoting the exchange of information. Not all overlaps between information systems can be avoided (nor are they invariably undesirable) but gross duplication needs to be minimized, and mechanisms to ensure further co-ordination among the United Nations agencies will need to be refined.

125. In this connexion strengthening and broadening the activities of the United Nations Water Resources Development Centre which is already functioning as the focal point for inter-agency co-ordination particularly with regard to information gathering, deserves consideration as a future mechanism to ensure co-operation.

126. The Economic Commission for Europe has embarked on a comprehensive study dealing with the identification of information needed for workable environmental action and in the second stage of the inquiry to consider suitable international arrangements which

would facilitate and co-ordinate the exchange of existing environmental information among countries of the ECE region. ECE efforts are directed towards the exchange of national experience on the various problems posed in governmental decision making including the collection of primary and secondary information, and where possible the development of relevant statistics.

B. Monitoring and surveillance, including the development of sensors and indices of environmental change

127. In recent years it has become generally accepted practice to refer to certain special aspects of information gathering with the terms "monitoring" and "surveillance". There is no accepted definition for these activities. However, monitoring activities may have different objectives and should therefore be defined with reference to these purposes. In general, these systems attempt to perform one or several of the following functions, such as:

- (a) To detect and provide an early warning of significant changes in the environment;
- (b) To study levels and trends of environmental factors for the purpose of deciding and planning corrective action;
- (c) To check on the compliance with established environmental quality of criteria and standards;
- (d) To check on the efficiency of control systems and corrective measures;
- (e) To survey and study the effects of environmental changes, in particular on man's health, on natural resources, and on human activities;
- (f) To study the effects of specific human activities on the environment for the purpose of deciding on the necessity of changing some of these activities.

128. Recommendations for monitoring and surveillance have been made for virtually every aspect of environmental change. Despite their obvious importance, adequate monitoring and surveillance are costly. Many programmes need complex facilities for data acquisition, processing and retrieval. Many environmental changes cannot now be adequately monitored but must await the discovery and refinement of new indices of change as well as the instruments to measure them. As a consequence, a strong economic and scientific justification must be made for each national monitoring programme and a fortiori for any undertaking at the international level.



149. Furthermore, it is clear that national institutions must bear the primary responsibility for establishing and maintaining these systems, and are clearly in the country's interest. Most of the great variety of environmental factors one might measure, whether it be the movement of people from the country to the city, the rate of soil fertilization, the concentration of industrial pollutants in the air or the health of the people, are related to problems of the human environment largely confined to a community or region. The organizations of the United Nations system serve these interests by assisting member countries to establish monitoring and surveillance systems and providing advice on the policy level, developing compatible methodologies, and providing on request, analysis and interpretation of locally collected data.

150. However, the information obtained by national monitoring systems has international ramifications in at least three areas.

(a) National reports on different aspects of the environment when collected and compared can provide a picture of the global situation with respect to specific sectors. For example, FAO maintains an inventory, and periodically appraises natural resources used for agriculture, forestry and fisheries. In addition, comparisons of national experience can suggest measures to improve the quality of monitoring systems. Virtually every agency with responsibility for monitoring provides for the exchange of experiences by convening expert committees and authorities from national monitoring institutions.

(b) Certain activities undertaken by one country have an impact on other countries and require international collaboration to resolve issues; international trade and transport fall within this category.

(c) Water, air, industrial consumer goods, animals and people move from country to country. Since they may carry deleterious components with them (pollutants, toxic substances, disease agents), monitoring these components is of concern to all countries.

151. To deal with these areas the organizations of the United Nations system function to assist member countries in establishing joint monitoring activities for areas that require it. For example, the IHD sponsored by UNESCO in co-operation with WHO, WMO, IAEA, FAO and ILO has established a programme to monitor river basin and estuarine conditions.

132. When a problem has global implications, for example, ocean and atmospheric contamination, the spread of infectious disease or potentially toxic chemical substances, the United Nations system needs to ensure that the relevant monitoring is carried out.

133. A number of specialized agencies have carried on monitoring activities for many years. Probably the best developed system is the World Weather Watch operated by WMO. In support of this, WMO operates various special monitoring systems and is establishing a network of rural stations around the globe to monitor background air pollution. WHO has long had a programme for the surveillance of communicable diseases and, more recently, for air quality in cities and industrialized areas, environmental radiation, community water supplies and for adverse effects of drugs. The WHO Assembly has endorsed expansion of activities on the human environment and inter alia "the development and co-ordination of epidemiological health surveillance by methods including environmental monitoring systems, in collaboration with other national and international efforts". A small group of cancer registries in key areas are collaborating with the International Agency for Research on Cancer (IARC) to determine the possibility of using a cancer monitoring system as an index of environmental change.

134. With a view to paving the way for the establishment of a global oceanographic monitoring system of characteristics of the high seas, the International Oceanographic Commission and WMO have recently engaged in a joint planning of an oceanic monitoring system known as the Integrated Global Ocean Station System (IGOSS).

135. Study of the long-term changes in the terrestrial part of the biosphere forms an important part of the MAB programme of UNESCO. It will need to include the monitoring of suitable parameters by field terrestrial and fresh-water stations. These activities will have to be related to the activities of the other agencies interested in following changes in the natural environment related to resource development, use and management, particularly FAO.

136. A crucial component of the human environment is man himself. The Population Division of the Department of Economic and Social Affairs of the United Nations is engaged in monitoring the size, structure and changes in human populations, as well as the interplay between demographic and socio-economic factors. The Department co-operates with specialized agencies studying trends in the economically active population,

agricultural population, school population, etc. To these countries anxious to control the growth of their population, the United Nations Fund for Population Activities, and especially the administrator of UNFPA, is available for technical advice and assistance. UNFPA has also participated in the world-wide campaign to achieve a balance between population growth and the resources needed for a continuing improvement of its standard of living, and is particularly active in promoting the communication component of family planning programmes to bring about change in personal attitudes and group behaviour for better living in a better environment.

10. Research for improvements in the methodology of monitoring have also been going on. WHO proposes to support the development and production of appropriate monitoring instruments. WHO will initiate studies for the development of indicators of environmental quality, environmental improvement, as well as on the relationships between population growth, concentration and mobility on the one hand, and environmental quality on the other. It has already started a survey and assessment of the state of the environment in its region. WHO proposes to assist in the development of scientific monitoring of the deterioration of health and well-being (epidemiological surveillance).

11. The development of standard techniques and methodologies requires the assistance of the international scientific community, and several expert committees have been established by United Nations specialized agencies, for example, GESAMP, the Group of Experts on the Status of the Marine Environment, etc. The United Nations system is also assisted by non-governmental organizations which provide scientific background, methodological assistance in observation, collection and processing data within their fields of activity.

12. These procedures represent a substantial commitment to deal with the problems of the human environment, particularly since each agency must make its plans in terms of its limited resources. The secretariat function of the United Nations agencies in the human environment and monitoring is central but it represents a fraction of the total effort. As we have observed above, the main contribution comes from the participating organizations which must determine themselves, whether or not to contribute more to environmental monitoring.

141. There are practical limitations to the possibility of integrating monitoring activities in different sectors, and in developing world-wide networks. As with existing systems, future planned monitoring activities will have to be developed first at local level and on a sectoral basis, prior to considering the need for inter-sectoral and global integration of these activities. Substantial benefits have been derived by integrating local systems. In most cases, global integration may be most useful for the exchange of information between systems, and for the co-ordination of their specific findings.

1. Research on environmental changes - their causes and effects

i). Among the recent scientific meetings devoted to problems of the environment, there has been universal agreement on the need to better understand the interactions and influences of environmental variables. Our current understanding of the environment is fragmentary and uneven. Currently available information and the results of monitoring are insufficient in themselves and need to be supplemented by a concerted research programme.

ii). Most research activity, whether conducted within universities or national research institutions, is discipline-oriented. Even when the research has been problem-oriented (sometimes designated "applied research") methods tend to be drawn from one discipline. Since environmental interactions in the human ecosystem can be affected by physical, chemical, biological, psychological, sociological, cultural and economic processes, environmental research is necessarily multi-disciplinary.

iii). Currently the facilities for direct conduct of research within the organizations of the UN system are minimal and highly specialized. The principal function of the Organization is to promote, assist and co-ordinate research in national institutions. The Organization supports research within the scope of its sector by providing grants and fellowships, supplying experts and consultants, sponsoring symposia and arranging collaborative studies. For example, WHO maintains a Division of Research in Epidemiology and Communications Sciences but the great bulk of WHO's research effort on problems of health is carried out by some 100 International Reference Centres and Laboratories located in national research institutes, medical schools and universities. An international agency for research on cancer (IARC), established by WHO, carries out a very important programme on research that includes inter alia environmental factors related to cancer.

iv). Environmental research is a principal interest of UNESCO. UNESCO's inter-governmental and multidisciplinary programme on Man and the Biosphere (MAB) represents an effort to further fundamental environmental research and to study problems related to the use and conservation of natural resources. The inter-governmental character of this programme is maintained by the establishment of national committees from participating countries. The multidisciplinary character requires that the national committees be comprised of specialists in the relevant disciplines. It also needs a mechanism to ensure the co-operation of agencies of

the UN system and other international bodies. UNESCO has proposed that the organizations of the UN system be invited to join an Inter-Secretariat Committee to consider co-ordination in the implementation of the MAB programme, which will be directed by a twenty-five country Co-ordinating Council. The MAB programme is also naturally co-ordinated with other major international research programmes sponsored by UNESCO such as the IHD and the research programmes of IOC, which relate to specific areas of the environment.

146. The WMO network for monitoring background air pollution in low concentrations will provide the data for research on effects of changes in the chemical content of the atmosphere on climate. WMO in co-operation with ICSU administers the Global Atmospheric Research Programme which will use simulation with atmospheric models to describe the general circulation of the atmosphere and to study causes of climatic changes.

147. A main subject area for the Conference is the growth of population throughout the world, and the environmental consequences. The UN Department of Economic and Social Affairs plans to continue research in demographic projections, and studies of population policy. With the regional economic commissions, these studies will focus on specific problems of different world regions. They also intend to promote and to do research on related problems, such as distribution policy alternatives and their relation to resources development. These studies may be co-ordinated with social science and cultural research programmes of UNESCO that deal with man-nature relationships.

148. The UN Centre for Housing, Building and Planning has proposed a research programme to define regional planning activities and structures within a national planning framework, methods of data analysis and the development of the art and science of regional planning. Complementing the centre's activities are certain research goals of WHO, in urban climates and building climatology; FAO in effects of soil erosion and degradation, land uses and farming practice; WHO in urban health planning and the psychological dynamics of urbanization.

149. Environmental research is often an integral part of other investigations. An instance in point is the research of FAO on the quality and quantity of production in the field of agriculture, forestry and fisheries. FAO, since its establishment, has promoted research on the effects of different types of land use on the environment, the conservation of natural resources, as well as adaptive research on the effects of specific management practices as the use of agro-chemicals.

130. In most circumstances the specialized agencies promote research by supporting the efforts of co-operating national research institutions. The agencies will serve the same role vis-à-vis research on the human environment. Indeed, many programmes initiated on narrower sectoral grounds are quite definitely directed to environmental issues. Finally, the agencies can serve as intermediaries between the international scientific community which will carry out the research and the representatives of governments who must suggest priorities and supply funds in accordance with their particular needs and resources.

131. The Economic Commission for Europe concentrates on research on the socio-economic effects due to the deterioration of the environment, and so far in particular the damage caused by air and water pollution. It is aimed that methodologies should be developed which could assist Governments in assessing with reasonable accuracy the economic losses due to such pollution. In addition, much effort has been given to promoting co-operation in urban and regional research aimed at environmental improvement.

132. Clearly, much more research is needed if the global problems of environmental damage are to be understood and controlled. While the urgent need for immediate action may have the highest priority, in many areas national action cannot yet be taken. The countries will first need to establish priorities in specific problem areas and support sustained programmes of scientific research.

D. Development of scientific criteria and guides relative to environmental quality

153. Scientific criteria and guides are statements of the effects that certain environmental factors are likely to have on the health and well-being of man, or on the economic, social and aesthetic values of the things man needs or cherishes. They should express the best available scientific knowledge of the relation between a specific condition of the environment and its putative effects. Since these criteria and guides are intended to be used as a basis for reaching decisions on courses of action, they may need to be established before the cause-effect relationship has been verified definitively.

154. Clearly, different types of criteria and guides are required for the different activities of the member countries and organizations of the UN system. Among these we may mention activities relating to -

- components of the environment for which a direct effect can be found on the health of the individual human being;
- control of pollutants which have ecological, economic and other effects deleterious to the quality of life;
- conservation and management of natural resources;
- planning of economic development, human settlements, transport, etc.

155. Here, the major function of the UN system is to co-ordinate the formulation of criteria and guides and to promote their common use by the member countries.<sup>1/</sup>

156. At the present time, criteria and guides are available for relatively few environmental factors. The lack of suitable criteria represents a serious gap in the armamentarium of technical resources that are required to deal with the problems. In view of the need for development and periodic review of internationally acceptable environmental criteria, a number of UN agencies have given this activity high priority within their programmes.

157. Among the factors affecting health directly that require the establishment of criteria and guides may be included certain chemical and biological pollutants, considered singly or in combination, and present in air, water, land or food; physical

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<sup>1/</sup> Note that this is in contradistinction to legal standards or norms and codes of practice which will vary from country to country depending on local conditions. This is discussed in Section F.



fection, such as radiation, temperature, humidity and crowding. The working environment requires a somewhat different set of criteria because of the intensive nature of exposure to a variety of factors such as solvent vapours, noise and vibration. WHO has and plans to prepare guides for various pollutants in air and water, including toxic chemicals, micro-organisms, and viruses. In many cases the preparation of these guides will be carried out in concert with several agencies. Guides for substances contained within food, such as pesticide residues, are to be jointly prepared by FAO and WHO; guides for environmental exposures and the safe use of products employed in industry are the responsibility of ILO with WHO. Criteria and guides for radiation exposures or radiological concentrations and their hazards have been prepared and kept up-to-date by ICRP and IAEA, with WHO and ILO. Techniques for forecasting air pollution potential from meteorological data being developed by WHO will be used in the elaboration of criteria for air quality of industrialized and urban areas.

10. Product quality is an important aspect of the human environment which influences health and welfare. In view of the number and kind of processed items, and the likelihood that there will be an even greater number, current attention to the formulation of criteria for product quality is inadequate, and must be regarded as a serious gap in the current programme.

11. The newly established global network of background stations which is being promoted by UNEP, if need arises, serve as the source of useful data in preparing criteria for air quality at regional or global levels.

12. There are factors in the environment that are either too complex for our current understanding, or too poorly understood to admit a well-defined and quantitative treatment. Nevertheless, the judgment of technical specialists can provide a basis for evaluation. For example, assessment of housing quality may involve such physical factors as floor area per occupant, heating, air circulation, illumination and insulation, as well as aesthetic, economic and social consideration.

13. In the area of pollutant control, the UN, through its Department of Economic and Social Affairs, plans to extend its programme of preparation of criteria and aids to environmental management and preservation of water quality, including airborne products of combustion, thermal pollution of water, and chemical pollution by contamination from fuel mining operations.

162. Marine pollution is an area which will involve a number of agencies in the formulation of criteria. The ocean, estuaries, fresh water inflow, the overlaying atmosphere, and the many sources of contamination form a complicated medium. IICO and the joint inter-agency group, GESAMP, will address itself to these problems.

163. One of the main areas of concentration of FAO is directed toward the further development of criteria and guides which are essential to resource management and conservation; soil, water, genetic resources, rangelands, fisheries, and the like.

164. Special mention may be made of the need to develop criteria and guides for the preservation of monuments, groups of buildings and natural or man-modified sites. UNESCO is preparing recommendations in this field, under its Man and the Biosphere Programme.

165. WHO has an appreciable interest in this programme, which is soon to start. WHO, together with its Regional Offices, is prepared to play its appropriate role in the implementation of the Programme, particularly in the recognition of health effects of the changing environment, to promote environmental control and to assist by the establishment of effective machinery for the prevention of damage in the human environment. The International Agency for Research on Cancer (IARC) is establishing a complete study of the environment in relation to cancer at a specific body site. This approach should form the pattern for all future studies of this type.

166. The formulation of technical criteria and guides is an ongoing process, involving recommendations from specialists drawn from the international scientific and technical communities, review and criticism by meetings of experts, and continuous refinement on the basis of experience and new knowledge. In most instances the sectoral orientation of the UN family provides an efficient mechanism for elaborating and promoting these guides.

167. The problem of dealing with new environmental issues will require an expansion of these activities, while the complexity of environmental problems and their multi-disciplinary character might demand a greater degree of co-operation among the agencies.

4. Development of policy guidelines, including environmental economics

169. A function of the intergovernmental agencies which is closely related, but conceptually different from the set of activities discussed above, is to provide assistance to countries in the development of policy guidelines for action. In this instance, the function is to show how the scientific criteria and guides can be used as the bases of policy guidelines or "codes of good practice", appropriate to the special economic, social and cultural conditions of a country, and directed toward development and resource management, planning and action for man's benefit, taking into account measures to conserve the environment, to control it and to rehabilitate environments which have been damaged.

170. The adoption of a set of principles for overall international strategy for the problems of the human environment involves all member countries; they are of major interest to the UN Conference and will undoubtedly be brought before the General Assembly for agreement.

171. It will be necessary to ensure that the policy guidelines developed by the special agencies and their governing bodies are consistent with the common principles for environmental action. Precedents for co-ordination in such matters exist; observers from the organizations of the UN system might attend meetings of an intergovernmental working group established for this purpose or co-ordination might proceed within the Ad Hoc Functional Group on the Human Environment. Furthermore, policy guidelines formulated within one sector need to be consonant with those of other sectors. An instance of such co-operation is that between FAO and WHO on guidelines for use of pesticides.

172. Until quite recently most environmental deterioration, whether by improper use of resources or by pollution, was not considered in economic terms, but rather as vague, largely psychological costs borne in some way by the community at large. It is essential that countries weigh the explicit economic costs and efficiencies of alternative procedures for environmental management as well as the losses, economic and otherwise, due to inadequate consideration of environmental factors in planning for growth.

173. While several organizations within the UN system are carrying out studies on environmental economics - for example, GATT is studying industrial pollution control and foreign trade - much remains to be done, particularly as these studies relate to the special situations of developing countries.

173. The emergence of widely-accepted environmental criteria and standards will exert a strong influence on industrial activity and is expected to emphasize the need for an anti-pollution policy for industry. UNIDO is concerned with this aspect of the problem and is considering the feasibility of some sort of environmental rating of different industrial branches as a first step towards the formulation of such a policy.
174. The UN Division of Public Finance and Financial Institutions has undertaken a study to investigate taxes and special charges that could be used to abate pollution at the source by making it costly for firms causing ecological damage to continue these practices, or to find revenues to be earmarked for the prevention or the repair of environmental damage.
175. The WMO has established a panel of experts to study the application of meteorology to economic and social development. Further special studies are being planned, such as the relationship between climatological information and efficient land use.
176. The regional economic commissions can be expected to play important roles in studies of environmental economics. ECE has continuing and projected studies on the impact of national environmental measures upon foreign trade (with UNCTAD and GATT), on development of tools and methods for governmental decision-making on environmental problems, on a programme to develop a methodology for assessing the economic effects of air pollution and elaboration of a method for determining the economic losses caused by water pollution. It has already carried out some studies on various fiscal policies and economic incentives which would encourage environmental improvements. Furthermore policy guidelines are laid down in the ECE Declaration of Policy on Water Pollution Control and in the ECE Recommendations on the Protection of Ground and Surface Waters against Pollution by Oil and Oil Products, on one hand, and on the Control of Sulphur Oxides Emissions, on the other.
177. In some fields environmental economics are in large measure included within production economics. FAO has recognized this in developing policy guidelines for forests, fisheries and agricultural lands to achieve stable harvest without depleting natural resources.
178. Realistic guidelines can be of substantial benefit to both developed and developing countries. Since the ratio of benefits to cost of preparing policy guidelines and codes of good practice are likely to be highly favourable. The UN agencies have recognized their importance as part of the respective agencies prospective programmes of work.

12. It will be recognized that although the ultimate objective of such a policy should be the minimization of the negative environmental impact of industrial development, there will be critical constraints in the form of the industrial weakness of the developing countries, the limited availability of financial resources to their industrial sector and the necessity to provide adequate incentives to industry to stimulate its development rather than saddle it with burdensome regulations. UNIDO will seek to work to safeguard the interests of the industrial sector. Within this framework, it will undertake comparative surveys and appraisals of national standards relating to industrial pollutants and emissions.

1. In virtually every programme either earlier, objectives include the provision of guidelines to take into account current technological methods and well tested experience. Illustrative of the range of planned activities are the often collaborative efforts of the Ministry of Health, the Ministry of the Environment and the Department of Economic and Social Affairs to provide guidelines for land use planning and use of natural resources. The Department through its Fisheries and Transport Division proceeds to formulate principles for the management of the effects of the consequences of environmental change as economic variables to be used in feasibility studies of mineral resource development projects. The Department also extends its interest to selected industrial branches such as the fertiliser, petroleum, pulp and paper industries in drawing up guidelines for minimising adverse environmental impacts. Research activities to extend and revise guidelines for the control of radioactive wastes in industrial processes and for safety analysis in industrial and generating nuclear power plants.

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are being built in the state of Indiana. The consequences continue to be for all  
the various consequences of the various consequences.

[illegible]

F. Establishment of national environmental institutions, legislation and standards, including enforcement

183. To deal with the problems of environmental management even modest attempts at the national level entail the creation of an institutional structure and a legal framework to guide the regulatory activities of an environmental control programme. The institutions and regulatory services are responsible for the conduct of a chain of activities beginning with information-gathering and analysis to develop legal standards; preparation of the legislation to establish the standards; inspection to verify compliance or infringement; maintenance of regulatory services for the enforcement of standards, and finally, educational programmes to explain the regulations and to enlist the participation and enthusiasm of the public.

184. Institutional inadequacies constitute a serious obstacle to progress, particularly if the institutions are responsible both for the economic and social goals of development programmes, and the protection of the environment and man's health. The dynamism of development tends to create problems in synchronizing the physical progress of development with the essential concomitant changes in human affairs including settlement and occupational patterns, transportation, education, health and social services. Given the current weak infrastructure and facilities of most developing countries, and the high costs of new institutional arrangements, it is reasonable to expect that progress will be in the direction of strengthening existing institutions with closer co-ordination between the production-related aspects and the social and health aspects of environmental management.

185. There is at present no common pattern of institutional arrangements among the member countries for dealing with environmental problems. Environmental Ministries have been created in some of the developed countries, but for the most part, the existing institutions carry out the requisite activities on a sectoral basis in Health, Labour, Agriculture, Housing, Social Welfare, or Economic Ministries. Some governments have developed co-ordinating mechanisms in the form of inter-ministerial councils or advisory committees.

10. In view of the foregoing, the organizations of the UN system have two functions: to advise and assist governments as institutional partners within the agency's sectoral responsibility, and to ensure close cooperation between people responsible for environmental aspects and those responsible for other aspects of administration. This latter entails co-ordination between institutions within countries and collaboration between the relevant UN organizations to assist in intersectoral problems.

11. As far as direct assistance to countries is concerned, UNH has for example already helped countries in establishing or strengthening national institutions concerned with aspects of environmental protection, e.g. in Brazil, Chile, Kenya, Iceland and Iraq.

12. In order to ensure co-ordination in connexion with UNH country programme activities it is suggested, as has already been indicated, each of the institutional partners to carry out its activities within the organizations of the UN system and in this way all the partners to contribute to strengthening national institutions. In addition, each agency should exert diligence to strengthen the infrastructure by providing training programmes for technicians, administrators, enforcement officers, etc. Field extension activities are suggested. Preparation of manuals, handbooks and field guides contribute as well.

13. Future activities related to the human environment will have to be performed on a permanent basis and will require a solid legal and institutional framework so that they can be implemented by national technicians. Legislation will not only be designed to encourage, regulate or prohibit actions, but to define the proper scope of activities. The environmental legislation is resource development.

14. It is generally believed that the basic legal framework for environmental management can be built into the overall resource legislation of a country. Specific legislation will undoubtedly be required; many problems cannot be adequately covered in the general legislation.

15. The UN organizations provide legislative information services and provide advice at the request of governments for drafting legislation and law reform. On a regular basis, the agencies collect, process and disseminate information regarding legislation adopted by countries relevant to each sector. They also prepare analytical and comparative reports on legislation. Advice relevant drafting legislation is provided either through permanent staff of legal specialists assigned to headquarters or missions, or by special recruited legal consultants who are provided with administrative and financial support.

191. The ECE has already carried out some preliminary inquiries on national institutional arrangements and supporting legislation, but these are still in a state of flux in many countries and further studies will be made with particular emphasis on the co-ordinating machinery at different government levels and between different sectors of activity.

192. Establishment of legal standards of performance and safety, whether for industrial or agricultural practice, permissible levels of contaminants, product quality and safety, or legal codes governing working conditions, are all highly specific. Since it is only possible to apply standards for control within a background of appropriate legislation, the two issues cannot be separated. The technical issues raised by questions of standards are resolved by meetings of specialists, followed by publications of their findings and dissemination to member countries. For example standards and codes of practice for environmental safety have been established by UNEP in collaboration with WHO, FAO and ILO. They are recommended to member states and advisory services are furnished. As an important practical mode of action UNEP makes its technical assistance conditional upon the existence of adequate safety standards.

193. Special mention must be made of problems of enforcement for they are often the major bottlenecks in the chain of action referred to above. Many governments are unable to enforce existing environmental legislation, even less new regulations. Apart from the fact that regulatory services of the central government in most developing countries have run down in the post-independence period, enforcement will fall to a large extent on local governmental bodies which are not strong enough to shoulder this burden.

194. The question of the enforcement of international standards and agreements must arise. The experience of the ILO in supervising the application of its Conventions and its recommendations, which cover a wide variety of questions including extremely sensitive ones relating to human rights, is relevant.

195. While the organizations of the UN system have been aware of the need for realistic national enforcement practices and have responded in some measure, for example, by preparing documents dealing with the organization of regulatory services, it is evident that a great deal more needs to be accomplished. Collaboration between the UN Public Administration Divisions and the special agencies should provide some guidance in assisting governments to find suitable solutions to enforcement problems. Nevertheless, provision of assistance in enforcement practice will require substantial expansions of effort and financial resources.



G. Establishment of regional and international agreements

196. Human activities, industrial and otherwise, have created problems of environmental changes that cannot be solved by national measures alone but which require regional and international agreement. Environmental effects can scarcely be expected to obey political frontiers. Isolated efforts of individual countries to enforce standards of good environmental practice will fall short of the goal if they are not accompanied by similar efforts from other countries in the same region. Furthermore, the costs incurred in order to adhere to stringent standards will put the industrial and agricultural development of one country at a competitive disadvantage to other countries which abstain from a common accord.

197. Environmental damage caused by industrial products in their intended use is quantitatively the most significant source of damage, but corrective measures are not likely to present international trade problems new in kind. They are another example of the need for standards comparable to safety regulations already in force for motor vehicles, pure food laws, safety and efficacy requirements for new pharmaceuticals, etc. General rules governing use of such measures exist, for example, in GATT and work is in progress on more precise principles concerning use of product standards including technical specifications for pollutants to avoid undesirable effects in international trade.

198. In the respect of transportation, a useful contribution to the prevention of water pollution is being made by the ECE through its work concerning the safe packing and conditions of transport of substances which may pollute water. Several agreements in this field have been concluded and are in force in ECE countries. Consideration is also being given by the ECE to promoting international arrangements between contiguous countries aimed at resolving specific environmental problems to areas of their common interest.

199. The trade problems posed by noxious emissions and wastes from industrial processes deserve special attention because industrial production will be affected by the enforcement of controls. It is expected that industrialized countries will formulate norms specifying the maximum admissible levels of polluting agents in effluents, but the degree of stringency will depend on the extent of the activities causing the pollution and their spatial distribution in local regions. The developing countries have not begun to adopt existing norms because of the numerous technical and financial difficulties involved. Pollution control costs, especially of national origin, will have to be borne by them. Thus, the prevention of transboundary pollution will have to be achieved by international arrangements.

200. The fact that the new pollution control cost differences among countries would result directly from government regulation would not make them unique; national standards concerning labour, social security, taxation, health hygiene, and safety already have a varying impact on costs from one country to another. But none of these differences is recognized as justifying protection of domestic production, and it is by no means clear that it would be wise to regard pollution control measures as an exception. If the pollution control case is different, the peculiarity resides in the welfare aspects of the problem, its magnitude, its greater urgency for some countries than for others, the disparity in prospective costs in different sectors, and the advantages of handling the problem by incentives rather than by mandatory regulations.

201. The organizations of the UN system are experienced in supporting the actions of governments to establish international agreements. For example, IAEA has promoted and will continue to foster international or regional agreements on the release of radioactive wastes into the seas, the registration of radioactive releases and the establishment of international disposal areas. Eleven multilateral treaties concerning natural resources management have already been concluded within the framework of FAO. ILO has contributed to the acceptance of a wide variety of International Conventions and recommendations concerned with conditions in the working environment. Unesco has prepared the Hague Convention on Protection of Cultural Property in Armed Conflicts and is preparing a new convention on the preservation of the cultural and natural heritage of mankind.

202. In many instances co-ordinated agency programmes are needed. There are precedents in the area of international agreements or standards for control of environmental factors, for instance the joint FAO/WHO activity in support of the Commission for the Codex Alimentarius.

203. An example of projected agency activities is afforded by the decision of the IMCO Assembly (Resolution A.176 (VI)) to convene, in 1973, an international conference on marine pollution for the purpose of preparing a suitable international agreement for placing restraints on the contamination of the sea, land and air by ships, vessels, and other equipment operating in the marine environment. In October 1971, the Assembly further decided that the 1973 conference shall have as its main objective the achievement by 1975 if possible, but certainly by the end of the decade, the complete elimination of the wilful and intentional pollution of the seas by oil and noxious substances, other than oil, and the minimization of accidental spills.

204. The question of the enforcement of international standards and agreements must be considered. The experience of the ILO in supervising the application of its Conventions and its recommendations, which cover a variety of questions, including human rights, is relevant. Member governments must submit regular reports to the ILO on measures taken to present new instruments to the competent legislative authorities and to apply Conventions already ratified. They are also obliged to submit reports, when requested, indicating the degree to which their legislation and practice give effect to unratified Conventions or to Recommendations. A committee of independent experts examines the reports and relays its findings to governments, ILO's Governing Body, and to the annual Conference. The results of this technical examination are studied by a Conference committee of government, employer, and worker delegates. They discuss problems of application with representatives of the governments concerned. As a further safeguard, formal representations of non-observance of a ratified Convention may be lodged and may be examined by the Governing Body or by commissions of inquiry.

205. Concern with environmental problems may well require general agreements going beyond current sectoral boundaries. The UN and its organizations will require mechanisms to facilitate agreements of this character in the period following the Stockholm Conference. At the same time, the priorities established by States in the UN Conference will include items of specific sectoral relevance. In these cases, the proposed actions would be undertaken by particular programmes of the agencies, as modified in accordance with the deliberations of their governing bodies.

H. The development of technology, including transfer of technology from the developed to the developing countries

206. Much of the technology for environmental protection and management already exists, but the techniques are costly. Consequently, development of new technology is carried on almost exclusively within nations having substantial economic resources. The time lags between technological development and application, and the additional delays in the transfer of expertise to the developing countries are long. Furthermore, technology suited to the specific needs of developing countries is frequently lacking because there is little incentive within the developed countries to create technology that has minor utility at home.

207. As an extreme example, but of direct health relevance to a very large fraction of the world population, there is need for simple and cheap techniques to supply safe drinking water, to dispose of solid and liquid wastes, and to control industrial air pollutants in work places. Hand pumps, methods of water extraction from surface ponds, simple chlorinating devices, basic design data for waste water treatment systems using local materials and construction methods may not represent major challenges to the ingenuity of technologists, but they are not currently available to the human beings who need them.

208. The UN system of organizations functions in this area by advice, assistance and information exchange with respect to existing technology, pointing out the gaps, and assisting in the transfer of technology from the advanced countries to the less advanced ones.

209. It is much more economical to incorporate environmental protection schemes at the onset of development schemes, than to ameliorate a degraded environment. Here again we can see a role for organizations in the UN system, particularly those acting as executing agencies of the UNDP. Illustrative of activities carried out by the UN agencies or programmes with this philosophy are UNEP schemes for industrial development, FAO and WHO co-operative assistance in agricultural development, the UN Resources and Transport Division (with WHO) for comprehensive water resource development.

210. An efficient way to help the developing countries is to increase their capability for research and development of environmental protection technology. This has been done, for example, in India by developing (as a UNDP/SE/WHO project) the Central Public Health Engineering Research Institute in Nagpur. Many Unesco, FAO, UNEP, and IAEA projects assisted by UNDP have similar aims and a variety of similar projects are being considered.

211. Many developing countries possess raw material resources but they lack the technology for the manufacture of equipment, chemicals, and other supplies. Assisting them by providing the know-how will constitute an important element of international assistance. UNIDO is an agency with special competence in this field. In some circumstances, it may be feasible to control pollutants and produce marketable by-products. For example, ammonia may be used to remove sulphur dioxide from power station flue gas. One of the resultant products is ammonium sulphate which has use as a fertilizer. Both UNIDO and the UN Resources and Transport Division carry out research programmes related to such problems.

212. There are several sectors for which advanced technology is clearly required. In the future more reliance may need to be put on physico-chemical treatment processes to renovate waste water so that it can be re-used directly. The research potential of the chemical industry needs to be applied to this field and organizations such as UNIDO and the regional economic commissions will continue to contribute to this task by study programmes, conferences, and assistance to research. The UN Resources and Transport Division will study the application of electrodialysis and reverse osmosis technology to "marginal desalting".

213. Development of alternative methods of energy production is particularly important both because conventional power plants are major sources of air contaminants and the projected power needs in the years to come are great. The IAEA promotes and co-ordinates technical development with particular reference to the safe design and operation of nuclear facilities. The UN Resources and Transport Division will in the future devote a considerable part of its work to finding alternative energy sources, and is convening a panel of experts to evaluate the feasibility of the use of solar energy, tidal power, geothermal, etc.

214. To a great extent the technological solutions are known but the current costs of application are beyond the resources of the developing countries. There is a clear need for applied research, development and rapid technology transfer. The current activities in this field by the UN system of organizations are still too limited in scope. However, as has been pointed out the several agencies have contributed within the limits of their resources and could increase the pace of activity if financial means were made available.

I. . Education, training and public information

215. Education and training are important to problems of the human environment at several different levels. Education can be directed towards the means and methods to develop an awareness of nature and a sense of involvement in the care of the environment. The study of nature has always figured in school curricula, however, the relation of nature to man's life has not been brought out clearly.

216. UNESCO is giving increasing emphasis to environment studies within the framework of general education. The function of Unesco can be categorized as the exchange of information on the status of the environmental education movement, curriculum organization and assistance to Member States. UNESCO is studying the possibility of organizing multi-disciplinary courses on environmental problems as part of a general undergraduate curriculum. The study of environment in schools will be supported within the framework of the Associated School Project of UNESCO. This world-wide group of schools will be furnished with suggestions for source materials and project activities on environmental issues. This co-operation facilitates an exchange of views and materials for the comparison of conditions, problems, and possible project activities in the countries of the world. UNESCO and other agencies of the UN system, are also interested in developing environmental education beyond the undergraduate level.

217. As part of the MAB programme, specialists will be trained in various aspects of modern ecology, including remote sensing techniques, systems analysis, biomodelling, etc. National and regional training and research institutes will be created or strengthened, in some instances with UNDP assistance, in the field of integrated study of natural resources and in ecology, particularly tropical ecology. An interesting example of such a centre exists in Iraq in the Institute for Applied Research on National Resources, which is being executed for UNDP by UNESCO.

218. In addition to the efforts to educate people at all levels to an awareness of environment there is need to train industrial and agricultural personnel in the techniques of environmental protection and management. For example, most of the technology currently used in the production of energy has been developed with only scant reference to the levels of pollution to which it gives rise. Consequently, the vast majority of technologists engaged in this industry have only a meagre appreciation of the polluting propensities of their industry and of recently developed technology for pollution control.

219. ILO activities furnish another example. Training, advice and assistance are provided to managers of industrial undertakings through the national management development centres under the ILO Management Development Programme and cover the management aspects of industrial health and safety which have a direct bearing on the protection of the working environment.

220. Since more than fifty per cent of the world population are farmers and many others are employed in forestry and fisheries activities, mention should be made of the role of WHO in educating farmers, fishermen and others, in training medium-level technicians and university-level specialists. In these fields, environmental protection and conservation of natural resources necessarily form an integral part of educational programmes.

221. The successful health control of the environment depends not only on the support of the political authorities but also on the professional quality of the relevant health personnel. This applies in particular to the category of sanitary engineers and medical hygienists, as well as to that of sanitary inspectors and sanitary "feldshers".

222. WHO assists its Member States in the education and training of all categories of personnel in the public health field. For this purpose, the Organization has devoted a substantial part of its resources towards meeting this need. WHO's assistance in training of personnel for sanitary control has undergone change in line with the evolving needs of different parts of the world.

223. Fellowships to officials of Member Governments for higher studies, usually abroad, have been a major programme of WHO ever since its inception. This form of assistance has grown over the years and a considerable number of contemporary public health personnel have been trained in this way. Besides this, almost every environmental health field project has a built-in provision for fellowships to national counterpart staff. Fellowships also form an important part of UNDP assisted pre-investment survey projects, for which WHO is the executive agency.

224. Apart from fellowships, WHO has special grants for award to research scientists either for further training or on exchange visits. These grants can be awarded to individuals upon request to WHO. The International Agency for Research on Cancer (IARC) in its own fellowship programme has given primary emphasis to training young scientists in environmental biology.

225. In collaboration with other international agencies, namely with Unesco and with the Inter-American Association of Sanitary Engineers, WHO has worked on a glossary of engineering terms designed to assist understanding of technical information by different language groups.

226. As a result of surveys, consultantships, scientific groups, symposia and expert committees, WHO has published over the years a number of documents on the education and training of environmental specialists.

227. Another function of the UN agencies is to contribute to the training of environmental specialists by encouraging and helping national educational institutions to expand their managerial, engineering, and applied research curricula. For example, WHO has assisted in the establishment and support of training institutions whose curricula is centred on atmospheric science. IAEA conducts training courses for specialists in radioactive waste management and radiological safety. The training of environmental health personnel is given high priority by WHO and is implemented by a programme that includes individual fellowships, carefully planned training courses and seminars, and the establishment of centres for training and applied research. Unesco is running a number of programmes in this field at the national, regional and international levels on such subjects as ecology, hydrology or oceanography.

228. Training programmes undertaken by the UN agencies usually include several facets. At the individual level, fellowships are awarded to qualified administrators or technologists with a view to introducing them to modern techniques of pollution control. Seminars are frequently organized to provide groups with information about problems of pollution within their industries, and the principles for pollution management. Symposia enable scientists and engineers throughout the world to discuss particular environmental aspects of mutual interest.

229. Despite the breadth and level of effort devoted to education and training in the UN system of organizations it is recognized that needs for educational programmes related to the human environment at all levels and ranging from general education to specialist training cannot now be met within existing resources. Since education is a slow and continuing process, it is not surprising that the emphasis for early action has been directed to the immediate problem of environmental deterioration. Nonetheless, in the long run the success of any environmental programme will depend on the attitudes, the understanding and concern of people in all walks of life.



J. Co-operation on technical aspects

230. Since the inception of conference planning the General Assembly, as well as the Preparatory Committee for the UN Conference on the Human Environment and its secretariat, have been aware of the varying kinds of concern with environmental questions which exist in countries. They have also been cognizant of the apprehension of representatives of certain developing countries that pre-occupation with such problems as pollution would lead to diminished attention and resources for the industrialization and development of under-developed nations.

231. Most students of problems of the environment are persuaded that there exists no fundamental conflict between the requirements for economic development and environmental protection, but it is agreed that a major effort is needed to arrive at a balance of factors so that efforts to take into account the requirements of an environmental protection programme will not penalize and diminish the momentum of rational resource development.

232. The UN system can play a significant role in this context. For instance direct assistance to developing countries through UNDP can help them make efficient use of their natural and human resources while at the same time ensuring that the fabric of the environment is not destroyed by the effects of improvident actions.

233. Since so many environmental problems are directly related to development processes, their solutions must be seen as a part of planning for development. This focuses attention on the adequacy of planning for major development schemes, particularly at the "pre-investment" stage of surveys and feasibility studies. Eventually the whole pre-investment process beginning with initial general surveys may be so oriented that information on environmental impact questions is generated at the same time that information is being obtained to prepare development schemes for capital investment.

234. The following outline of the sequence of events related to environmental assessment, anticipated as a part of planning for technical co-operation programmes dealing with development in any sector which falls within the competence of the UN system of organizations, may serve to put the functions of the organizations of the UN system into proper perspective.

235. Identification of environmental problems would be the first step and would include: the assessment of the scope of environmental problems by sector and geographical area; surveys and appraisals of major degradation possibilities, pollutants and nuisances derived from such activities; determination of the actual status of particular countries in relation to critical levels of pollutants; and identification of conservation and anti-pollution projects serving several countries.

236. This would be followed by the formulation of measures to deal with the problems and the provision of assistance to facilitate their implementation. Action in this respect will have two broad aspects. On the one hand, there will be action of a technical and economic nature involving such factors as the establishment of pilot plants for re-use of wastes, the adaptation of existing pollution reducing techniques and standards in force in other countries to local conditions; and the establishment of technical facilities for carrying out tests and research on alternative processes of abating resource degradation. At the same time, it would involve actions dealing with questions of policy, institutional and financial arrangements, including: the formulation of resource conservation measures; the introduction of incentives to promote the abatement of pollution with special regard to local conditions and the particular economic sector involved; the provision of financial assistance to developing countries for abating environmental degradation arising from industrial development; the extension of information services to cover re-cycling, waste disposal, and industrial pollution in general.

237. While the main elements can thus be distinguished in broad terms, the form they will assume in practice and the relative priority among them, cannot be determined a priori but will need to be decided on a case by case basis.

238. The existing machinery for most development projects calls for a tripartite structure: a national institution responsible for carrying out the work of development, an agency of the UN system to assist in steps outlined above as well as in the several functions described in this chapter, and a funding agency, most probably UNDP. A special obligation is placed on UNDP which will be called upon to assure that the environmental implications of the pre-investment projects it assists are adequately considered during the technical appraisal of requests, and during the surveillance of projects as they are being implemented. As UNDP moves to a strengthened role in advising governments about country programming for development, its resident representatives will perform the role not only of making appropriate suggestions about development, but also of encouraging planners and other technical specialists to consider the full range of implications of schemes under consideration.

239. There is little doubt that environmental considerations, long a component of technical co-operation in programmes of relevance to environmental health or to the working environment such as those of WHO and ILO, will add a new dimension to technical

co-operation and assistance in industrial development schemes. In some agricultural development projects executed in recent years with the co-operation of FAO, this philosophy has already been applied. While the underlying function of the UN system of organizations will remain the same, that is, to provide technical advice and information at every stage of the project, nevertheless modifications in the customary modes of procedure will be required. Many additional intellectual disciplines will need to be considered and appropriate specialists invited to contribute to the agencies' activities in technical co-operation. In some instances a greater degree of inter-agency co-ordination is to be expected.

K. Funding

240. Ongoing activities of the UN system in the field of Human Environment are funded within the established general framework of international budgeting, with regular Programmes of individual organizations and the UNDP as the two main sources of finance.

241. Compared to other "horizontal" fields of work cutting across the UN system, the proportion of the respective allocations for environmental activities appear to place a higher burden on regular programmes mainly because of the high research component and the differentiation of advanced and developing countries with regard to the degree of their direct involvement in these activities. As a result a substantial part of the activities reviewed in this paper do not meet the criteria set for UNDP financing.

242. The potential capacity of the UN system to streamline and strengthen activities currently in progress and to launch new vigorous programmes in the field of Human Environment is necessarily dependent on the amount of financial resources earmarked for this purpose. No doubt, there is some room for a shift in emphasis and priorities, but it would be unrealistic to expect major breakthroughs without the allocation of new resources. It should be emphasized, however, that although development-oriented and environment-oriented activities should form part of the same planning process, any additional new resources provided for activities in the field of human environment should not be provided at the expense of resources available for development.

243. Of course, any world-wide programme will be necessarily based on the integration of national efforts and thus primarily draw on national resources. The impact and effectiveness of the programme, however, will, no doubt, largely depend on the strength of UN leadership and its means of impulse for setting a truly universal programme in motion.

### Chapter III

#### SUMMARY AND CONCLUSIONS OF THE ACC CONSOLIDATED DOCUMENT ON THE UNITED NATIONS SYSTEM AND THE HUMAN ENVIRONMENT

244. In any consideration of future international action relating to the human environment, it would seem important to have a full picture of the action already being undertaken or planned. The Administrative Committee on Co-ordination, comprising the Secretary-General of the United Nations and the executive heads of the specialized agencies, has therefore prepared a consolidated document on the United Nations system and the human environment which attempts to give such a picture.

##### A. The Consolidated ACC Document

245. The human environment is a wide-embracing term and there is an immense and complex range of international activities which have a direct or indirect bearing on it. It is difficult to cover these activities in a clear and comprehensive manner: the document tries to present them in a form that would be most convenient for the Stockholm Conference.

246. Thus, Chapter I provides information on the current activities of the United Nations system relating to the environment, arranged in accordance with the main agenda items of the Conference, namely the Planning and Management of Human Settlements for Environmental Quality; The Environmental Aspects of Natural Resources Management; Identification and Control of Pollutants of Broad International Significance; Educational, Informational and Cultural Aspects of Environmental Issues; and Development of Environment. There is an additional section on multi-disciplinary aspects of ongoing activities within the United Nations system.

247. Chapter II analyses the programmes of the United Nations family in relation to the main functions that appear necessary in dealing with the human environment, such as the collection and exchange of information; monitoring and surveillance; research; the establishment of scientific criteria, of policy guidelines and standards, and of institutions; the formulation of regional and international agreements; the development of technology; education and training; and funding. The Chapter outlines the approach taken, what is being done, and what is in an advanced stage of planning by the different organizations in each of these functional areas.

248. Annex I to the document provides a brief outline of the relevant work of each member of the UN family based on its constitutional responsibilities.

Annex II<sup>1/</sup> contains a detailed compilation of the activities of each member in relation to the Stockholm agenda. The information given in these annexes supplements that given in Chapter I. Therefore, the ACC consolidated report could also be considered as a reference document. It lists activities by agenda items, by functions and by competence. This entails a great deal of repetition but this was thought to be preferable to excessive cross-referencing. While such a catalogue will, it is hoped, enable those interested to ascertain rapidly what is being done in any particular area and by whom, it might be helpful to have the conclusions in more handy form. This is the purpose of the present document.

#### B. Conclusions

249. A number of conclusions emerge from the consolidated statement and these are outlined below.

250. The constitutional responsibilities of the organizations comprising the United Nations family cover many important areas and questions relating to the human environment. This is natural since the organizations have a general mandate to promote human welfare and more specific mandates in specialized fields such as health; labour and the well-being of workers; food and agriculture; education, science and culture; postal arrangements; meteorology; maritime affairs; atomic energy; telecommunications; industrialization; trade and development; housing; transport and natural resources; civil aviation.

251. A great many activities are being carried out relating to each major agenda item of the Stockholm Conference, and several, if not most, organizations have programmes in several, if not most, of these subject areas.

252. It should be said at once that this does not mean that all questions relating to the environment are being dealt with, or adequately dealt with. Indeed, not only are there a number of gaps and new ground to be broken, but many questions are receiving inadequate attention. The multi-disciplinary, integrated approach called for by so many environmental questions has so far been applied only in a limited number of instances. The consolidated document does not show, nor is it intended to imply, that everything that needs to be done is being done, or that what is being done is done in the best possible way.

253. As is pointed out in the Introduction to the consolidated document, most United Nations organizations have been established on the sectoral pattern, reflecting the

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<sup>1/</sup> Available in the Conference Library.

structure of national governments with separate departments for agriculture, health, labour, education, and so on. Each organization has been led, in the normal course of its history and by decisions of its Member States, to undertake activities relating to the environment in its own particular sector, since many environmental problems have an international dimension arising from their geographical scope, their universality, or their consequences for the future of mankind as a whole.

294. The sectoral approach remains valid for a large number of problems, which can be dealt with essentially from one specialized point of view. Thus, the problem of aircraft noise can be covered mainly by the organization responsible for civil aviation; problems of the working environment by the organization responsible for labour; etc. In dealing with such problems, the organization mainly concerned sometimes requires advice and support from another organization on a particular aspect. This type of co-operation is taking place in the United Nations system to an extent which is, perhaps, not fully appreciated. There is an increasing variety of problems, however, that require an integrated or "horizontal" approach. These call for wider and more elaborate co-operative arrangements by organizations which are essentially sectoral or "vertical".

295. It should be emphasized at this point that the success of any attempt to tackle a particular environmental problem globally, through a multi-disciplinary approach, is a matter essentially for decision by Member States. Most action must, in fact, be taken nationally, and international action ultimately depends largely on action at the national level. What international organizations can do to foster and assist the efforts of governments must also depend on agreement on general policies in the legislative organs of the organizations of the United Nations system. These are essential both to collective action and to coherent assistance to individual States in particular cases.

296. Agencies are often called on by Governments to deal with similar problems but from different points of view, and it has been the task of the co-ordination machinery to try and ensure that there is no overlapping or waste. The ACC provides a framework at the inter-secretariat level for co-ordination and co-operation for the United Nations system. This machinery is flexible and a variety of means have been evolved in response to varying needs. The ACC has established ad hoc functional groups of executive heads, such as the Functional Group on the Human Environment which prepared the consolidated document. In addition it has a wide range of subsidiaries which deal with many facets of the environment. There are joint committees and working groups - both inter-

governmental and inter-secretariat; there is joint execution of projects, and there are inter-agency programmes. There has, in recent years, been an increasing trend towards dealing with large issues through joint, integrated programmes. Examples of this are provided by the Second Development Decade and work in the field of population, partially supported by the United Nations Fund for Population Activities. The UNESCO programmes on the International Hydrological Decade, on Man and the Biosphere and the work of the Inter-governmental Oceanographic Commission attempt to co-ordinate both interdisciplinary and international research. Agroclimatological surveys are carried out in co-operation among FAO, UNESCO and WHO. The Joint Group of Experts on the Scientific Aspects of Marine Pollution represents the co-operative efforts of United Nations, FAO, IAEA, INCO, WHO and WHO. Examples of such co-operative programmes are found not only in the area of research but also in operational activities financed under UNDP.

257. Once again, the consolidated document is not intended to imply that arrangements for co-operation work perfectly in all cases, or that no difficulties ever arise. But it can fairly be said that, considering the complexity and variety of questions that are handled by them, they provide an effective and dynamic mechanism.

258. The major emphasis of the activities of the United Nations system is on development, reflecting national priorities. However, as has been frequently pointed out, it is of great importance that development-oriented and environment-oriented activities be integrated as parts of the time planning process. It is essential for example to harmonise activities dealing with the conservation of natural resources and those dealing with their use. The AGC in its statement to the Economic and Social Council in July 1969<sup>1/</sup>, in fact urged members of the United Nations system to adopt "as far as possible an ecological and integrated approach in their activities relating to utilization of resources and environmental management".

259. There are important gaps in the present pattern of activities and certain functions are not being carried out. For example, there are important areas in which research is needed, such as the health effects of environmental contaminants, or the development of technology for abatement of pollution and for environmental quality

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<sup>1/</sup> See document E/4710.



control. There are several international information exchange and monitoring programmes, some of which are unable to accomplish more than a small part of the task. Data, accumulated by national centres is often not made available to other countries. While each organization is collecting information in its own particular sphere, there is a need for arrangements to direct inquiries to the appropriate source. There is at present not enough technical assistance being provided to help governments in shaping realistic environmental policies consonant with development.

260. The Stockholm Conference will doubtless take a number of decisions, perhaps in the form of an overall plan of action, designed to fill the gaps that exist and to provide a coherent global framework for environmental action. The United Nations system was not designed specifically to undertake this task: indeed it was not designed specifically for many of the tasks that it now regularly and effectively undertakes. New responsibilities do not automatically require new institutions and mechanisms, but do mean an adaptation of existing mechanisms and arrangements. Thus, after Stockholm the ACC would consider what adjustments in the arrangements for inter-agency co-operation are necessary, while the organizations could individually review the need for any changes in internal structure. As the ACC said in its statement of July 1969 <sup>1/</sup>, the "complexity and magnitude of the problems of the human environment and their inter-disciplinary nature call for even more effective inter-agency co-operation".

261. Thus, it is seen that the institutions, the experience and a large measure of expertise needed, exist. The past quarter century has shown that the machinery can be adapted when necessary to assume the implementation of inter-governmental decisions and to facilitate the provision of technical assistance on environmental matters.

#### C. Summary

262. In summary, the ACC submits the following considerations:

- (1) The organizations of the United Nations system has constitutional responsibilities in large areas of the human environment;

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<sup>1/</sup> see document E/4710

- (2) They are undertaking and planning a wide range of activities concerned with the human environment;
- (3) The United Nations system has focussed primarily on development. In many cases, environmental issues are facets of development, and the two should not be separated either in concept or in practice;
- (4) There are important issues which are not at present covered, or are not covered adequately. In particular, there is a need for an integrated approach to many questions of the environment;
- (5) The United Nations system of organizations has been built up essentially on a sectoral pattern. Through the ACC it has machinery and arrangements for inter-secretariat co-ordination and co-operation, developed and tempered over the past quarter century. The ACC not only provides facilities for co-ordination of sectoral activities, but provides an inter-secretariat framework for an integrated and coherent approach to large general problems;
- (6) A multi-disciplinary, international approach to environmental questions depends essentially on the political will and decisions of Member States;
- (7) The United Nations system has institutions, experience and machinery which can be adapted to new tasks and needs. These are at the service of the world community to carry out any inter-governmental decisions resulting from the Stockholm Conference.

Annex I  
INTRODUCTION

The following statements summarize the work of the various bodies and organizations of the United Nations system in relation to the human environment as expressed in their own words.

UNITED NATIONS

The Office for Science and Technology of the Department of Economic and Social Affairs - provides the focal point in the United Nations system for general matters relating to the application of science and technology to development; it serves as the Secretariat for the United Nations Advisory Committee on the Application of Science and Technology to Development (ACAST), the ACC Sub-Committee on Science and Technology and the newly created Standing Committee on Science and Technology of the Economic and Social Council, and was responsible for the preliminary organizational work for the Stockholm Conference until the establishment of this Conference's Secretariat.

The Resources and Transport Division of the Department of Economic and Social Affairs - is the central unit in the fields of water, energy, mining, surveying and mapping, marine resources and transport, and it carries out a number of operational and non-operational activities directly or indirectly related to the human environment in these fields. The Division provides the substantive servicing in its fields of the General Assembly and ECOSOC and their subsidiary bodies, notably the standing Committee on Natural Resources, as well as the extensive field operations entrusted to the United Nations in resources and transport development. The Division is playing a vital role in the preparations for the Stockholm Conference, inter alia, with the submission of 18 "basic papers" and servicing of the intergovernmental Working Group on Marine Pollution.

The Centre for Housing, Building and Planning of the Department of Economic and Social Affairs - plays a major role in the formulation and co-ordination of the United Nations programmes and projects related to human settlements. It is analysing the trends and consequences resulting from social and economic changes and urbanization, it prepares special studies and guidelines on policy issues, methodologies of comprehensive planning and implementation, finance, technical, managerial and legislative questions. It undertakes and promotes research and provides advice to governments on regional, urban and rural planning as well as on housing and building.

The ECONOMIC COMMISSION FOR EUROPE (ECE) - is carrying out a programme of research and study on the socio-economic aspects of environmental problems which embraces both on sectoral and intersectoral approach. Under ECE's auspices permanent inter-governmental machinery has been established to deal with environmental policies, strategies, institutional and legislative measures, planning techniques, etc., water management, including water pollution; housing, transport and urban development; agriculture and forestry; energy; and different industrial branches. The ECE organizes seminars, expert working parties and study tours in these fields of work.

The UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT (UNCTAD) - is conducting studies on the foreign trade implication of environment measures. Environmental issues are going to exercise a growing influence on international economic relations. They are not only a formidable competitor for development resources but they are also a factor which is going to influence the pattern of world trade, the international location of industries and the competitive position of different groups of countries. Environmental actions by developed countries are going to have a profound and manifold impact on the growth and external economic relations of developing countries. The UNCTAD studies aim to investigate these processes with special reference to the probable growth of tariff and non-tariff barriers, to shifts in primary commodity markets, to the impact of recycling on trade and to new relationships between synthetic and natural products.

The UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION (UNIDO) - is concerned with the environmental problems of direct industrial origin. UNIDO supports the development and transfer of suitable processes and technologies for minimizing harmful gaseous, solid and liquid emissions and for recovering valuable materials from wastes and pollutants.

UNIDO supports the establishment of appropriate policies for industry comprising provisions against over-concentration of polluting industries as well as guidelines and measures to prevent and resolve environmental conflicts.

UNIDO provides guidance to governments on the legal and institutional aspects of environmental management ensuring at the same time that the criteria and standards to be adopted are within the techno-economic possibilities of the industrial sector.

UNIDO studies the economics of environmental quality and its implications for the development of the industrial sector. It gives support to the introduction of

environmental criteria in the preparation and implementation of industrial projects and industrial development plans.

The UNITED NATIONS CHILDREN'S FUND (UNICEF) - is assisting Governments in some 110 countries in the development of services for children and adolescents in the areas of health and environmental sanitation, education and human resources, nutrition, and welfare services and institutions. Particular emphasis is placed on community action and services at the level of the community.

The UNITED NATIONS INSTITUTE FOR TRAINING AND RESEARCH (UNITAR) - intends to continue and to expand moderately its environment-related activities in accordance with its overall mission of seeking to improve the effectiveness of the United Nations system. Environment-related topics will be incorporated into a number of UNITAR's training activities, and special environment training activities will be held from time to time as appropriate. In research, UNITAR's environment activities will continue to form part of its effort in the area of "the implications of science and technology for international organizations", with the major emphasis being placed on the design of remedial policies in respect of environmental problems of international significance.

The WORLD FOOD PROGRAMME (WFP) - provides assistance for development projects and emergency operations, almost all of which have human environment impact. Most of the aid is given as the only material incentive to participate in such selfhelp schemes other than the personal incentive to enjoy better homes, cleaner, healthier more sanitary and more up-to-date facilities, amenities and surroundings. These can include countrywide disease eradication (e.g. malaria control), the construction of better schools and healthier centres and other public buildings, the replacement of unsightly and unhealthy slums by pleasant parks and rehousing of the inhabitants, often squatters, in new urban areas within reach of remunerative employment.

#### SPECIALIZED AGENCIES

The INTERNATIONAL LABOUR ORGANIZATION (ILO) - is concerned with workers and with their living and working conditions in the widest sense. Of particular concern are the physical conditions of the work place - the working environment. The safety, health and well-being of workers whether in factories, mines, fields or offices, are primary subjects for ILO action. However, other aspects relevant to the workers' environment are also covered by the ILO, such as job satisfaction, the fitting of work to the human being, housing, recreation facilities and the use of leisure. Through its educational programmes for management and workers, the ILO can promote the protection

of the human environment. Above all, it is noteworthy that the ILO is a tripartite organization associating employers and workers on a footing of equality with government representatives in all aspects of its work, including that related to the environment in which the worker lives and works.

The FOOD AND AGRICULTURE ORGANIZATION (FAO) - by its Constitution is entrusted with the responsibility of improving living conditions of rural populations and the conservation of natural resources, while promoting the development of agriculture, forestry and fisheries. The organization is particularly involved in operational activities aiming at:

- (a) a proper assessment of the potentialities and limitations for use of soils, crops, livestock, grazing lands, forests, wildlife and fish resources;
- (b) the protection of these resources against degradation hazards, risks of depletion, pollution, diseases and pests by promoting sound planning and management practices through applied research, demonstration and training and by assisting in developing adequate legislation, standards, institutions and regulatory controls;
- (c) the reduction of all forms of wastage in the process of food and agriculture production including those wastes which are harmful to these activities, to the quality of food and other agricultural products, and to the human environment in general;
- (d) and thereby maintaining and improving the quality of the rural and aquatic sectors of the human environment.

The UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION (Unesco). Almost since its creation Unesco has been concerned with environmental issues. From the founding of the International Union for the Conservation of Nature in 1948 to the launching in 1971 of the long-term intergovernmental and interdisciplinary research programme on Man and the Biosphere, Unesco has conducted and stimulated, in co-operation with other interested organizations, important activities related to the scientific problems of the environment. Major landmarks in this respect have been made by the multidisciplinary programmes on Arid Zone Research, on Humid Tropics Research, the establishment of the Intergovernmental Oceanographic Commission and the launching of the International Hydrological Decade. The natural sciences approach to the environment is however only part of the more general effort made by this Organization

in the environmental field in relation to its commitment to education, social sciences, culture and information as well as to science. Recent trends in the Organization's programme reflect a multidisciplinary development of activities in these various sectors, including promotion of environmental education, protection of monuments and sites of universal value, studies of social and behavioural factors, etc... with the major emphasis remaining in the natural sciences. The Executive Board of Unesco has confirmed this general orientation in October 1971 (88 EX. Decision 4.2.2.).

The WORLD HEALTH ORGANIZATION (WHO) - by the terms of its constitution is required to work towards securing the protection of human health from adverse environmental factors, future as well as present. The Twenty-Fourth World Health Assembly (May, 1971) has directed WHO to take certain actions designed to maintain and strengthen this role, in particular:

- (a) to improve environmental health and sanitation in all countries and notably developing countries, with special emphasis on the provision of adequate quantities of potable water and the sanitary disposal of wastes;
- (b) to establish and to promote international agreement on criteria, guides and codes of practice with respect to known environmental influences on health, with particular emphasis on occupation exposure, and water, food, air and waste, and to obtain further information on levels and trends on these;
- (c) to stimulate the development and co-ordination of epidemiological health surveillance by methods including environmental monitoring systems, in collaboration with other national and international efforts, in order to provide basic information on actual and suspected adverse effects on human health attributable to the environment;
- (d) to extend the knowledge of effects of environmental factors on human health by collection and dissemination of information, stimulation, support and co-ordination of research, and assisting in the training of personnel.

"The International Agency for Research on Cancer (IARC) was created by the World Health Assembly in 1965. Much of its research programme has been concentrated upon the identification and measurement of environmental carcinogens."

In 1970, the INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT (IBRD) announced that it was taking steps to ensure that projects receiving bank group financing would "... not have seriously adverse ecological consequences or, if they are likely to have such consequences that measures are taken to avoid or mitigate them". An Office of the Environmental Adviser was established and commenced operations toward the end of the year. The current activities of this office include:

- (a) examination of projects under preparation for bank group financing with a view to detecting and identifying their impact on the human environment, and on the health and well-being of peoples affected by their presence or operation, and recommending relevant remedies where necessary;
- (b) developing means to institutionalize environmental and related health/socio-cultural considerations as a routine aspect of project development within the bank group, including preparation of appropriate environment/health checklists relevant to several sectors of the bank group activities; and
- (c) co-ordination of policies and practices in this area within the bank group and with other multilateral and bilateral lending institutions.

In addition to conducting the necessary studies to identify the nature and scope of environmental problems and providing for their prevention or mitigation, the Office of the Environmental Adviser also provides surveillance over on-going projects to assess the adequacy of environmental and health protection measures. It also assists borrowers and Member countries in their efforts to better understand environmental problems and their correction.

Some ancillary activities have included: consulting with the governments of Member countries, at their request, on environmental matters and on ways and means to develop appropriate curricula and training for environmental disciplines; co-operating with United Nations agencies and others in the development of methodologies for identifying and quantifying social costs attributable to development projects; and establishing necessary operational linkages with international bodies important in the bank group's environmental endeavours.

The INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO) - is doing research on the effects of aircraft noise and the degree to which the population is affected; this applies to both the noise in the vicinity of airports and to the sonic boom of future



commercial supersonic aircraft. An annex (No. 16) to the Convention on International Civil Aviation has recently been developed and published by ICAO. It contains international standards and recommended practices related to aircraft noise certification, noise measurement and noise abatement operating procedures.

The WORLD METEOROLOGICAL ORGANIZATION (WMO) - by virtue of its Convention, is responsible for facilitating world-wide co-operation in the establishment of a network of stations to conduct meteorological observations or other geophysical observations related to meteorology. It is responsible for promoting the establishment and maintenance of a system for rapid exchange of information between these stations. It is obvious that, with these responsibilities and with its observation systems already in operation, WMO has an important role to play in global monitoring of the human environment.

WMO also furthers the application of meteorology to appropriate human activities and in this context is charged with the environmental problems in which atmospheric phenomena directly or indirectly play a significant role.

By virtue of its responsibility to encourage research and training in meteorology, the organization is involved in various research projects of importance for studies of changes in the earth's global and local climate and is also working to improve training in the environmental aspects of meteorology.

The INTERGOVERNMENTAL MARITIME ENVIRONMENTAL COMMISSION (IEMC) - is responsible for the safety of ships and for preventing pollution of the land, sea or air, by oil from ships, vessels and other equipment operating in the marine environment. It is the depositary organization for the International Convention for the Prevention of Pollution of the Sea by Oil, the International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, and the International Convention on Civil Liability for Oil Pollution Damage. Additionally the Commission has continued to prepare internationally agreed recommendations to Governments on the safety of navigation, the prevention of marine pollution and matters of dealing with oil spills, including the carriage of oil and other hazardous materials on ships.

#### OTHER ORGANIZATIONS

The INTERNATIONAL ATOMIC ENERGY AGENCY (IAEA) - is directed by its Statute to establish or adopt standards of safety for protection of health and minimization of danger to life and property from the peaceful uses of atomic energy. In carrying out

this function the agency has programmes on the management of radioactive wastes, transport of radioactive materials and siting and design of nuclear facilities to assure that human health and the environment are not seriously impaired due to nuclear activities. The agency, in close co-operation with FAO, promotes the application of nuclear techniques in developing efficient use of fertilizers and water, investigating the fate of pesticides in food and the environment and in the development of sterile male techniques for pest control.

The GENERAL AGREEMENT ON TARIFFS AND TRADE (GATT) - is a multilateral treaty on trade embodying reciprocal rights and obligations as well as containing procedures for consultation and negotiation. Seventy-eight countries adhere to GATT representing over eighty per cent of world trade. Since effective pollution control measures will have economic consequences which will often affect trade, it is urgent to avoid situations in which the institution of national pollution control systems would interfere with the continued expansion of international trade. GATT's efforts will be directed to ensuring that measures to protect and enhance the environment are not used as instruments for protective trade policies.