

UNITED NATIONS CONFERENCE ON THE HUMAN ENVIRONMENT

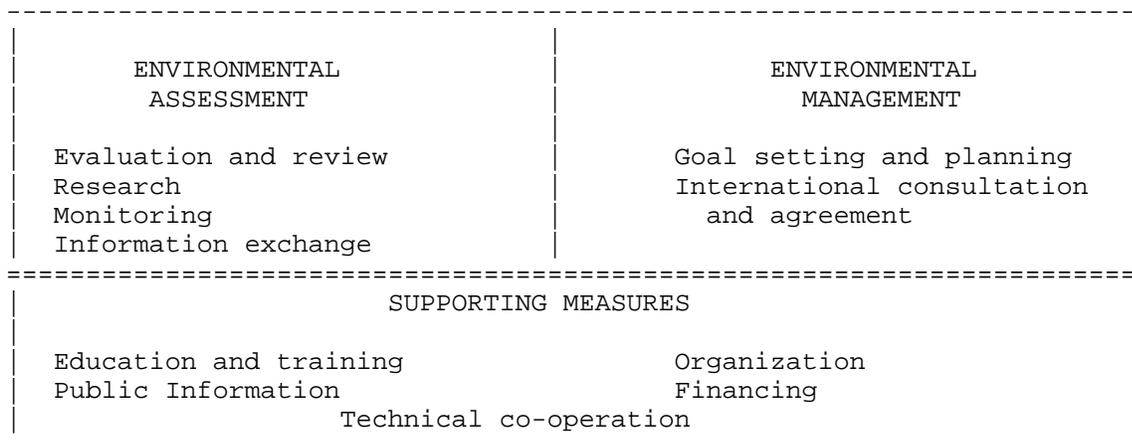
ACTION PLAN FOR THE HUMAN ENVIRONMENT (1972)

A. Framework for environmental action

The recommendations adopted by the Conference for the substantive items on the agenda of the Conference are set out in chapter II, section B, below. The recommendations have been grouped, in section C, in an Action Plan that makes it possible to identify international programmes and activities across the boundaries of all subject areas. The broad types of action that make up the Plan are:

- (a) The global environmental assessment programme (Earthwatch);
- (b) Environmental management activities;
- (c) International measures to support the national and international actions of assessment and management.

The framework of the Action Plan is illustrated in the following diagram.



B. Recommendations for action at the international level

The texts of the recommendations adopted by the United Nations Conference on the Human Environment (see chapter X) are given below.

PLANNING AND MANAGEMENT OF HUMAN SETTLEMENTS FOR ENVIRONMENTAL QUALITY

Recommendation 1

The planning, improvement and management of rural and urban settlements demand an approach, at all levels, which embraces all aspects of the human environment, both natural and man-made. Accordingly, it is recommended:

- (a) That all development assistance agencies, whether international, such as the United Nations Development Programme and the International Bank for Reconstruction and Development, regional or national, should in their development assistance activities also give high priority within available resources to requests from Governments for assistance in the planning of human settlements. notably in housing. transportation. water.

resources, the improvement of transitional urban settlements and the provision and maintenance of essential community services, in order to achieve as far as possible the social well-being of the receiving country as a whole;

(b) That these agencies also be prepared to assist the less industrialized countries in solving the environmental problems of development projects; to this end they should actively support the training and encourage the recruitment of requisite personnel, as far as possible within these countries themselves.

Recommendation 2

1. It is recommended that Governments should designate to the Secretary-General areas in which they have committed themselves (or are prepared to commit themselves) to a long-term programme of improvement and global promotion of the environment.

(a) In this connexion, countries are invited to share internationally all relevant information on the problems they encounter and the solutions they devise in developing these areas.

(b) Countries concerned will presumably appoint an appropriate body to plan such a programme, and to supervise its implementation, for areas which could vary in size from a city block to a national region; presumably, too, the programme will be designated to serve, among other purposes, as a vehicle for the preparation and launching of experimental and pilot projects.

(c) Countries which are willing to launch an improvement programme should be prepared to welcome international co-operation, seeking the advice or assistance of competent international bodies.

2. It is further recommended:

(a) That in order to ensure the success of the programme, Governments should urge the Secretary-General to undertake a process of planning and coordination whereby contact would be established with nations likely to participate in the programme; international teams of experts might be assembled for that purpose;

(b) That a Conference/Demonstration on Experimental Human Settlements should be held under the auspices of the United Nations in order to provide for coordination and the exchange of information and to demonstrate to world public opinion the potential of this approach by means of a display of experimental projects;

(c) That nations should take into consideration Canada's offer to organize such a Conference/Demonstration and to act as host to it.

Recommendation 3

Certain aspects of human settlements can have international implications, for example, the "export" of pollution from urban and industrial areas, and the effects of seaports on international hinterlands. Accordingly, it is recommended that the attention of Governments be drawn to the need to consult bilaterally or regionally whenever environmental conditions or development plans in one country could have repercussions in one or more neighbouring countries.

Recommendation 4

1. It is recommended that Governments and the Secretary-General. the

the following steps:

(a) Entrust the over-all responsibility for an agreed programme of environmental research at the international level to any central body that may be given the co-ordinating authority in the field of the environment, taking into account the co-ordination work already being provided on the regional level, especially by the Economic Commission for Europe;

(b) Identify, wherever possible, an existing agency within the United Nations system as the principal focal point for initiating and co-ordinating research in each principal area and, where there are competing claims, establish appropriate priorities;

(c) Designate the following as priority areas for research:

- (i) Theories, policies and methods for the comprehensive environmental development of urban and rural settlements;
- (ii) Methods of assessing quantitative housing needs and of formulating and implementing phased programmes designed to satisfy them (principal bodies responsible: Department of Economic and Social Affairs of the United Nations Secretariat, regional economic commissions and United Nations Economic and Social Office in Beirut);
- (iii) Environmental socio-economic indicators of the quality of human settlements, particularly in terms of desirable occupancy standards and residential densities, with a view to identifying their time trends;
- (iv) Socio-economic and demographic factors underlying migration and spatial distribution of population, including the problem of transitional settlements (principal bodies responsible: Department of Economic and Social Affairs of the United Nations Secretariat (Centre for Housing, Building and Planning), United Nations Educational, Scientific and Cultural Organization, World Health Organization, International Labour Organisation, Food and Agriculture Organization of the United Nations);
- (v) Designs, technologies, financial and administrative procedures for the efficient and expanded production of housing and related infra-structure, suitably adapted to local conditions;
- (vi) Water supply, sewerage and waste-disposal systems adapted to local conditions, particularly in semi-tropical, tropical, Arctic and sub-Arctic areas (principal body responsible: World Health Organization);
- (vii) Alternative methods of meeting rapidly increasing urban transportation needs (principal bodies responsible: Department of Economic and Social Affairs of the United Nations Secretariat (Resources and Transport Division and Centre for Housing, Building and Planning));
- (viii) Physical, mental and social effects of stresses created by living and working conditions in human settlements, particularly urban conglomerates, for example the accessibility of buildings to persons whose physical mobility is impaired (principal bodies responsible: International Labour Organisation, World Health Organization, United Nations Educational, Scientific and Cultural Organization. Department of Economic and Social Affairs

2. It is further recommended that Governments consider co-operative arrangements to undertake the necessary research whenever the above-mentioned problem areas have a specific regional impact. In such cases, provision should be made for the exchange of information and research findings with countries of other geographical regions sharing similar problems.

Recommendation 5

It is recommended:

(a) That Governments take steps to arrange for the exchange of visits by those who are conducting research in the public or private institutions of their countries;

(b) That Governments and the Secretary-General ensure the acceleration of the exchange of information concerning past and on-going research, experimentation and project implementation covering all aspects of human settlements, which is conducted by the United Nations system or by public or private entities, including academic institutions.

Recommendation 6

It is recommended that Governments and the Secretary-General give urgent attention to the training of those who are needed to promote integrated action on the planning, development and management of human settlements.

Recommendation 7

It is recommended:

(a) That Governments and the Secretary-General provide equal possibilities for everybody, both by training and by ensuring access to relevant means and information, to influence their own environment by themselves;

(b) That Governments and the Secretary-General ensure that the institutions concerned shall be strengthened and that special training activities shall be established, making use of existing projects of regional environmental development, for the benefit of the less industrialized countries, covering the following:

- (i) Intermediate and auxiliary personnel for national public services who, in turn, would be in a position to train others for similar tasks (principal bodies responsible: World Health Organization, Department of Economic and Social Affairs of the United Nations Secretariat (Centre for Housing, Building and Planning), United Nations Industrial Development Organization, Food and Agriculture Organization of the United Nations);
- (ii) Specialists in environmental planning and in rural development (principal bodies responsible: Department of Economic and Social Affairs of the United Nations Secretariat (Centre for Housing, Building and Planning), Food and Agriculture Organization of the United Nations);
- (iii) Community developers for self-help programmes for low-income groups (principal body responsible: Department of Economic and Social Affairs of the United Nations Secretariat (Centre for Housing, Building and Planning));
- (iv) Specialists in working environments (principal bodies

Economic and Social Affairs of the United Nations Secretariat (Centre for Housing, Building and Planning), World Health Organization);

- (v) Planners and organizers of mass transport systems and services with special reference to environmental development (principal body responsible: Department of Economic and Social Affairs of the United Nations Secretariat (Resources and Transport Division)).

Recommendation 8

It is recommended that regional institutions take stock of the requirements of their regions for various environmental skills and of the facilities available to meet those requirements in order to facilitate the provision of appropriate training within regions.

Recommendation 9

It is recommended that the World Health Organization increase its efforts to support Governments in planning for improving water supply and sewerage services through its community water supply programme, taking account, as far as possible, of the framework of total environment programmes for communities.

Recommendation 10

It is recommended that development assistance agencies should give higher priority, where justified in the light of the social benefits, to supporting Governments in financing and setting up services for water supply, disposal of water from all sources, and liquid-waste and solid-waste disposal and treatment as part of the objectives of the Second United Nations Development Decade.

Recommendation 11

It is recommended that the Secretary-General ensure that, during the preparations for the 1974 World Population Conference, special attention shall be given to population concerns as they relate to the environment and, more particularly, to the environment of human settlements.

Recommendation 12

1. It is recommended that the World Health Organization and other United Nations agencies should provide increased assistance to Governments which so request in the field of family planning programmes without delay.
2. It is further recommended that the World Health Organization should promote and intensify research endeavour in the field of human reproduction, so that the serious consequences of population explosion on human environment can be prevented.

Recommendation 13

It is recommended that the United Nations agencies should focus special attention on the provision of assistance for combating the menace of human malnutrition rampant in many parts of the world. Such assistance will cover training, research and development endeavours on such matters as causes of malnutrition, mass production of high-protein and multipurpose foods, qualitative and quantitative characteristics of routine foods, and the launching of applied nutrition programmes.

Recommendation 14

It is recommended that the intergovernmental body for environmental affairs to be established within the United Nations should ensure that the required surveys shall be made concerning the need and the technical possibilities for developing internationally agreed standards for measuring and limiting noise emissions and that, if it is deemed advisable, such standards shall be applied in the production of means of transportation and certain kinds of working equipment, without a large price increase or reduction in the aid given to developing countries.

Recommendation 15

It is recommended that the Secretary-General, in consultation with the appropriate United Nations bodies, formulate programmes on a world-wide basis to assist countries to meet effectively the requirements of growth of human settlements and to improve the quality of life in existing settlements, in particular, in squatter areas.

Recommendation 16

The programmes referred to in recommendation 15 should include the establishment of subregional centres to undertake, inter alia, the following functions:

- (a) Training;
- (b) Research;
- (c) Exchange of information;
- (d) Financial, technical and material assistance.

Recommendation 17

It is recommended that Governments and the Secretary-General take immediate steps towards the establishment of an international fund or a financial institution whose primary operative objectives will be to assist in strengthening national programmes relating to human settlements through the provision of seed capital and the extension of the necessary technical assistance to permit an effective mobilization of domestic resources for housing and the environmental improvement of human settlements.

Recommendation 18

It is recommended that the following recommendations be referred to the Disaster Relief Co-ordinator for his consideration, more particularly in the context of the preparation of a report to the Economic and Social Council:

1. It is recommended that the Secretary-General, with the assistance of the Disaster Relief Co-ordinator and in consultation with the appropriate bodies of the United Nations system and non-governmental bodies:

- (a) Assess the over-all requirements for the timely and widespread distribution of warnings which the observational and communications networks must satisfy;
- (b) Assess the needs for additional observational networks and other observational systems for natural disaster detection and warnings for tropical cyclones (typhoons, hurricanes, cyclones etc.) and their associated storm surges, torrential rains, floods, tsunamis, earthquakes etc.;
- (c) Evaluate the existing systems for the international communication of disaster warnings, in order to determine the extent to which these require improvement;

(d) On the basis of these assessments, promote, through existing national and international organizations, the establishment of an effective world-wide natural disaster warning system, with special emphasis on tropical cyclones and earthquakes, taking full advantage on existing systems and plans, such as the World Weather Watch, the World Meteorological Organization's Tropical Cyclone Project, the International Tsunami Warning System, the World-Wide Standardized Seismic Network, and the Desert Locust Control Organization;

(e) Invite the World Meteorological Organization to promote research on the periodicity and intensity of the occurrence of droughts, with a view to developing improved forecasting techniques.

2. It is further recommended that the United Nations Development Programme and other appropriate international assistance agencies give priority in responding to requests from Governments for the establishment and improvement of natural disaster research programmes and warning systems.

3. It is recommended that the Secretary-General ensure that the United Nations system shall provide to Governments a comprehensive programme of advice and support in disaster prevention. More specifically, the question of disaster prevention should be seen as an integral part of the country programme as submitted to, and reviewed by, the United Nations Development Programme.

4. It is recommended that the Secretary-General take the necessary steps to ensure that the United Nations system shall assist countries with their planning for pre-disaster preparedness. To this end:

(a) An international programme of technical cooperation should be developed, designed to strengthen the capabilities of Governments in the field of pre-disaster planning, drawing upon the services of the resident representatives of the United Nations Development Programme;

(b) The United Nations Disaster Relief Office, with the assistance of relevant agencies of the United Nations, should organize plans and programmes for international co-operation in cases of natural disasters;

(c) As appropriate, non-governmental international agencies and individual Governments should be invited to participate in the preparation of such plans and programmes.

ENVIRONMENTAL ASPECTS OF NATURAL RESOURCES MANAGEMENT

Recommendation 19

It is recommended that the Food and Agriculture Organization of the United Nations, in co-operation with other relevant international organizations, should include in its programme questions relating to rural planning in relation to environmental policy, since environmental policy is formulated in close association with physical planning and with medium-term and long-term economic and social planning. Even in highly industrialized countries, rural areas still cover more than 90 per cent of the territory and consequently should not be regarded as a residual sector and a mere reserve of land and manpower. The programme should therefore include, in particular:

(a) Arrangements for exchanges of such data as are available;

(b) Assistance in training and informing specialists and the public, especially young people, from primary school age onwards;

(c) The formulation of principles for the development of rural areas, which should be understood to comprise not only agricultural areas as such but also small- and medium-sized settlements and their hinterland.

Recommendation 20

It is recommended that the Food and Agriculture Organization of the United Nations, in co-operation with other international agencies concerned, strengthen the necessary machinery for the international acquisition of knowledge and transfer of experience on soil capabilities, degradation, conservation and restoration, and to this end:

(a) Co-operative information exchange should be facilitated among those nations sharing similar soils, climate and agricultural conditions;

- (i) The Soil Map of the World being prepared by the Food and Agriculture Organization of the United Nations, the United Nations Educational, Scientific and Cultural Organization and the International Society of Soil Science should serve to indicate those areas among which transfer of knowledge on soil potentialities and soil degradation and restoration would be most valuable;
- (ii) This map should be supplemented through the establishment of international criteria and methods for the assessment of soil capabilities and degradations and the collection of additional data based upon these methods and criteria. This should permit the preparation of a World Map of Soil Degradation Hazards as a framework for information exchange in this area;
- (iii) Information exchange on soil use should account for similarities in vegetation and other environmental conditions as well as those of soil, climate, and agricultural practices;
- (iv) The FAO Soil Data-Processing System should be developed beyond soil productivity considerations, to include the above-mentioned data and relevant environmental parameters, and to facilitate information exchange between national soil institutions, and eventually soil-monitoring stations;

(b) International co-operative research on soil capabilities and conservation should be strengthened and broadened to include:

- (i) Basic research on soil degradation processes in selected ecosystems under the auspices of the Man and the Biosphere Programme. This research should be directed as a matter of priority to those arid areas that are most threatened;
- (ii) Applied research on soil and water conservation practices under specific land-use conditions with the assistance of the Food and Agriculture Organization of the United Nations and, where appropriate, other agencies (United Nations Educational, Scientific and Cultural Organization, World Health Organization and International Atomic Energy Agency);
- (iii) Strengthening of existing research centres and, where necessary, establishment of new centres with the object of increasing the production from dry farming areas without any undue impairment of the environment;
- (iv) Research on the use of suitable soils for waste disposal and recycling; the United Nations Industrial Development Organization. the Food and Agriculture Organization of the

into joint consultations regarding the feasibility of an international programme in this area;

(c) These efforts for international co-operation in research and information exchange on soils should be closely associated with those of the UNDP/WMO/FAO/UNESCO programme of agricultural biometeorology, in order to facilitate integration of data and practical findings and to support the national programmes of conservation of soil resources recommended above;

(d) It should moreover be noted that in addition to the various physical and climatic phenomena which contribute to soil degradation, economic and social factors contribute to it as well; among the economic contributory factors, one which should be particularly emphasized is the payment of inadequate prices for the agricultural produce of developing countries, which prevents farmers in those countries from setting aside sufficient savings for necessary investments in soil regeneration and conservation. Consequently, urgent remedial action should be taken by the organizations concerned to give new value and stability to the prices of raw materials of the developing countries.

Recommendation 21

It is recommended that Governments, the Food and Agriculture Organization of the United Nations and the World Health Organization, in co-operation with the United Nations Educational, Scientific and Cultural Organization and the International Atomic Energy Agency, strengthen and co-ordinate international programmes for integrated pest control and reduction of the harmful effects of agro-chemicals:

(a) Existing international activities for the exchange of information and co-operative research and technical assistance to developing countries should be strengthened to support the national programmes described above, with particular reference to:

- (i) Basic research on ecological effects of pesticides and fertilizers (MAB);
- (ii) Use of radio-isotope and radiation techniques in studying the fate of pesticides in the environment (joint IAEA/FAO Division);
- (iii) Evaluation of the possibility of using pesticides of biological origin in substitution for certain chemical insecticides which cause serious disturbances in the environment;
- (iv) Dose and timing of fertilizers' application and their effects on soil productivity and the environment (Food and Agriculture Organization of the United Nations);
- (v) Management practices and techniques for integrated pest control, including biological control (Food and Agriculture Organization of the United Nations and World Health Organization);
- (vi) Establishment and/or strengthening of national and regional centres for integrated pest control, particularly in developing countries (Food and Agriculture Organization of the United Nations and World Health Organization);

(b) Existing expert committees of the Food and Agriculture Organization of the United Nations and the World Health Organization on various aspects of pest control should be convened periodically:

- (i) To assess recent advances in the relevant fields of research

- (ii) To review and further develop international guidelines and standards with special reference to national and ecological conditions in relation to the use of chlorinated hydrocarbons, pesticides containing heavy metals, and the use and experimentation of biological controls;

(c) In addition, ad hoc panels of experts should be convened, by the Food and Agriculture Organization of the United Nations, the World Health Organization and, where appropriate, the International Atomic Energy Agency, in order to study specific problems, and facilitate the work of the above-mentioned committees.

Recommendation 22

It is recommended that the Food and Agriculture Organization of the United Nations, under its "War on Waste" programme, place increased emphasis on control and recycling of wastes in agriculture:

(a) This programme should assist the national activities relating to:

- (i) Control and recycling of crop residues and animal wastes;
- (ii) Control and recycling of agro-industrial waste;
- (iii) Use of municipal wastes as fertilizers;

(b) The programme should also include measures to avoid wasteful use of natural resources through the destruction of unmarketable agricultural products or their use for improper purposes.

Recommendation 23

It is recommended that Governments, in co-operation with the Food and Agriculture Organization of the United Nations and other agencies and bodies, establish and strengthen regional and international machinery for the rapid development and management of domesticated livestock of economic importance and their related environmental aspects as part of the ecosystems, particularly in areas of low annual productivity, and thus encourage the establishment of regional livestock research facilities, councils and commissions, as appropriate.

Recommendation 24

It is recommended that the Secretary-General take steps to ensure that the United Nations bodies concerned cooperate to meet the needs for new knowledge on the environmental aspects of forests and forest management:

(a) Where appropriate, research should be promoted, assisted, co-ordinated, or undertaken by the Man and the Biosphere Programme (UNESCO), in close cooperation with the Food and Agriculture Organization of the United Nations and the World Meteorological Organization, and with the collaboration of the International Council of Scientific Unions and the International Union of Forestry Research Organizations;

(b) Research on comparative legislation, land tenure, institutions, tropical forest management, the effects of the international trade in forest products on national forest environments, and public administration, should be sponsored or co-ordinated by FAO, in co-operation with other appropriate international and regional organizations;

(c) The Food and Agriculture Organization of the United Nations, in conjunction with the United Nations Educational, Scientific and Cultural Organization and other appropriate international organizations, should

with reference to, and in conjunction with, the conservation of soil, watersheds, the protection of tourist sites and wildlife, and recreation, within the over-all framework of the interests of the biosphere.

Recommendation 25

It is recommended that the Secretary-General take steps to ensure that continuing surveillance, with the cooperation of Member States, of the world's forest cover shall be provided for through the programmes of the Food and Agriculture Organization of the United Nations and the United Nations Educational, Scientific and Cultural Organization.

(a) Such a World Forest Appraisal Programme would provide basic data, including data on the balance between the world's forest biomass and the prevailing environment, and changes in the forest biomass, considered to have a significant impact on the environment;

(b) The information could be collected from existing inventories and on-going activities and through remote-sensing techniques;

(c) The forest protection programme described above might be incorporated within this effort, through the use of advanced technology, such as satellites which use different types of imagery and which could constantly survey all forests.

Recommendation 26

It is recommended that the Food and Agriculture Organization of the United Nations co-ordinate an international programme for research and exchange of information on forest fires, pests and diseases:

(a) The programme should include data collection and dissemination, identification of potentially susceptible areas and of means of suppression; exchange of information on technologies, equipment and techniques; research, including integrated pest control and the influence of fires on forest ecosystems, to be undertaken by the International Union of Forestry Research Organizations; establishment of a forecasting system in cooperation with the World Meteorological Organization; organization of seminars and study tours; the facilitation of bilateral agreements for forest protection between neighbouring countries, and the development of effective international quarantines;

(b) Forest fires, pests and diseases will frequently each require separate individual treatment.

Recommendation 27

It is recommended that the Food and Agriculture Organization of the United Nations facilitate the transfer of information on forests and forest management:

(a) The amount of knowledge that can usefully be exchanged is limited by the differences of climatic zones and forest types;

(b) The exchange of information should, however, be encouraged among nations sharing similarities; considerable knowledge is already exchanged among the industrialized nations of the temperate zone;

(c) Opportunities exist, despite differences, for the useful transfer of information to developing countries on the environmental aspects of such items as: (i) the harvesting and industrialization of some tropical hardwoods; (ii) pine cultures; (iii) the principles of forest management systems and management science; (iv) soils and soil interpretations

management; (vi) forest industries pollution controls, including both technical and economic data; (vii) methods for the evaluation of forest resources through sampling techniques, remote sensing, and data-processing; (viii) control of destructive fires and pest outbreaks; and (ix) co-ordination in the area of the definition and standardization of criteria and methods for the economic appraisal of forest environmental influences and for the comparison of alternative uses.

Recommendation 28

It is recommended that the Food and Agriculture Organization of the United Nations strengthen its efforts in support of forestry projects and research projects, possibly for production, in finding species which are adaptable even in areas where this is exceptionally difficult because of ecological conditions.

Recommendation 29

It is recommended that the Secretary-General ensure that the effect of pollutants upon wildlife shall be considered, where appropriate, within environmental monitoring systems. Particular attention should be paid to those species of wildlife that may serve as indicators for future wide environmental disturbances, and an ultimate impact upon human populations.

Recommendation 30

It is recommended that the Secretary-General ensure the establishment of a programme to expand present data-gathering processes so as to assess the total economic value of wildlife resources.

(a) Such data would facilitate the task of monitoring the current situation of animals endangered by their trade value, and demonstrate to questioning nations the value of their resources;

(b) Such a programme should elaborate upon current efforts of the Food and Agriculture Organization of the United Nations and might well produce a yearbook of wildlife g statistics.

Recommendation 31

It is recommended that the Secretary-General ensure that the appropriate United Nations agencies co-operate with the Governments of the developing countries to develop special short-term training courses on wildlife a management:

(a) Priority should be given to conversion courses for personnel trained in related disciplines such as forestry or animal husbandry;

(b) Special attention should be given to the establishment and support of regional training schools for technicians.

Recommendation 32

It is recommended that Governments give attention to the need to enact international conventions and treaties to protect species inhabiting international waters or those which migrate from one country to another:

(a) A broadly-based convention should be considered which would provide a framework by which criteria for game regulations could be agreed upon and the over-exploitation of resources curtailed by signatory countries;

(b) A working group should be set up as soon as possible by the

need for, and possible scope of, such conventions or treaties.

Recommendation 33

It is recommended that Governments agree to strengthen the International Whaling Commission, to increase international research efforts, and as a matter of urgency to call for an international agreement, under the auspices of the International Whaling Commission and involving all Governments concerned, for a 10-year moratorium on commercial whaling.

Recommendation 34

It is recommended that Governments and the Secretary-General give special attention to training requirements in the management of parks and protected areas:

(a) High-level training should be provided and supported:

- (i) In addition to integrating aspects of national parks planning and management into courses on forestry and other subjects, special degrees should be offered in park management; the traditional forestry, soil and geology background of the park manager must be broadened into an integrated approach;
- (ii) Graduate courses in natural resources administration should be made available in at least one major university in every continent;

(b) Schools offering courses in national park management at a medium-grade level should be assisted by the establishment or expansion of facilities, particularly in Latin America and Asia.

Recommendation 35

It is recommended that the Secretary-General take steps to ensure that an appropriate mechanism shall exist for the exchange of information on national parks legislation and planning and management techniques developed in some countries which could serve as guidelines to be made available to any interested country.

Recommendation 36

It is recommended that the Secretary-General take steps to ensure that the appropriate United Nations agencies shall assist the developing countries to plan for the inflow of visitors into their protected areas in such a way as to reconcile revenue and environmental considerations within the context of the recommendations approved by the Conference. The other international organizations concerned may likewise make their contribution.

Recommendation 37

It is recommended that Governments take steps to coordinate, and co-operate in the management of, neighbouring or contiguous protected areas. Agreement should be reached on such aspects as mutual legislation, patrolling systems, exchange of information, research projects, collaboration on measures of burning, plant and animal control, fishery regulations, censuses, tourist circuits and frontier formalities.

Recommendation 38

It is recommended that Governments take steps to set aside areas representing ecosystems of international significance for protection

Recommendation 39

It is recommended that Governments, in co-operation with the Secretary-General of the United Nations and the Food and Agriculture Organization of the United Nations where indicated, agree to an international programme to preserve the world's genetic resources:

(a) Active participation at the national and international levels is involved. It must be recognized, however, that while survey, collection, and dissemination of these genetic resources are best carried out on a regional or international basis, their actual evaluation and utilization are matters for specific institutions and individual workers; international participation in the latter should concern exchange of techniques and findings;

(b) An international network is required with appropriate machinery to facilitate the interchange of information and genetic material among countries;

(c) Both static (seed banks, culture collection etc.) and dynamic (conservation of populations in evolving natural environments) ways are needed.

(d) Action is necessary in six interrelated areas:

- (i) Survey of genetic resources;
- (ii) Inventory of collections;
- (iii) Exploration and collecting;
- (iv) Documentation;
- (v) Evaluation and utilization;
- (vi) Conservation, which represents the crucial element to which all other programmes relate;

(e) Although the international programme relates to all types of genetic resources, the action required for each resource will vary according to existing needs and activities.

Recommendation 40

It is recommended that Governments, in co-operation with the Secretary-General of the United Nations and the Food and Agriculture Organization of the United Nations where indicated, make inventories of the genetic resources most endangered by depletion or extinction:

(a) All species threatened by man's development should be included in such inventories;

(b) Special attention should be given to locating in this field those areas of natural genetic diversity that are disappearing;

(c) These inventories should be reviewed periodically and brought up to date by appropriate monitoring;

(d) The survey conducted by FAO in collaboration with the International Biological Programme is designed to provide information on endangered crop genetic resources by 1972, but will require extension and follow-up.

Recommendation 41

It is recommended that Governments, in co-operation with the Secretary-General of the United Nations and the Food and Agriculture Organization of the United Nations where indicated, compile or extend, as

(a) Such registers should identify which breeding and experiment stations, research institutions and Universities maintain which collections;

(b) Major gaps in existing collections should be identified where material is in danger of being lost;

(c) These inventories of collections should be transformed for computer handling and made available to all potential users;

(d) In respect of plants:

(i) It would be expected that the "advanced varieties" would be well represented, but that primitive materials would be found to be scarce and require subsequent action;

(ii) The action already initiated by FAO, several national institutions, and international foundations should be supported and expanded.

(e) In respect of micro-organisms, it is recommended that each nation develop comprehensive inventories of culture collections:

(i) A cataloguing of the large and small collections and the value of their holdings is required, rather than a listing of individual strains;

(ii) Many very small but unique collections, sometimes the works of a single specialist, are lost;

(iii) Governments should make sure that valuable gene pools held by individuals or small institutes are also held in national or regional collections.

(f) In respect of animal germ plasm, it is recommended that FAO establish a continuing mechanism to assess and maintain catalogues of the characteristics of domestic animal breeds, types and varieties in all nations of the world. Likewise, FAO should establish such lists where required.

(g) In respect of aquatic organisms, it is recommended that FAO compile a catalogue of genetic resources of cultivated species and promote intensive studies on the methods of preservation and storage of genetic material.

Recommendation 42

It is recommended that Governments, in co-operation with the Secretary-General of the United Nations and the Food and Agriculture Organization of the United Nations where indicated, initiate immediately, in cooperation with all interested parties, programmes of exploration and collection wherever endangered species have been identified which are not included in existing collections:

(a) An emergency programme, with the co-operation of the Man and the Biosphere Programme, of plant exploration and collection should be launched on the basis of the FAO List of Emergency Situations for a five-year period;

(b) With regard to forestry species, in addition to the efforts of the Danish/FAO Forest Tree Seed Centre, the International Union of Forestry Research Organizations. and the FAO Panel of Experts on Forest Gene

Africa, the East Indies and India.

Recommendation 43

It is recommended that Governments, in co-operation with the Secretary-General of the United Nations and the Food and Agriculture Organization of the United Nations where indicated:

1. Recognize that conservation is a most crucial part of any genetic resources programme. Moreover, major types of genetic resources must be treated separately because:

- (a) They are each subject to different programmes and priorities;
- (b) They serve different uses and purposes;
- (c) They require different expertise, techniques and facilities;

2. In respect of plant germ plasms (agriculture and forestry), organize and equip national or regional genetic resources conservation centres:

(a) Such centres as the National Seed Storage Laboratory in the United States of America and the Vavilov Institute of Plant Industry in the Union of Soviet Socialist Republics already provide good examples;

(b) Working collections should be established separately from the basic collections; these will usually be located at plant and breeding stations and will be widely distributed;

(c) Three classes of genetic crop resources must be conserved:

(i) High-producing varieties in current use and those they have superseded;

(ii) Primitive varieties of traditional pre-scientific agriculture (recognized as genetic treasures for plant improvement);

(iii) Mutations induced by radiation or chemical means;

(d) Species contributing to environmental improvement, such as sedge used to stabilize sand-dunes, should be conserved;

(e) Wild or weed relatives of crop species and those wild species of actual or potential use in rangelands, industry, new crops etc. should be included;

3. In respect of plant germ plasms (agriculture and forestry), maintain gene pools of wild plant species within their natural communities. Therefore:

(a) It is essential that primeval forests, bushlands and grasslands which contain important forest genetic resources be identified and protected by appropriate technical and legal means; systems of reserves exist in most countries, but a strengthening of international understanding on methods of protection and on availability of material may be desired;

(b) Conservation of species of medical, aesthetic or research value should be assured;

(c) The network of biological reserves proposed by UNESCO (Man and the Biosphere Programme) should be designed, where feasible, to protect these

(d) Where protection in nature becomes uncertain or impossible, then means such as seed storage or living collections in provenance trials or botanic gardens must be adopted;

4. Fully implement the programmes initiated by the FAO Panels of Experts on forest gene resources in 1968 and on plant exploration and introduction in 1970;

5. In respect of animal germ plasms, consider the desirability and feasibility of international action to preserve breeds or varieties of animals:

(a) Because such an endeavour would constitute a major effort beyond the scope of any one nation, FAO would be the logical executor of such a project. Close co-operation with Governments would be necessary, however. The International Union for Conservation of Nature and Natural Resources might, logically, be given responsibility for wild species, in co-operation with FAO, the Man and the Biosphere Programme (UNESCO), and Governments;

(b) Any such effort should also include research on methods of preserving, storing, and transporting germ plasm;

(c) Specific methods for the maintenance of gene pools of aquatic species should be developed;

(d) The recommendations of the FAO Working Party Meeting on Genetic Selection and Conservation of Genetic Resources of Fish, held in 1971, should be implemented;

6. In respect of micro-organism germ plasms, cooperatively establish and properly fund a few large regional collections:

(a) Full use should be made of major collections now in existence;

(b) In order to provide geographical distribution and access to the developing nations, regional centres should be established in Africa, Asia and Latin America and the existing centres in the developed world should be strengthened;

7. Establish conservation centres of insect germ plasm. The very difficult and long process of selecting or breeding insects conducive to biological control programmes can begin only in this manner.

Recommendation 44

It is recommended that Governments, in co-operation with the Secretary-General of the United Nations and the Food and Agriculture Organization of the United Nations where indicated, recognize that evaluation and utilization are critical corollaries to the conservation of genetic resources. In respect of crop-breeding programmes, it is recommended that Governments give special emphasis to:

(a) The quality of varieties and breeds and the potential for increased yields;

(b) The ecological conditions to which the species are adapted;

(c) The resistance to diseases, pests and other adverse factors;

(d) The need for a multiplicity of efforts so as to increase the chances of success.

Recommendation 45

It is recommended that Governments, in co-operation with the Secretary-General of the United Nations and the Food and Agriculture Organization of the United Nations where indicated:

1. Collaborate to establish a global network of national and regional institutes relating to genetic resource conservation based on agreements on the availability of material and information, on methods, on technical standards, and on the need for technical and financial assistance wherever required:

(a) Facilities should be designed to assure the use of the materials and information: (i) by breeders, to develop varieties and breeds both giving higher yields and having higher resistance to local pests and diseases and other adverse factors; and (ii) by users providing facilities and advice for the safest and most profitable utilization of varieties and breeds most adapted to local conditions;

(b) Such co-operation would apply to all genetic resource conservation centres and to all types mentioned in the foregoing recommendations;

(c) Standardized storage and retrieval facilities for the exchange of information and genetic material should be developed:

(i) Information should be made generally available and its exchange facilitated through agreement on methods and technical standards;

(ii) International standards and regulations for the shipment of materials should be agreed upon;

(iii) Basic collections and data banks should be replicated in at least two distinct sites, and should remain a national responsibility;

(iv) A standardized and computerized system of documentation is required;

(d) Technical and financial assistance should be provided where required; areas of genetic diversity are most frequently located in those countries most poorly equipped to institute the necessary programmes;

2. Recognize that the need for liaison among the parties participating in the global system of genetic resources conservation requires certain institutional innovations. To this end:

(a) It is recommended that the appropriate United Nations agency establish an international liaison unit for plant genetic resources in order:

(i) To improve liaison between governmental and non-governmental efforts;

(ii) To assist in the liaison and co-operation between national and regional centres, with special emphasis on international agreements on methodology and standards of conservation of genetic material, standardization and co-ordination of computerized record systems, and the exchange of information and material between such centres;

(iii) To assist in implementing training courses in exploration, conservation and breeding methods and techniques;

- (iv) To act as a central repository for copies of computerized information on gene pools (discs and tapes);
 - (v) To provide the secretariat for periodic meetings of international panels and seminars on the subject; a conference on germ plasm conservation might be convened to follow up the successful conference of 1967;
 - (vi) To plan and co-ordinate the five-year emergency programme on the conservation of endangered species;
 - (vii) To assist Governments further, wherever required, in implementing their national programmes;
 - (viii) To promote the evaluation and utilization of genetic resources at the national and international levels;
- (b) It is recommended that the appropriate United Nations agency initiate the required programme on micro-organism germ plasm:
- (i) Periodic international conferences involving those concerned with the maintenance of and research on gene pools of micro-organisms should be supported;
 - (ii) Such a programme might interact with the proposed regional culture centres by assuring that each centre places high priority on the training of scientists and technicians from the developing nations; acting as a necessary liaison; and lending financial assistance to those countries established outside the developed countries;
 - (iii) The international exchange of pure collections of micro-organisms between the major collections of the world has operated for many years and requires little re-enforcement;
 - (iv) Study should be conducted particularly on waste disposal and recycling, controlling diseases and pests, and food technology and nutrition;

(c) It is recommended that the Food and Agriculture Organization of the United Nations institute a programme in respect of animal germ plasm to assess and maintain catalogues of the economic characteristics of domestic animal breeds and types, and of wild species and to establish gene pools of potentially useful types;

(d) It is recommended that the Man and the Biosphere project on the conservation of natural areas and the genetic material contained therein should be adequately supported.

Recommendation 46

It is recommended that Governments, and the Secretary-General in co-operation with the Food and Agriculture Organization of the United Nations and other United Nations organizations concerned, as well as development assistance agencies, take steps to support recent guidelines, recommendations and programmes of the various international fishing organizations. A large part of the needed international action has been identified with action programmes initiated by FAO and its Intergovernmental Committee on Fisheries and approximately 24 other bilateral and multilateral international commissions, councils and committees. In particular these organizations are planning and undertaking:

Expanded Programme of Oceanic Research), GIPME (Global Investigation of Pollution in the Marine Environment) and IBP (International Biological Programme);

(b) Exchange of data, supplementing and expanding the services maintained by FAO and bodies within its framework in compiling, disseminating and co-ordinating information on living aquatic resources and their environment and fisheries activities;

(c) Evaluation and monitoring of world fishery resources, environmental conditions, stock assessment, including statistics on catch and effort, and the economics of fisheries;

(d) Assistance to Governments in interpreting the implications of such assessments, identifying alternative management measures, and formulating required actions;

(e) Special programmes and recommendations for management of stocks of fish and other aquatic animals proposed by the existing international fishery bodies. Damage to fish stocks has often occurred because regulatory action is taken too slowly. In the past, the need for management action to be nearly unanimous has reduced action to the minimum acceptable level.

Recommendation 47

It is recommended that Governments, and the Secretary-General of the United Nations in co-operation with the Food and Agriculture Organization of the United Nations and other United Nations organizations concerned, as well as development assistance agencies, take steps to ensure close participation of fishery agencies and interests in the preparations for the United Nations Conference on the Law of the Sea. In order to safeguard the marine environment and its resources through the development of effective and workable principles and laws, the information and insight of international and regional fishery bodies, as well as the national fishery agencies are essential.

Recommendation 48

It is recommended that Governments, and the Secretary-General in co-operation with the Food and Agriculture Organization of the United Nations and other United Nations organizations concerned, as well as development assistance agencies, take steps to ensure international co-operation in the research, control and regulation of the side effects of national activities in resource utilization where these affect the aquatic resources of other nations:

(a) Estuaries, intertidal marshes, and other near-shore and in-shore environments play a crucial role in the maintenance of several marine fish stocks. Similar problems exist in those fresh-water fisheries that occur in shared waters;

(b) Discharge of toxic chemicals, heavy metals, and other wastes may affect even high-seas resources;

(c) Certain exotic species, notably the carp, lamprey and alewife, have invaded international waters with deleterious effects as a result of unregulated unilateral action.

Recommendation 49

It is recommended that Governments, and the Secretary-General of the United Nations in co-operation with the Food and Agriculture Organization

as well as development assistance agencies, take steps to develop further and strengthen facilities for collecting, analysing and disseminating data on living aquatic resources and the environment in which they live:

(a) Data already exist concerning the total harvest from the oceans and from certain regions in respect of individual fish stocks, their quantity, and the fishing efforts expended on them, and in respect of their population structure, distribution and changes. This coverage needs to be improved and extended;

(b) It is clear that a much greater range of biological parameters must be monitored and analysed in order to provide an adequate basis for evaluating the interaction of stocks and managing the combined resources of many stocks. There is no institutional constraint on this expansion but a substantial increase in funding is needed by FAO and other international organizations concerned to meet this expanding need for data;

(c) Full utilization of present and expanded data facilities is dependent on the co-operation of Governments in developing local and regional data networks, making existing data available to FAO and to the international bodies, and formalizing the links between national and international agencies responsible for monitoring and evaluating fishery resources.

Recommendation 50

It is recommended that Governments, and the Secretary-General of the United Nations in co-operation with the Food and Agriculture Organization of the United Nations and other United Nations organizations concerned, as well as development assistance agencies, take steps to ensure full co-operation among Governments by strengthening the existing international and regional machinery for development and management of fisheries and their related environmental aspects and, in those regions where these do not exist, to encourage the establishment of fishery councils and commissions as appropriate.

(a) The operational efficiency of these bodies will, depend largely on the ability of the participating countries to carry out their share of the activities and programmes;

(b) Technical support and servicing from the specialized agencies, in particular from FAO, is also required;

(c) The assistance of bilateral and international funding agencies will be needed to ensure the full participation of the developing countries in these activities.

Recommendation 51

It is recommended that Governments concerned consider the creation of river-basin commissions or other appropriate machinery for co-operation between interested States for water resources common to more than one jurisdiction.

(a) In accordance with the Charter of the United Nations and the principles of international law, full consideration must be given to the right of permanent sovereignty of each country concerned to develop its own resources;

(b) The following principles should be considered by the States concerned when appropriate:

contemplated that may have a significant environmental effect on another country, the other country should be notified well in advance of the activity envisaged;

- (ii) The basic objective of all water resource use and development activities from the environmental point of view is to ensure the best use of water and to avoid its pollution in each country;
- (iii) The net benefits of hydrologic regions common to more than one national jurisdiction are to be shared equitably by the nations affected;

(c) Such arrangements, when deemed appropriate by the States concerned, will permit undertaking on a regional basis:

- (i) Collection, analysis, and exchanges of hydrologic data through some international mechanism agreed upon by the States concerned;
- (ii) Joint data-collection programmes to serve planning needs;
- (iii) Assessment of environmental effects of existing water uses;
- (iv) Joint study of the causes and symptoms of problems related to water resources, taking into account the technical, economic, and social considerations of water quality control;
- (v) Rational use, including a programme of quality control, of the water resource as an environmental asset;
- (vi) Provision for the judicial and administrative protection of water rights and claims;
- (vii) Prevention and settlement of disputes with reference to the management and conservation of water resources;
- (viii) Financial and technical co-operation of a shared resource;

(d) Regional conferences should be organized to promote the above considerations.

Recommendation 52

It is recommended that the Secretary-General take steps to ensure that appropriate United Nations bodies support government action with regard to water resources where required:

1. Reference is made to the Food and Agriculture Organization of the United Nations, the World Health Organization, the World Meteorological Organization, the Department of Economic and Social Affairs of the United Nations Secretariat (Resources and Transport Division), the United Nations Educational, Scientific and Cultural Organization/International Hydrological Decade, the regional economic commissions and the United Nations Economic and Social Office in Beirut. For example:

(a) The Food and Agriculture Organization of the United Nations has established a Commission on Land and Water Use for the Middle East which promotes regional co-operation in research, training and information, inter alia on water management problems;

(b) The World Health Organization has available the International Reference Centre for Waste Disposal located at Dubendorf, Switzerland, and International Reference Centre on Community Water Supply in the

(c) The World Meteorological Organization has a Commission on Hydrology which provides guidance on data collection and on the establishment of hydrological networks;

(d) The Resources and Transport Division of the Department of Economic and Social Affairs, United Nations Secretariat, has the United Nations Water Resources Development Centre;

(e) The United Nations Educational, Scientific and Cultural Organization is sponsoring the International Hydrological Decade programme of co-ordinated research on the quality and quantity of world water resources.

2. Similar specialized centres should be established at the regional level in developing countries for training research and information exchange on:

(a) Inland water pollution and waste disposal in cooperation with the World Health Organization, the Food and Agriculture Organization of the United Nations, the United Nations regional economic commissions and the United Nations Economic and Social Office in Beirut;

(b) Water management for rain-fed and irrigated agriculture, by the Food and Agriculture Organization of the United Nations in co-operation with the regional economic commissions and the United Nations Economic and Social Office in Beirut,

(c) Integrated water resources planning and management in co-operation with the Department of Economic and Social Affairs of the United Nations Secretariat (Resources and Transport Division), the regional economic commissions, and the United Nations Economic and Social Office in Beirut.

Recommendation 53

It is recommended that the Secretary-General take steps to ensure that the United Nations system is prepared to provide technical and financial assistance to Governments when requested in the different functions of water resources management:

(a) Surveys and inventories;

(b) Water resources administration and policies, including:

(i) The establishment of institutional frameworks;

(ii) Economic structures of water resources management and development;

(iii) Water resources law and legislation;

(c) Planning and management techniques, including:

(i) The assignment of water quality standards;

(ii) The implementation of appropriate technology;

(iii) More efficient use and re-use of limited water supplies;

(d) Basic and applied studies and research;

(e) Transfer of existing knowledge;

(f) Continuing support of the programme of the International Hydrological Decade.

Recommendation 54

It is recommended that the Secretary-General take steps to establish a roster of experts who would be available to assist Governments, upon request, to anticipate and evaluate the environmental effects of major water development projects. Governments would have the opportunity of consulting teams of experts drawn from this roster, in the first stages of project planning. Guidelines could be prepared to assist in the review and choices of alternatives.

Recommendation 55

It is recommended that the Secretary-General take steps to conduct an exploratory programme to assess the actual and potential environmental effects of water management upon the oceans, define terms and estimate the costs for a comprehensive programme of action, and establish and maintain as far as possible:

(a) A world registry of major or otherwise important rivers arranged regionally and classified according to their discharge of water and pollutants;

(b) A world registry of clean rivers which would be defined in accordance with internationally agreed quality criteria and to which nations would contribute on a voluntary basis:

- (i) The oceans are the ultimate recipient for the natural and man-made wastes discharged into the river systems of the continents;
- (ii) Changes in the amount of river-flow into the oceans, as well as in its distribution in space and time, may considerably affect the physical, chemical and biological regime of the estuary regions and influence the oceanic water systems;
- (iii) It would be desirable for nations to declare their intention to have admitted to the world registry of clean rivers those rivers within their jurisdiction that meet the quality criteria as defined and to declare their further intention to ensure that certain other rivers shall meet those quality criteria by some target date.

Recommendation 56

It is recommended that the Secretary-General provide the appropriate vehicle for the exchange of information on mining and mineral processing.

(a) Improved accessibility and dissemination of existing information is required; the body of literature and experience is already larger than one would think.

(b) Possibilities include the accumulation of information on: (i) the environmental conditions of mine sites; (ii) the action taken in respect of the environment; and (iii) the positive and negative environmental repercussions.

(c) Such a body of information could be used for prediction. Criteria for the planning and management of mineral production would emerge and would indicate where certain kinds of mining should be limited, where reclamation costs would be particularly high, or where other problems would arise.

(d) The appropriate United Nations bodies should make efforts to assist the developing countries by, inter alia, providing adequate information for each country on the technology for preventing present or future

safety effects associated with the mineral industry and by accepting technical trainees and sending experts.

Recommendation 57

It is recommended that the Secretary-General take steps to ensure proper collection, measurement and analysis of data relating to the environmental effects of energy use and production within appropriate monitoring systems.

(a) The design and operation of such networks should include, in particular, monitoring the environmental levels resulting from emission of carbon dioxide, sulphur dioxide, oxidants, nitrogen oxides (NOx), heat and particulates, as well as those from releases of oil and radioactivity;

(b) In each case the objective is to learn more about the relationships between such levels and the effects on weather, human health, plant and animal life, and amenity values.

Recommendation 58

It is recommended that the Secretary-General take steps to give special attention to providing a mechanism for the exchange of information on energy:

(a) The rationalization and integration of resource management for energy will clearly require a solid understanding of the complexity of the problem and of the multiplicity of alternative solutions;

(b) Access to the large body of existing information should be facilitated:

(i) Data on the environmental consequences of different energy systems should be provided through an exchange of national experiences, studies, seminars, and other appropriate meetings;

(ii) A continually updated register of research involving both entire systems and each of its stages should be maintained.

Recommendation 59

It is recommended that the Secretary-General take steps to ensure that a comprehensive study be promptly undertaken with the aim of submitting a first report, at the latest in 1975, on available energy sources, new technology, and consumption trends, in order to assist in providing a basis for the most effective development of the world's energy resources, with due regard to the environmental effects of energy production and use: such a study to be carried out in collaboration with appropriate international bodies such as the International Atomic Energy Agency and the Organisation for Economic Co-operation and Development.

Recommendation 60

It is recommended that the Secretary-General, in cooperation with Governments concerned and the appropriate international agencies, arrange for systematic audits of natural resource development projects in representative ecosystems of international significance to be undertaken jointly with the Governments concerned after, and where feasible before, the implementation of such projects.*

* Projects might include new agricultural settlement of subtropical and tropical zones. irrigation and drainage in arid zones. tropical forestry

tropical lowland coastal areas, and settlement of nomads in semi-arid zones. The cost of audits in developing countries should not be imputed to the costs of the resource development projects but financed from separate international sources.

Recommendation 61

It is recommended that the Secretary-General, in cooperation with Governments concerned and the appropriate international agencies, provide that pilot studies be conducted in representative ecosystems of international significance to assess the environmental impact of alternative approaches to the survey, planning and development of resource projects.

Recommendation 62

It is recommended that the Secretary-General, in cooperation with Governments concerned and the appropriate international agencies, provide that studies be conducted to find out the connexion between the distribution of natural resources and people's welfare and the reasons for possible discrepancies.

Recommendation 63

It is recommended that the Secretary-General take steps to ensure that international development assistance agencies, in co-operation with recipient Governments, intensify efforts to revise and broaden the criteria of development project analysis to incorporate environmental impact considerations.

Recommendation 64

It is recommended that the Secretary-General take steps to ensure that the United Nations agencies concerned undertake studies on the relative costs and benefits of synthetic versus natural products serving identical uses.

Recommendation 65

It is recommended that the Man and the Biosphere Programme be vigorously pursued by the United Nations Educational, Scientific and Cultural Organization in cooperation with other United Nations organizations and other international scientific organizations.

Recommendation 66

It is recommended that the World Meteorological Organization initiate or intensify studies on the interrelationships of resource development and meteorology.

Recommendation 67

It is recommended that the Secretary-General, in cooperation with interested Governments and United Nations specialized agencies, take the necessary steps to encourage the further development of remote-sensing techniques for resources surveys and the utilization of these techniques on the basis of proper international arrangements.

Recommendation 68

It is recommended that the Secretary-General, in cooperation with the appropriate agencies of the United Nations and other international organizations, promote jointly with interested Governments the

natural resources, and provide, when requested, advice to Governments on such methods, in accordance with the particular environmental circumstances of each country.

Recommendation 69

It is recommended that the Food and Agriculture Organization of the United Nations expand its present programme on the stabilization of marginal lands.

IDENTIFICATION AND CONTROL OF POLLUTANTS OF BROAD INTERNATIONAL SIGNIFICANCE

A. POLLUTION GENERALLY

Recommendation 70

It is recommended that Governments be mindful of activities in which there is an appreciable risk of effects on climate, and to this end:

(a) Carefully evaluate the likelihood and magnitude of climatic effects and disseminate their findings to the maximum extent feasible before embarking on such activities;

(b) Consult fully other interested States when activities carrying a risk of such effects are being contemplated or implemented.

Recommendation 71

It is recommended that Governments use the best practicable means available to minimize the release to the environment of toxic or dangerous substances, especially if they are persistent substances such as heavy metals and organochlorine compounds, until it has been demonstrated that their release will not give rise to unacceptable risks or unless their use is essential to human health or food production, in which case appropriate control measures should be applied.

Recommendation 72

It is recommended that in establishing standards for pollutants of international significance, Governments take into account the relevant standards proposed by competent international organizations, and concert with other concerned Governments and the competent international organizations in planning and carrying out control programmes for pollutants distributed beyond the national jurisdiction from which they are released.

Recommendation 73

It is recommended that Governments actively support, and contribute to, international programmes to acquire knowledge for the assessment of pollutant sources, pathways, exposures and risks and that those Governments in a position to do so provide educational, technical and other forms of assistance to facilitate broad participation by countries regardless of their economic or technical advancement.

Recommendation 74

It is recommended that the Secretary-General, drawing on the resources of the entire United Nations system, and with the active support of Governments and appropriate scientific and other international bodies:

awareness and advance warning of deleterious effects to human health and well-being from man-made pollutants;

(b) Provide this information in a form which is useful to policy-makers at the national level;

(c) Assist those Governments which desire to incorporate these and other environmental factors into national planning processes;

(d) Improve the international acceptability of procedures for testing pollutants and contaminants by:

- (i) International division of labour in carrying out the large-scale testing programmes needed;
- (ii) Development of international schedules of tests for evaluation of the environmental impact potential of specific contaminants or products. Such a schedule of tests should include consideration of both short-term and long-term effects of all kinds, and should be reviewed and brought up to date from time to time to take into account new knowledge and techniques;
- (iii) Development and implementation of an international intercalibration programme for sampling and analytical techniques to permit more meaningful comparisons of national data;

(e) Develop plans for an International Registry of Data on Chemicals in the Environment based on a collection of available scientific data on the environmental behaviour of the most important man-made chemicals and containing production figures of the potentially most harmful chemicals, together with their pathways from factory via utilization to ultimate disposal or recirculation.

Recommendation 75

It is recommended that, without reducing in any way their attention to non-radioactive pollutants, Governments should:

(a) Explore with the International Atomic Energy Agency and the World Health Organization the feasibility of developing a registry of releases to the biosphere of significant quantities of radioactive materials;

(b) Support and expand, under the International Atomic Energy Agency and appropriate international organizations, international co-operation on radioactive waste problems, including problems of mining and tailings and also including co-ordination of plans for the siting of fuel-reprocessing plants in relation to the siting of the ultimate storage areas, considering also the transportation problems.

Recommendation 76

It is recommended:

(a) That a major effort be undertaken to develop monitoring and both epidemiological and experimental research programmes providing data for early warning and prevention of the deleterious effects of the various environmental agents, acting singly or in combination, to which man is increasingly exposed, directly or indirectly, and for the assessment of their potential risks to human health, with particular regard to the risks of mutagenicity, teratogenicity and carcinogenicity. Such programmes should be guided and co-ordinated by the World Health Organization;

implementation of an appropriate international collection and dissemination system to correlate medical, environmental and family-history data;

(c) That Governments actively support and contribute to international programmes for research and development of guidelines concerning environmental factors in the work environment.

Recommendation 77

It is recommended that the World Health Organization, in collaboration with the relevant agencies, in the context of an approved programme, and with a view to suggesting necessary action, assist Governments, particularly those of developing countries, in undertaking co-ordinated programmes of monitoring of air and water and in establishing monitoring systems in areas where there may be a risk to health from pollution.

Recommendation 78

It is recommended that internationally co-ordinated programmes of research and monitoring of food contamination by chemical and biological agent be established and developed jointly by the Food and Agriculture Organization of the United Nations and the World Health Organization, taking into account national programmes, and that the results of monitoring be expeditiously assembled, evaluated and made available so as to provide early information on rising trends of contamination and on levels that may be considered undesirable or may lead to unsafe human intakes.

Recommendation 79

It is recommended:

(a) That approximately 10 baseline stations be set up, with the consent of the States involved, in areas remote from all sources of pollution in order to monitor long-term global trends in atmospheric constituents and properties which may cause changes in meteorological properties, including climatic changes;

(b) That a much larger network of not less than 100 stations be set up, with the consent of the States involved, for monitoring properties and constituents of the atmosphere on a regional basis and especially changes in the distribution and concentration of contaminants;

(c) That these programmes be guided and co-ordinated by the World Meteorological Organization;

(d) That the World Meteorological Organization, in co-operation with the International Council of Scientific Unions (ICSU), continue to carry out the Global Atmospheric Research Programme (GARP), and if necessary establish new programmes to understand better the general circulation of the atmosphere and the causes of climatic changes whether these causes are natural or the result of man's activities.

Recommendation 80

It is recommended that the Secretary-General ensure:

(a) That research activities in terrestrial ecology encouraged, supported and co-ordinated through the appropriate agencies, so as to provide adequate knowledge of the inputs, movements, residence times and ecological effects of pollutants identified as critical;

(b) That regional and global networks of existing and, where necessary,

designated or established within the framework of the Man and the Biosphere Programme (MAB) in all major ecological regions, to facilitate intensive analysis of the structure and functioning of ecosystems under natural or managed conditions;

(c) That the feasibility of using stations participating in this programme for surveillance of the effects of pollutants on ecosystems be investigated;

(d) That programmes such as the Man and the Biosphere Programme be used to the extent possible to monitor: (i) the accumulation of hazardous compounds in biological and abiotic material at representative sites; (ii) the effect of such accumulation on the reproductive success and population size of selected species.

Recommendation 81

It is recommended that the World Health Organization, together with the international organizations concerned, continue to study, and establish, primary standards for the protection of the human organism, especially from pollutants that are common to air, water and food, as a basis for the establishment of derived working limits.

Recommendation 82

It is recommended that increased support be given to the Codex Alimentarius Commission to develop international standards for pollutants in food and a code of ethics for international food trade, and that the capabilities of the Food and Agriculture Organization of the United Nations and the World Health Organization to assist materially and to guide developing countries in the field of food control be increased.

Recommendation 83

It is recommended that the appropriate United Nations agencies develop agreed procedures for setting derived working limits for common air and water contaminants.

Recommendation 84

It is recommended that Governments make available, through the International Referral System established in pursuance of recommendation 101 of this Conference, such information as may be requested on their pollution research and pollution control activities, including legislative and administrative arrangements, research on more efficient pollution control technology, and cost-benefit methodology.

Recommendation 85

It is recommended that any mechanism for co-ordinating and stimulating the actions of the different United Nations organs in connexion with environmental problems include among its functions:

(a) Development of an internationally accepted procedure for the identification of pollutants of international significance and for the definition of the degree and scope of international concern;

(b) Consideration of the appointment of appropriate intergovernmental, expert bodies to assess quantitatively the exposures, risks, pathways and sources of pollutants of international significance;

(c) Review and co-ordination of international cooperation for pollution control, ensuring in particular that needed measures shall be taken and

consistent with one another;

(d) Examination of the needs for technical assistance to Governments in the study of pollution problems, in particular those involving international distribution of pollutants;

(e) Encouragement of the establishment of consultation mechanisms for speedy implementation of concerted abatement programmes with particular emphasis on regional activities.

B. MARINE POLLUTION

Recommendation 86

It is recommended that Governments, with the assistance and guidance of appropriate United Nations bodies, in particular the Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP):

(a) Accept and implement available instruments on the control of the maritime sources of marine pollution;

(b) Ensure that the provisions of such instruments are complied with by ships flying their flags and by ships operating in areas under their jurisdiction and that adequate provisions are made for reviewing the effectiveness of, and revising, existing and proposed international measures for control of marine pollution;

(c) Ensure that ocean dumping by their nationals anywhere, or by any person in areas under their jurisdiction, is controlled and that Governments shall continue to work towards the completion of, and bringing into force as soon as possible of, an over-all instrument for the control of ocean dumping as well as needed regional agreements within the framework of this instrument, in particular for enclosed and semi-enclosed seas, which are more at risk from pollution;

(d) Refer the draft articles and annexes contained in the report of the intergovernmental meetings at Reykjavik, Iceland, in April 1972 and in London in May 1972 to the United Nations Committee on the Peaceful Uses of the Seabed and the Ocean Floor beyond the Limits of National Jurisdiction at its session in July/August 1972 for information and comments and to a conference of Governments to be convened by the Government of the United Kingdom of Great Britain and Northern Ireland in consultation with the Secretary-General of the United Nations before November 1972 for further consideration, with a view to opening the proposed convention for signature at a place to be decided by that Conference, preferably before the end of 1972;

(e) Participate fully in the 1973 Intergovernmental Maritime Consultative Organization (IMCO) Conference on Maritime Pollution and the Conference on the Law of the Sea scheduled to begin in 1973, as well as in regional efforts, with a view to bringing all significant sources of pollution within the marine environment, including radioactive pollution from nuclear surface ships and submarines, and in particular in enclosed and semi-enclosed seas, under appropriate controls and particularly to complete elimination of deliberate pollution by oil from ships, with the goal of achieving this by the middle of the present decade;

(f) Strengthen national controls over land-based sources of marine pollution, in particular in enclosed and semi-enclosed seas, and recognize that, in some circumstances, the discharge of residual heat from nuclear and other power-stations may constitute a potential hazard to marine ecosystems.

Recommendation 87

It is recommended that Governments:

(a) Support national research and monitoring efforts that contribute to agreed international programmes for research and monitoring in the marine environment, in particular the Global Investigation of Pollution in the Marine Environment (GIPME) and the Integrated Global Ocean Station System (IGOSS);

(b) Provide to the United Nations, the Food and Agriculture Organization of the United Nations and the United Nations Conference on Trade and Development, as appropriate to the data-gathering activities of each, statistics on the production and use of toxic or dangerous substances that are potential marine pollutants, especially if they are persistent;

(c) Expand their support to components of the United Nations system concerned with research and monitoring in the marine environment and adopt the measures required to improve the constitutional, financial and operational basis under which the Intergovernmental Oceanographic Commission is at present operating so as to make it an effective joint mechanism for the Governments and United Nations organizations concerned (United Nations Educational, Scientific and Cultural Organization, Food and Agriculture Organization of the United Nations, World Meteorological Organization, Inter-Governmental Maritime Consultative Organization, United Nations) and in order that it may be able to take on additional responsibilities for the promotion and co-ordination of scientific programmes and services.

Recommendation 88

It is recommended that the Secretary-General, together with the sponsoring agencies, make it possible for the Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP):

(a) To re-examine annually, and revise as required, its "Review of Harmful Chemical Substances", with a view to elaborating further its assessment of sources, pathways and resulting risks of marine pollutants;

(b) To assemble, having regard to other work in progress, scientific data and to provide advice on scientific aspects of marine pollution, especially those of an interdisciplinary nature.

Recommendation 89

It is recommended that the Secretary-General ensure:

(a) That mechanisms for combining world statistics on mining, production, processing, transport and use of potential marine pollutants shall be developed along with methods for identifying high-priority marine pollutants based in part on such data;

(b) That the Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP), in consultation with other expert groups, propose guidelines for test programmes to evaluate toxicity of potential marine pollutants;

(c) That the Food and Agriculture Organization of the United Nations, the World Health Organization, the Intergovernmental Oceanographic Commission and the International Atomic Energy Agency encourage studies of the effects of high-priority marine pollutants on man and other organisms. with appropriate emphasis on chronic. low-level exposures;

(d) That the Intergovernmental Oceanographic Commission, with the Food and Agriculture Organization of the United Nations and the World Health Organization, explore the possibility of establishing an international institute for tropical marine studies, which would undertake training as well as research.

Recommendation 90

It is recommended that the Intergovernmental Oceanographic Commission, jointly with the World Meteorological Organization and, as appropriate, in co-operation with other interested intergovernmental bodies, promote the monitoring of marine pollution, preferably within the framework of the Integrated Global Ocean Station System (IGOSS), as well as the development of methods for monitoring high-priority marine pollutants in the water, sediments and organisms, with advice from the Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP) on intercomparability of methodologies.

Recommendation 91

It is recommended that the Intergovernmental Oceanographic Commission:

(a) Ensure that provision shall be made in international marine research, monitoring and related activities for the exchange, dissemination, and referral to sources of data and information on baselines and on marine pollution and that attention shall be paid to the special needs of developing countries;

(b) Give full consideration, with the Food and Agriculture Organization of the United Nations, the World Meteorological Organization, the Inter-Governmental Maritime Consultative Organization, the World Health Organization, the International Atomic Energy Agency, the International Hydrographic Organization and the International Council for the Exploration of the Sea and other interested and relevant organizations, to the strengthening of on-going marine and related data and information exchange and dissemination activities;

(c) Support the concept of development of an interdisciplinary and interorganizational system primarily involving centres already in existence;

(d) Initiate an interdisciplinary marine pollution data and scientific information referral capability.

Recommendation 92

It is recommended:

(a) That Governments collectively endorse the principles set forth in paragraph 197 of Conference document A/CONF.48/8 as guiding concepts for the Conference on the Law of the Sea and the Inter-Governmental Maritime Consultative Organization (IMCO) Marine Pollution Conference scheduled to be held in 1973 and also the statement of objectives agreed on at the second session of the Intergovernmental Working Group on Marine Pollution, which reads as follows:

"The marine environment and all the living organisms which it supports are of vital importance to humanity, and all people have an interest in assuring that this environment is so managed that its quality and resources are not impaired. This applies especially to coastal nations, which have a particular interest in the management of coastal area resources. The capacity of the sea to assimilate wastes and render them harmless and its ability to regenerate natural resources

prevent and control marine pollution must be regarded as an essential element in this management of the oceans and seas and their natural resources";

and that, in respect of the particular interest of coastal States in the marine environment and recognizing that the resolution of this question is a matter for consideration at the Conference on the Law of the Sea, they take note of the principles on the rights of coastal States discussed but neither endorsed nor rejected at the second session of the Intergovernmental Working Group on Marine Pollution and refer those principles to the 1973 Inter-Governmental Maritime Consultative Organization Conference for information and to the 1973 Conference on the Law of the Sea for such action as may be appropriate;

(b) That Governments take early action to adopt effective national measures for the control of all significant sources of marine pollution, including land-based sources, and concert and co-ordinate their actions regionally and where appropriate on a wider international basis;

(c) That the Secretary-General, in co-operation with appropriate international organizations, endeavour to provide guidelines which Governments might wish to take into account when developing such measures.

Recommendation 93

It is recommended that any mechanism for co-ordinating and stimulating the actions of the different United Nations organs in connexion with environmental problems include among its functions over-all responsibility for ensuring that needed advice on marine pollution problems shall be provided to Governments.

Recommendation 94

It is recommended that the Secretary-General, with the co-operation of United Nations bodies, take steps to secure additional financial support to those training and other programmes of assistance that contribute to increasing the capacity of developing countries to participate in international research, monitoring and pollution-control programmes.

EDUCATIONAL, INFORMATIONAL, SOCIAL AND CULTURAL ASPECTS OF ENVIRONMENTAL ISSUES

Recommendation 95

It is recommended that the Secretary-General make arrangements for the United Nations system:

(a) To provide countries on request with the necessary technical and financial assistance in preparing national reports on the environment, in setting up machinery for monitoring environmental developments from the social and cultural standpoint and, in particular, in drawing up national social, educational and cultural programmes;

(b) To support and encourage projects for continuing co-operation among national social, educational and cultural programmes, including their economic aspects, in an international network. The organizations of the United Nations system, including the regional economic commissions and the United Nations Economic Social Office in Beirut, will be called upon to participate in this activity, as will other international governmental and non-governmental agencies;

work in progress in connexion with continuous social diagnosis, particularly at the regional level and between regions with common problems;

(d) To facilitate the development of social and cultural indicators for the environment, in order to establish a common methodology for assessing environmental developments and preparing reports on the subject;

(e) To prepare, on the basis of the national reports on the state of, and outlook for, the environment, periodic reports on regional or subregional situations and on the international situation in this matter.

The activities described above could be co-ordinated by the new bodies for environmental co-ordination, taking into account the priorities agreed upon according to the resources available. International bodies responsible for technical and financial co-operation and assistance could also help in carrying out these tasks.

Recommendation 96

1. It is recommended that the Secretary-General, the organizations of the United Nations system, especially the United Nations Educational, Scientific and Cultural Organization, and the other international agencies concerned, should, after consultation and agreement, take the necessary steps to establish an international programme in environmental education, interdisciplinary in approach, in school and out of school, encompassing all levels of education and directed towards the general public, in particular the ordinary citizen living in rural and urban areas, youth and adult alike, with a view to educating him as to the simple steps he might take, within his means, to manage and control his environment. A programme of technical and financial co-operation and assistance will be needed to support this programme, taking into account the priorities agreed upon according to the resources available. This programme should include, among other things:

(a) The preparation of an inventory of existing systems of education which include environmental education;

(b) The exchange of information on such systems and, in particular, dissemination of the results of experiments in teaching;

(c) The training and retraining of professional workers in various disciplines at various levels (including teacher training);

(d) Consideration of the formation of groups of experts in environmental disciplines and activities, including those concerning the economic, sociological, tourist and other sectors, in order to facilitate the exchange of experience between countries which have similar environmental conditions and comparable levels of development;

(e) The development and testing of new materials and methods for all types and levels of environmental education.

2. It is further recommended that United Nations Educational, Scientific and Cultural Organization, under the Man and the Biosphere Programme, the World Health Organization, the Food and Agriculture Organization of the United Nations, the United Nations Industrial Development Organization, the World Meteorological Organization and all the organizations concerned, including the scientific unions co-ordinated by the International Council of Scientific Unions, should develop their activities in studying desirable innovations in the training of specialists and technicians and, in collaboration with the United Nations Development Programme, should encourage the institution, at the regional

the environment.

3. It is further recommended that international organizations for voluntary service, and, in particular, the International Secretariat for Volunteer Service, should include environmental skills in the services they provide, in consultation with the United Nations Development Programme through the United Nations Volunteer Programme.

Recommendation 97

1. It is recommended that the Secretary-General make arrangements:

(a) To establish an information programme designed to create the awareness which individuals should have of environmental issues and to associate the public with environmental management and control. This programme will use traditional and contemporary mass media of communication, taking distinctive national conditions into account. In addition, the programme must provide means of stimulating active participation by the citizens, and of eliciting interest and contributions from nongovernmental organizations for the preservation and development of the environment;

(b) To institute the observance of a World Environment Day;

(c) For the preparatory documents and official documents of the Conference to be translated into the widest possible range of languages and circulated as widely as possible;

(d) To integrate relevant information on the environment in all its various aspects into the activities of the information organs of the United Nations system;

(e) To develop technical co-operation, particularly through and between the United Nations regional economic commissions and the United Nations Economic and Social Office in Beirut.

2. It is also recommended that the Secretary-General and the development agencies make arrangements to use and adapt certain international development programmes--provided that this can be done without delaying their execution--so as to improve the dissemination of information and to strengthen community action on environment problems, especially among the oppressed and underprivileged peoples of the earth.

Recommendation 98

It is recommended that Governments, with the assistance of the Secretary-General, the Food and Agriculture Organization of the United Nations, the United Nations Educational Scientific and Cultural Organization and the other international and regional intergovernmental and non-governmental agencies concerned, should continue the preparation of the present and future conventions required for the conservation of the world's natural resources and cultural heritage. In the course of this preparatory work, Governments should consider the possibility of putting into operation systems of protection for elements of the world heritage, under which those Governments that wish to save elements of their national heritage of universal value would be able to obtain from the international community, on request, the technical and financial assistance required to bring their efforts to fruition.

Recommendation 99

1. It is recommended that Governments should:

Educational, Scientific and Cultural Organization concerning the protection of the world natural and cultural heritage marks a significant step towards the protection, on an international scale, of the environment, examine this draft convention with a view to its adoption at the next General Conference of UNESCO;

(b) Whenever appropriate, sign the Convention on Conservation of Wetlands of International Importance;

2. It is recommended that the Secretary-General, in consultation with the competent agencies of the United Nations system and the non-governmental organizations concerned, make arrangements for a detailed study of all possible procedures for protecting certain islands for science;

3. It is recommended that a plenipotentiary conference be convened as soon as possible, under appropriate governmental or intergovernmental auspices, to prepare and adopt a convention on export, import and transit of certain species of wild animals and plants.

Recommendation 100

It is recommended that the Secretary-General make arrangements:

(a) To be kept informed of national pilot schemes for new forms of environmental management;

(b) To assist countries, on request, with their research and experiments;

(c) To organize the international exchange of information collected on this subject.

Recommendation 101

It is recommended that the Secretary-General take the appropriate steps, including the convening of an expert meeting, to organize an International Referral Service for sources of environmental information, taking into account the model described in paragraphs 129 to 136 of the report on educational, informational, social and cultural aspects of environmental issues (A/CONF.48/9), in order to assist in the successful implementation of all the recommendations made in respect of those aspects of environmental issues and of most of the recommendations envisaged in the other substantive subject areas covered in the Conference agenda.

DEVELOPMENT AND ENVIRONMENT

Recommendation 102

It is recommended that the appropriate regional organizations give full consideration to the following steps:

(a) Preparing short-term and long-term plans at regional, subregional and sectoral levels for the study and identification of the major environmental problems faced by the countries of the region concerned as well as the special problems of the least developed countries of the region and of countries with coastlines and inland lakes and rivers exposed to the risk of marine and other forms of pollution;

(b) Evaluating the administrative, technical and legal solutions to various environmental problems in terms of both preventive and remedial measures, taking into account possible alternative and/or

(c) Preparation, within the framework of international agreements, of legislative measures designed to protect marine (and fresh-water) fisheries resources within the limits of their national jurisdiction;

(d) Increasing and facilitating, in the context of development and as proposed in the World Plan of Action for the Application of Science and Technology to Development, the acquisition and distribution of information and experience to member countries through global and regional co-operation, with particular emphasis on an international information referral networks approach and on a regular exchange of information and observation among the regional organizations;

(e) Establishing facilities for the exchange of information and experience between less industrialized countries which, although situated in different regions, share similar problems as a result of common physical, climatic and other factors;

(f) Encouraging the training of personnel in the techniques of incorporating environmental considerations into developmental planning, and of identifying and analysing the economic and social cost-benefit relationships of alternative approaches;

(g) Establishing criteria, concepts and a terminology of the human environment through interdisciplinary efforts;

(h) Establishing and disseminating information on the significant environmental problems of each region and the nature and result of steps taken to cope with them;

(i) Providing and co-ordinating technical assistance activities directed towards establishing systems of environmental research, information and analysis at the national level;

(j) Assisting developing countries, in co-operation with appropriate international agencies, in promoting elementary education, with emphasis on hygiene, and in developing and applying suitable methods for improving health, housing, sanitation and water supply, and controlling soil erosion. Emphasis should be placed on techniques promoting the use of local labour and utilizing local materials and local expertise in environmental management;

(k) Encouraging the appropriate agencies and bodies within the United Nations to assist the developing countries, at their request, in establishing national science, technology and research policies to enable the developing countries to acquire the capacity to identify and combat environmental problems in the early planning and development stages. In this respect, special priority should be accorded to the type of research, technology and science which would help developing countries speed up, without adverse environment effects, the exploration, exploitation, processing and marketing of their natural resources.

Recommendation 103

It is recommended that Governments take the necessary steps to ensure:

(a) That all States participating in the Conference agree not to invoke environmental concerns as a pretext for discriminatory trade policies or for reduced access to markets and recognize further that the burdens of the environmental policies of the industrialized countries should not be transferred, either directly or indirectly, to the developing countries. As a general rule, no country should solve or disregard its environmental problems at the expense of other countries:

(b) That where environmental concerns lead to restrictions on trade, or to stricter environmental standards with negative effects on exports, particularly from developing countries, appropriate measures for compensation should be worked out within the framework of existing contractual and institutional arrangements and any new such arrangements that can be worked out in the future;

(c) That the General Agreement of Tariffs and Trade, among other international organizations, could be used for the examination of the problems, specifically through the recently established Group on Environmental Measures and International Trade and through its general procedures for bilateral and multilateral adjustment of differences;

(d) That whenever possible (that is, in cases which do not require immediate discontinuation of imports), countries should inform their trading partners in advance about the intended action in order that there might be an opportunity to consult within the GATT Group on Environmental Measures and International Trade, among other international organizations. Assistance in meeting the consequences of stricter environmental standards ought to be given in the form of financial or technical assistance for research with a view to removing the obstacles that the products of developing countries have encountered;

(e) That all countries agree that uniform environmental standards should not be expected to be applied universally by all countries with respect to given industrial processes or products except in those cases where environmental disruption may constitute a concern to other countries. In addition, in order to avoid an impairment of the access of the developing countries to the markets of the industrialized countries because of differential product standards, Governments should aim at world-wide harmonization of such standards. Environmental standards should be established, at whatever levels are necessary, to safeguard the environment, and should not be directed towards gaining trade advantages;

(f) That the Governments and the competent international organizations keep a close watch on medium and long-term trends in international trade and take measures with a view to promoting:

(i) The exchange of environmental protection technologies;

(ii) International trade in natural products and commodities which compete with synthetic products that have a greater capacity for pollution.

Recommendation 104

It is recommended that the Secretary-General ensure:

(a) That appropriate steps shall be taken by the existing United Nations organizations to identify the major threats to exports, particularly those of developing countries, that arise from environmental concerns, their character and severity, and the remedial action that may be envisaged;

(b) That the United Nations system, in co-operation with other governmental and non-governmental agencies working in this field, should assist Governments to develop mutually acceptable common international environmental standards on products which are considered by Governments to be of significance in foreign trade. Testing and certification procedures designed to ensure that the products conform to these standards should be such as to avoid arbitrary and discriminatory actions that might affect the trade of developing countries.

Recommendation 105

It is recommended that the General Agreement of Tariffs and Trade, the United Nations Conference on Trade and Development and other international bodies, as appropriate, should, within their respective fields of competence, consider undertaking to monitor, assess, and regularly report the emergence of tariff and non-tariff barriers to trade as a result of environmental policies.

Recommendation 106

It is recommended:

(a) That the Secretary-General, in co-operation with other international bodies as appropriate, should examine the extent to which the problems of pollution could be ameliorated by a reduction in the current levels of production and in the future rate of growth of the production of synthetic products and substitutes which, in their natural form, could be produced by developing countries; and make recommendations for national and international action;

(b) That Governments of the developing countries consider fully the new opportunities that may be offered to them to establish industries and/or expand existing industries in which they may have comparative advantages because of environmental considerations, and that special care be taken to apply the appropriate international standards on environment in order to avoid the creation of pollution problems in developing countries;

(c) That the Secretary-General, in consultation with appropriate international agencies, undertake a full review of the practical implications of environmental concerns in relation to distribution of future industrial capacity and, in particular, to ways in which the developing countries may be assisted to take advantage of opportunities and to minimize risks in this area.

Recommendation 107

It is recommended that the Secretary-General, in collaboration with appropriate international agencies, ensure that a study be conducted of appropriate mechanisms for financing international environmental action, taking into account General Assembly resolution 2849 (XXVI).

Recommendation 108

It is being recognized that it is in the interest of mankind that the technologies for protecting and improving the environment be employed universally, it is recommended that the Secretary-General be asked to undertake studies, in consultation with Governments and appropriate international agencies, to find means by which environmental technologies may be made available for adoption by developing countries under terms and conditions that encourage their wide distribution without constituting an unacceptable burden to developing countries.

Recommendation 109

It is recommended that the Secretary-General, in collaboration with appropriate international agencies, take steps to ensure that the environmental considerations of an international nature related to the foregoing recommendations be integrated into the review and appraisal of the International Development Strategy for the Second Development Decade in such a way that the flow of international aid to developing countries is not hampered. Recommendations for national action, proposed by the Secretary-General of the Conference, shall be referred to Governments for their consideration and, when deemed appropriate, should be taken into account in the review and appraisal process during the consideration of

Strategy. It should further be ensured that the preoccupation of developed countries with their own environmental problems should not affect the flow of assistance to developing countries, and that this flow should be adequate to meet the additional environmental requirements of such countries.

C. The Action Plan

All of the recommendations approved by the Conference for action at the international level (see section B above) are rearranged in the following Action Plan for the Human Environment within the approved framework (see section A above). The recommendations which, before and during the Conference, had been dealt with sectorally, by subject area, are redistributed below, according to function, into the three components of the Action Plan: the global environmental assessment programme (Earthwatch), the environmental management activities, and the supporting measures.

ENVIRONMENTAL ASSESSMENT (EARTHWATCH)

This category includes the functions listed below:

Evaluation and review: to provide the basis for identification of the knowledge needed and to determine that the necessary steps be taken:

Recommendations: 4, 11, 14, 18, 21, 30, 41, 44, 46(c, d), 48, 49, 54, 55, 60, 61, 63, 70, 74, 75, 81, 85, 88, 91 (a), 92 (c), 93, 94, 95 (d,e), 106, 109.

Research: to create new knowledge of the kinds specifically needed to provide guidance in the making of decisions:

Recommendations: 4, 12, 13, 16 (b), 18 (c), 20 (b, c), 21, 23, 24(a,b), 26, 28, 41, 42, 43 (5.b,c), 45 (2.b), 48, 49, 51 (c), 52, 53 (d), 59, 62, 64, 65, 66, 68, 73, 74(d), 76, 78, 79(d), 80(a-c), 84, 85, 87, 88, 89, 94, 95 (d), 102 (a.i), 106 (c), 108.

Monitoring: to gather certain data on specific environmental variables and to evaluate such data in order to determine and predict important environmental conditions and trends:

Recommendations: 18 (1. a-e), 20 (a. iv), 25, 29, 30, 40, 45, 46 (a-c), 49, 51 (c. i, ii), 52 (1. c), 55, 57, 67, 73, 74, 76, 77, 78, 79, 80, 87, 90, 91, 94, 95, 102, 104, 105, 108.

Information exchange: to disseminate knowledge within the scientific and technological communities and to ensure that decision-makers at all levels shall have the benefit of the best knowledge that can be made available in the forms and at the times in which it can be useful:

Recommendations: 2, 4, 5, 16 (c), 19 (a), 20 (a, c), 21 (a), 26, 27, 35, 37, 39, 41, 45, 46 (b), 49, 51 (c), 52, 53(c), 54, 55, 56, 57, 58, 59, 73, 74(b), 84, 91, 95(c), 96 (b), 97, 100 (c), 101, 102 (d, e, h, i), 108.

ENVIRONMENTAL MANAGEMENT

This category covers functions designed to facilitate comprehensive planning that takes into account the side effects of man's activities and thereby to protect and enhance the human environment for present and future generations.

(d), 21, 22, 23, 27, 32, 33, 36, 37, 38, 39, 42, 43, 44, 45, 46, 47, 48, 50, 51, 52, 53, 54, 55, 61, 63, 68, 69, 70, 71, 72, 75 (b), 81, 82, 83, 84, 85, 86, 88, 92, 93, 94, 96(b), 98, 99, 100(a), 102, 103, 104, 105, 106, 107, 108, 109.

SUPPORTING MEASURES

This category relates to measures required for the activities in the other two categories (environmental assessment and environmental management).

Education, training and public information: to supply needed specialists, multidisciplinary professionals and technical personnel and to facilitate the use of knowledge in decision-making at every level.

Recommendations: 6, 7, 8, 13, 16, 18(4), 19(b), 31, 34, 73, 89 (d), 93, 94, 95 (e), 96, 97, 102 (f).

Organizational arrangements:

Recommendations: 4 (1), 7 (b), 16, 18, 20 (b. iii), 21 (a. vi), 23, 26, 31 (b), 33, 34 (b), 41, 43 (2, 6, 7), 45, 49, 50, 51, 52(2), 79, 85, 87(c), 89(d), 91, 93, 94, 101, 102 (e).

Financial and other forms of assistance:

Recommendations: 1, 2(1.c), 10, 12, 13, 15, 16(d), 18 (2, 4), 19 (b), 21 (a), 34 (b), 36, 43 (b), 45, 46 (d), - 49, 50, 51 (c. viii), 53, 73, 74, 77, 85 (d), 93, 94, 95, 96, 97 (1. e, 2), 98, 100 (b), 102 (i, j, k), 107, 108.