



# United Nations Environment Programme



Distr.  
GENERAL

UNEP/GC.9/7  
7 April 1981

Original: ENGLISH

GOVERNING COUNCIL  
Ninth session  
Nairobi, 13-26 May 1981  
Item 6 of the provisional agenda

## THE SYSTEM-WIDE MEDIUM-TERM ENVIRONMENT PROGRAMME

### Note by the Executive Director

1. In its decision 6/1, the Governing Council endorsed the proposals of the Executive Director (UNEP/GC.6/2) on the development of a System-wide Medium-term Environment Programme (SWMTEP) which was to be carried out in conjunction with the United Nations system as a whole. This initiative was further encouraged by the Economic and Social Council, the Committee on Programme and Co-ordination and the General Assembly. Subsequently, the Governing Council, by decisions 7/1, section II and 8/1, section IV, gave additional momentum and guidance to the preparation of SWMTEP and commended the role the ACC was playing in this regard.

2. The SWMTEP document, covering 1984-1989, will be submitted to the Governing Council at its tenth session. Annexed to the present note are an outline of the structure of SWMTEP (annex I) and a set of objectives at the programme and sub-programme levels (annex II), developed following intensive consultations with other members of the United Nations system. The structure presented does not fully reflect all the elements that will be included in the full SWMTEP. For instance, those activities that cut across the entire programme - including evaluation, research, assessment, monitoring, appropriate technology, data, training, technical assistance, and a significant component of information - will be reflected in the relevant programmes, and will thus constitute an integral part of the presentation. In arriving at the structure that follows, the Executive Director was mindful of the range of views on what ought to be considered

environmental and what ought to be excluded as being only peripherally environmental, which could lead to an interminable debate between agencies, Governments and experts. He therefore settled on a pragmatic list that somewhat expands the present programme structure to reflect more accurately those environmental activities in which the United Nations system as a whole is involved, as distinct from activities undertaken by a single agency, and in respect of which UNEP will be able to play its catalytic and co-ordinating role in line with the mandate as assigned to it under General Assembly resolution 2997 (XXVII).

3. The process by which the present structure and objectives were arrived at was as follows. During the Council's eighth session, the secretariat sought the advice of the designated officials for environmental matters on how best to define the scope of SWMTEP and fill in the resulting outline. A high-level expert group comprising participants from agencies was recommended. Accordingly, such a meeting was held in June 1980, and a preliminary structure emerged. This structure, further refined by the UNEP secretariat, was reviewed by the designated officials in Geneva in September 1980. Except in the case of the areas recently considered in-depth - soils, natural disasters, genetic resources, wildlife and protected areas and oceans - on which the UNEP secretariat consulted the agencies through correspondence, the proposed objectives were arrived at during thematic joint programming exercises and at the meeting of designated officials in December 1980. The entire compilation was again reviewed by the designated officials in March 1981. Despite the efforts made to harmonize the presentation of the various programmes, however, the presentation is still uneven, depending on the different stages reached in developing the programmes with other organizations, some of which because of their planning and budgetary cycles are not able at this time to take a firm position on specific objectives to be attained during the period 1984-1989.

4. The Council should bear in mind that even when endorsed by the Council, either as they stand or with amendments, the structure and objectives annexed to the present note may still be subject to further revision, since some adjustments or changes may be inevitable as the secretariat elaborates the full-fledged SWMTEP. This exercise is to be carried out in conjunction with other members of the United Nations system through consultations and thematic joint programming, as appropriate, and through the designated officials and ACC. Since SWMTEP is untried ground, rigidity should be avoided at this stage, particularly since the Council has not yet given the secretariat guidance as to the level of detail it considers necessary to enable it to provide effective policy guidance to the Executive Director and the United Nations system.

5. Annex III to the present note contains a sample of a fully developed programme, reflecting the present thinking in the secretariat as regards the detailed presentation of SWMTEP, which it is hoped the Council will find helpful in enabling it to decide on the level of detail it considers necessary. Annex IV, finally, contains suggestions as to the action the Council may wish to take regarding SWMTEP at this stage.

Annex I

## STRUCTURE OF THE SYSTEM-WIDE MEDIUM-TERM ENVIRONMENT PROGRAMME

Programmes	Subprogrammes
1. Environmental agents and their impact on man and other targets	(a) Monitoring and assessment (b) Management
2. Environmental aspects of communicable diseases	(a) Research and assessment (b) Management
3. Working environment	(a) General policies for the improvement of the working environment (b) Occupational safety (c) Occupational health (d) Working conditions (e) Underserviced workers
4. Drinking water supply and sanitation planning	(a) Drinking water quality and sanitary surveillance (b) International Drinking Water Supply and Sanitation Decade (c) Promotion of appropriate technology
5. Environmental aspects of human settlements	(a) Settlements planning and development (b) Environmental assessment of human settlements development (c) Shelter, infrastructure and services
6. Natural disasters	(a) Prevention and mitigation (b) Preparedness

Programmes	Subprogrammes
7. Atmosphere, climate and man	(a) Climate-related monitoring, research and assessment (b) Man and climate (c) Weather modification (d) Risks to the ozone layer
8. Lithosphere and its resources	(a) Assessment of non-renewable lithosphere resources (b) Management of non-renewable lithosphere resources (c) Waste disposal in the lithosphere
9. Water resources	(a) Water resources assessment (b) Environmentally sound development and management of water resources (c) Water pollution problems
10. Arid and semi-arid lands ecosystems and desertification control	(a) Rational use and management (b) Monitoring and control of desertification; Plan of Action to Combat Desertification
11. Soil resources management and conservation	(a) Assessment, monitoring and inventory (b) Management of soil resources
12. Tropical forests and woodlands	(a) Assessment and monitoring of tropical forest cover and resources (b) Management and conservation of tropical forest resources
13. Other ecosystems	(a) Mountain ecosystems (b) Island ecosystems (c) Freshwater ecosystems (d) Temperate and cold zones

Programmes	Subprogrammes
14. Wildlife and protected areas	(a) Implementation of the World Conservation Strategy (b) Assessment and monitoring of the situation of wild species and their habitats (c) Management of wildlife resources
15. Genetic resources	(a) Assessment and management of plant and animal genetic resources (b) Assessment and management of microbial resources
16. Marine living resources and coastal ecosystems	(a) Assessment and conservation of marine living resources (b) Management of Coastal Ecosystems and their Marine Resources
17. Marine Pollution	Pollution from land-based sources and maritime activities
18. Exploitation of non-biological ocean resources	Offshore oil exploitation and sea-bed mining
19. Regional seas	(a) Environmental assessment (b) Environmental management (c) Legal instruments (d) Institutional and financial arrangements
20. Integrated approach to environment and development	(a) Elaboration of the conceptual basis and implementation of case studies of the interrelationships between people, resources, environment and development (b) Development of economic and other tools in support of environmentally sound development practices (c) Integration of environmental considerations in international economic co-operation (d) Institutional arrangements and mechanisms

Programmes	Subprogrammes
<b>21. Environmental considerations for agricultural development</b>	<ul style="list-style-type: none"><li>(a) Assessment and monitoring of pesticides and fertilizers in the environment</li><li>(b) Integrated pest management systems</li><li>(c) Agro-industrial technologies and residue recycling</li></ul>
<b>22. Industry and environment</b>	<ul style="list-style-type: none"><li>(a) Review and assessment of environmental and resource aspects of industrial activities</li><li>(b) Development and promotion of the application of environmental management and environmentally-sound technologies for industrial activities</li><li>(c) Industrial environmental information and training</li></ul>
<b>23. Energy</b>	<ul style="list-style-type: none"><li>(a) Energy and environment</li><li>(b) Renewable sources of energy</li><li>(c) Increasing the efficiency of energy production and use</li></ul>
<b>24. Environmental law</b>	<ul style="list-style-type: none"><li>(a) Enforcement of existing environmental conventions and protocols</li><li>(b) Development and codification of a new body of international environmental law</li><li>(c) Strengthening of national and regional capabilities</li></ul>
<b>25. Environmental education and training</b>	<ul style="list-style-type: none"><li>(a) General and out-of-school education</li><li>(b) Education for particular social and professional groups</li><li>(c) Regional and international co-operation</li></ul>
<b>26. Environmental information</b>	<ul style="list-style-type: none"><li>(a) Environmental information for the public</li><li>(b) Environmental information for other target audience</li><li>(c) International co-operation for the exchange of environmental information</li></ul>

Annex II

OBJECTIVES AT THE PROGRAMME AND SUBPROGRAMME LEVELS

Programme I: Environmental agents and their impact on man and other targets

Objective

Attainment of greater knowledge of the risks to health from exposure to environmental agents, and establishment in all countries of infrastructure, institutions and manpower capable of planning and managing programmes to protect man and non-human targets from environmental agents.

Subprogrammes:

(a) Monitoring and assessment

Objectives:

- (i) Establishment or strengthening of national programmes for media and biological monitoring and assessment of human exposure to priority environmental agents;
- (ii) Evaluation of adverse effects of environmental agents on man and non-human organisms and organization of the exchange and dissemination of information, particularly on toxic and potentially toxic chemicals;
- (iii) Systematic assessment of new technologies and materials for their possible hazards to health, and dissemination of information on technologies and products which minimize environmental and health hazards;
- (iv) Assessment of long-range transboundary fluxes of air pollutants and their effects on the acidity of precipitation.

(b) Management

Objectives:

- (i) Development of recommendations on protection standards in the light of new knowledge, with particular emphasis on air, food and drinking water quality and radiological protection;
- (ii) Planning, implementation and evaluation of environmental pollution control programmes at national and regional levels, with particular emphasis on legislation and regulations governing air and water pollution and hazardous wastes, food safety, radiological protection, the identification of pollution sources and the incorporation of preventive and abatement measures in planning development projects;

- (iii) Implementation of international conventions on pollutants, such as the Convention on Long-range Transboundary Air Pollution;
- (iv) Study of the possible adverse effects on trade and development opportunities of some countries of the adoption by other countries of measures aimed at controlling health hazards from environmental agents, and recommendation of appropriate action;
- (v) Establishment of and support for training programmes based on assessments of regional and national priorities and manpower needs.

Programme 2: Environmental aspects of communicable diseases

Objective

Assessment, prevention and control of environmentally induced communicable diseases.

Subprogrammes:

(a) Research and assessment

Objectives:

- (i) Research directed towards the development of environmentally safe and selective pesticides;
- (ii) Studies of the biology and ecology of vectors and intermediate host organisms, their behaviour and their response to current control methods, in order to develop more appropriate approaches;
- (iii) Epidemiological and field studies of the relations between man, vectors, animal hosts and pathogens, with particular attention to ecological conditions and social and cultural attitudes and practices which have a bearing on disease patterns;
- (iv) Assessment of the environmental and health impacts of chemical, biological, genetic and environmental methods of controlling communicable diseases, and evaluation of the effectiveness of environmentally safe methods of control.

(b) Management

Objectives:

- (i) Development of additional guidelines on the safe use of pesticides, using the results of programmes to assess their effects on human health, non-human organisms and ecosystems;
- (ii) Development and testing of integrated control strategies, with attention to source reduction, basic sanitation and animal hygiene, community participation, and costs and benefits of the strategies;



- (iii) Development and application of simple and cost-effective methods of bio-environmental control which have minimal negative impacts on the environment and on health;
- (iv) Planning, implementation and evaluation of integrated control programmes at national and regional levels, with particular emphasis on legislation, institutional arrangements and comprehensive approaches to disease prevention and control;
- (v) Training of specialists in integrated control and the training of engineers and planners in the incorporation of preventive measures in the design of large-scale and small-scale development projects (such as lakes and dams, small water impoundments, irrigation schemes, human settlements and roads);
- (vi) Dissemination of public information and improved public awareness of individual and social behaviour and attitudes which contribute to the dissemination of communicable diseases, as well as those that help their prevention.

### Programme 3: Working environment

#### Objective

The improvement of the working environment by the prevention of occupational accidents and diseases and the enhancement of the physical, mental and social well-being of workers in all occupations.

#### Subprogrammes:

##### (a) General policies for the improvement of the working environment

Objective: Strengthening of the capacity of countries to design and implement policies and programmes for the improvement of the working environment, in conformity with international standards and guidelines.

##### (b) Occupational safety

Objective: Strengthening of national capabilities to apply international standards, guidelines and specifications effectively in order to reduce the incidence and severity of occupational accidents.

##### (c) Occupational health

Objective: Further development of international standards and guidelines on occupational health, including for early detection of health impairments, occupational hygiene and the application of ergonomics; promotion of data acquisition and knowledge; and strengthening of institutions, services and manpower in countries.

(d) Working conditions

Objective: Provision of assistance to countries in formulating and implementing policies aimed at improving conditions of work, including the length and arrangement of working time, organization and content of work, and welfare facilities for workers and their families.

(e) Underserviced workers

Objective: Provision of assistance to countries in extending to workers in the rural sector and the informal urban sector of developing countries, to migrant workers and to other underserviced groups, by using, inter alia, primary health care approaches, the benefits of measures to improve the working environment.

Programme 4: Drinking water supply and sanitation

Objective:

Provision of basic sanitation to improve the environment of urban and rural poor populations in order to enhance their health and productivity. Creation of awareness of the benefits to health and environmental well-being of the adequacy of drinking water supplies and of the role of the individual and the community in achieving preventive health care.

Subprogrammes

(a) Drinking water quality and sanitary surveillance

Objective: Development and dissemination of methods and establishment of services, infrastructures, etc., aimed at ensuring adequate water quality and surveillance of sanitary conditions in rural and urban areas.

(b) International Drinking Water Supply and Sanitation Decade

Objective: Assistance to countries in implementing national plans, programmes and projects for the International Drinking Water Supply and Sanitation Decade.

(c) Promotion of appropriate technology

Objective: Development, use and transfer of information on appropriate technologies for water supply and sanitation.

Programme 5: Environmental aspects of human settlements planning

Objectives

1. Incorporation of environmental considerations in the planning and development of human settlements.
2. Preparation and compilation of pertinent guidelines and information to facilitate the implementation of the above national and intergovernmental objective.

Subprogrammes:(a) Settlements planning and developmentObjectives:

- (i) Preparation of environmental guidelines and case study analyses for human settlements planning and development in: arid zones; humid tropics; tropical rain forests; coastal zones; and very large metropolitan areas;
- (ii) Preparation of training manuals and modules and organization of training seminars to improve the technical expertise of human settlements managers.

(b) Environmental assessment of human settlements developmentObjectives:

- (i) Preparation, testing and promotion of suitable methodologies for comprehensive assessment of the environmental impact of urban settlements development in developing countries;
- (ii) Development and promotion of effective environmental management techniques for local authorities, with special emphasis on densely populated metropolitan areas and coastal settlements.

(c) Shelter, infrastructure, and servicesObjectives:

- (i) Mobilization and dissemination of information on environmentally sound and appropriate technologies for waste management in rural and poor urban human settlements;
- (ii) Promotion of environmentally sound and appropriate technologies identified in (i) above through a network of institutions and demonstration projects in developing countries.

Programme 6: Natural disastersObjective:

Prevention and mitigation of disasters of climatic or geophysical origin.

Subprogrammes:(a) Prevention and mitigation

Objective: Promotion of the study of natural hazards and the risks to which they expose man and the environment; development and testing of methodologies to reduce the risk of natural disasters and their environmental consequences, and formulation of policies and programmes for risk reduction.

and disaster prevention, including appropriate legislation and regulations, giving due regard to environmental matters.

(b) Preparedness

Objective: Promotion of wider application of techniques for predicting and forecasting the occurrence of natural phenomena which may result in disaster; development of national and regional capabilities for the early dissemination of warnings and alerts, and fostering of public information and training with regard to warnings and predictions.

Programme 7: Atmosphere, climate and man

Objective

Better understanding of climatic variability and the mutual interactions between human activities, the atmosphere, climate and human welfare.

Subprogrammes:

(a) Climate-related monitoring, research and assessment

Objectives:

- (i) Expansion of international networks for monitoring atmospheric composition and long-range transport of pollutants, and utilization of the information obtained from environmental and health assessment to provide specialist training;
- (ii) Co-ordination and stimulation of efforts aimed at tracing instrumental observations relevant to climate over the past 100 years and at the establishment and operation of reliable networks of stations for monitoring the climate system, making appropriate use of remote sensing and other relevant techniques;
- (iii) Establishment of a referral system on climate-related data sources;
- (iv) Study of the sensitivity of climate to natural and human influences, in particular CO<sub>2</sub>, chlorofluoromethanes, aerosols and ozone;
- (v) Achievement of a complete three-dimensional observational description of the entire climate system; development of physical-mathematical models capable of predicting the climate system and long-range transport of pollutants, and utilization of such models and description in continuous assessment of climate and its variability.

(b) Man and climate

Objectives:

- (i) Promotion of the application of climate knowledge to socio-economic and environmental issues, with particular attention to agriculture, water resources development and renewable energy sources;

- (II) Improvement of knowledge of the impact of climate variability and change on man and his environment.

(c) Weather modification

Objectives:

- (I) Assessment of the scientific credibility and environmental impact of precipitation enhancement;
- (II) Development of a framework for international co-operation between States in weather modification activities to ensure maximum beneficial effects and to avoid conflicts.

(d) Risks to the ozone layer

Objectives:

- (I) Co-ordination and stimulation of international monitoring - with internationally agreed standards and procedures - of atmospheric ozone and other trace gases relevant to a possible depletion of the ozone layer, in order to determine trends;
- (II) Stimulation and promotion of research into dynamic photochemical and radioactive aspects of the ozone layer and its variation;
- (III) Stimulation of research into the biological effects at the organism and ecosystem level of the increased ultra-violet exposure that may result from stratospheric ozone depletion;
- (IV) Assessment of the impact of man's activities on the ozone balance.

Programme 8: Lithosphere and its resources

Objective:

Ensuring the least wasteful and least polluting use of non-renewable resources, and protection of the lithosphere from pollution by toxic wastes.

Subprogrammes:

(a) Assessment of non-renewable lithosphere resources

Objectives:

- (I) Promotion of a better understanding of the earth's crust and of the evaluation of its mineral resources, in pursuance of the International Geological Correlation Programme;
- (II) Development of mineral prospection methods especially suited to speedy survey of the resources of developing countries.

(b) Management of non-renewable lithosphere resources

Objective: Development, testing and application of methodologies and policies for the least wasteful and least polluting use of non-renewable resources of the lithosphere, and dissemination of relevant information.

(c) Waste disposal in the lithosphere

Objective: Development of improved methods for detecting pollutants in the lithosphere, enforcement of protection measures and dissemination of relevant information.

Programme 9: Water resources

Objective

Promotion of policy formulation, planning, management and development of water resources, fully integrating environmental considerations.

Subprogrammes:

(a) Water resources assessment

Objective: Development of prospecting methods especially suited to the socio-economic and environmental conditions of developing countries, for speedy assessment of their water resources.

(b) Environmentally sound water resources development and management

Objectives:

- (i) Planning, formulation, management and execution of environmentally sound water resources development projects; application and demonstration of environmentally sound and appropriate water resources management technologies for irrigation, domestic and industrial uses, and development, testing and application of methodologies for assessment of the environmental impacts of large dams and other surface water schemes;
- (ii) Integration of environmental concerns in the development of shared water resources, particularly river basin development, and development of relevant legal instruments for international co-operation.

(c) Water pollution problems

Objective: Development of improved methods for detection of pollutants of water, with special emphasis on shallow aquifers; enforcement of protection measures and dissemination of relevant information.

Programme 10: Arid and semi-arid lands ecosystems and desertification control

Objectives

1. Assessment of resources and rational management of arid and semi-arid land ecosystems for sustained productivity.
2. Implementation of the Plan of Action to Combat Desertification.

Subprogrammes:

(a) Rational use and management

Objectives:

- (i) Inventory and monitoring of arid and semi-arid lands ecosystems using standardized and compatible methodologies; promotion of basic studies on the functioning of these ecosystems (especially in biosphere reserves), and development of pilot projects to increase their sustained productivity for multiple uses;
- (ii) Development of pilot projects and promotion of measures which will eliminate or substantially limit the adverse environmental impact of inappropriate land-use practices;
- (iii) Strengthening of national capabilities and infrastructures in developing countries for inventory, monitoring and management of arid and semi-arid land resources.

(b) Monitoring and control of desertification; Plan of Action to Combat Desertification

Approach: Formulation of national plans to combat desertification; assistance in priority projects; strengthening national capabilities for desertification control; co-operation at regional level and support for regional research and training centres.

Programme 11: Soil resources management and conservation

Objective

Improvement and development of methodologies for assessment of land and soil resources and elaboration of guidelines and strategies for rational management of land and soil resources to ensure their sustainable productivity.

Subprogrammes:

(a) Assessment, monitoring and inventory

Objective: Development, testing and demonstration of methodologies for continuous monitoring of land and soil resources, including assessment of soil degradation, to aid in further land-use planning.

(b) Management of soil resources

Objectives:

- (i) Adaptation of the world soils policy to national needs and implementation of the plan of action for soils to safeguard and protect land and soil resources at the international, regional and country level;
- (ii) Development, testing and demonstration of effective land/soil conservation systems which will substantially reduce adverse environmental impacts of inappropriate land-use practices.
- (iii) Identification of criteria for efficient and sustained productivity of land and soil resources with emphasis on arid-semi-arid zones and humid/sub-humid tropics, through promotion of integrated management, including recycling of organic materials and residues, appropriate tillage, and enhancement of biological nitrogen fixation.

Programme 12: Tropical forests and woodlands

Objective:

Assessment of the present extent and rate of deforestation, degradation and afforestation on a national, regional and global basis, and implementation of action programmes for rational use and management of tropical forests and woodlands.

Subprogrammes:

(a) Assessment and monitoring of tropical forest cover and resources

Objective: Continued review of the world situation and provision of assistance to developing countries in strengthening their capabilities to assess and monitor their forest resources.

(b) Management and conservation of tropical forest resources

Objective: Promotion, through pilot projects in developing countries, of multi-purpose uses of tropical forests adapted to the ecological and socio-economic needs of the rural communities concerned, with special emphasis on agro-forestry and reafforestation of degraded areas; expansion of ecological training for managers.

Programme 13: Other ecosystems

Objective (covers all subprogrammes)

Assessment of the present situation of other vulnerable ecosystems including review of traditional land uses; development, testing and application of land-use strategies adapted to the socio-economic and cultural needs of the populations concerned.



Subprogrammes:

- (a) Mountain ecosystems
- (b) Island ecosystems
- (c) Freshwater ecosystems
- (d) Temperate and cold zones

Programme 14: Wildlife and protected areasObjective

Conservation of wildlife resources and their habitats, and integration of their management into local development schemes.

Subprogrammes:

- (a) Implementation of the World Conservation Strategy

Objective: Development of appropriate conservation strategies at the national level.

- (b) Assessment and monitoring of the situation of wild species and their habitats

Objective: Monitoring and assessment of the situation of wild species and their habitats, and of critical ecosystems, and dissemination of relevant information.

- (c) Management of wildlife resources

Objectives:

- (i) Pilot projects to test the applicability of comprehensive conservation strategies; study of the impacts of specific development schemes on wildlife conservation and management;
- (ii) Establishment of protected areas representing major biogeographical provinces and ecosystems; strengthening of national capabilities in wildlife conservation and management;
- (iii) Formulation of effective legal instruments applicable to conservation of wildlife resources and habitats; implementation of international conservation conventions.

Programme 15: Genetic resources

Objective:

Promotion of the conservation of the widest genetic diversity of all species which have significant or potentially significant socio-economic value for environmentally sound and sustainable development.

Subprogrammes:

(a) Assessment and management of plant and animal genetic resources

Objectives:

- (i) Increased knowledge of genetic diversity of plant and animal species; compilation and dissemination of information on plant and animal genetic resources;
- (ii) Development of methodologies for conservation of plant and animal species, with emphasis on national efforts to conserve threatened plant and animal genetic resources in situ; or ex situ; development of international systems for storage and retrieval of information on available genetic resources;
- (iii) Promotion of training and public awareness, especially in developing countries;
- (iv) Promotion of efforts aimed at ensuring accessibility to available genetic resources and related information, with a view to concluding international agreements.

(b) Assessment and management of microbiological genetic resources

Objectives:

- (i) Compilation and dissemination of catalogues of strains of microorganisms for various applications; development of microbiological resources centres from the pilot to an operational phase, and expansion of the network to other regions in developing countries;
- (ii) Stimulation of the development, testing and application of environmentally sound and appropriate biotechnologies;
- (iii) Promotion of training and public awareness, especially in developing countries.

Programme 16: Marine living resources and coastal ecosystems

Objective

Conservation and management of marine living resources and their habitats, and dissemination of relevant information.

Subprogrammes:

(a) Assessment and conservation of marine living resources

Objectives:

- (i) Development of methods for assessment of all marine living resources, with emphasis on populations of economic marine species;
- (ii) Review of trends in relation to major marine living resources, to provide a basis for management activities;
- (iii) Protection and conservation of threatened species; establishment of protected areas representing major biogeographical zones.

(b) Management of coastal ecosystems and their marine resources

Objectives:

- (i) Promotion of integrated management of coastal ecosystems, covering all human activities, including the exploitation of marine living resources;
- (ii) Formulation of guidelines and policies aimed at ensuring the sustained yield of major fishing resources;
- (iii) Support for relevant global information systems and dissemination of information on marine living resources and coastal ecosystems.

Programme 17: Marine pollution

Objective

Assessment of the state of ocean pollution and its impact on marine ecosystems, and dissemination of relevant data.

Subprogramme

Pollution from land-based sources and maritime activities

Objectives:

- (i) Assessment of land-based and other sources of pollution with a view to assisting interested Governments in the implementation of existing conventions, and promotion of new international and regional conventions, guidelines and actions to control marine pollution;

- (ii) Support for education and training efforts to enhance the participation of developing countries in the protection, development and management of marine and coastal areas resources.

Programme 18: Exploitation of non-biological ocean resources

Objective

Promotion of environmentally sound and peaceful exploration and exploitation of non-biological ocean resources, and exchange and dissemination of relevant information and data.

Subprogramme:

Off-shore oil exploitation and sea-bed mining

Objectives:

- (i) Assistance, particularly to developing countries, in the prevention of adverse environmental impacts caused by the exploration and exploitation of petroleum resources and sea-bed mineral resources;
- (ii) Development of information, storage and retrieval systems on data concerning non-biological resources.

Programme 19: Regional seas

Objective

Development of comprehensive action plans for the protection and management of specific regional seas for consideration by Governments concerned, and support for their implementation.

Subprogrammes:

(a) Environmental assessment 1/

Objective: Assessment and evaluation of the causes, magnitude and consequences of environmental problems in regional seas.

(b) Environmental management 1/

Objective: Assistance to Governments in managing the resources of regional seas in an effective and sustainable manner, taking environmental constraints into consideration.

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1/ Specific activities in each region are covered in programmes 16 and 17 above.

(c) Legal instruments

Objective: Development and adoption of regional conventions and protocols providing a legal framework for co-operative regional and national action to protect and manage regional seas.

(d) Institutional and financial arrangements

Objective: Development of specific regional management mechanisms, as needed, for the implementation of regional seas action plans.

Programme 20: Integrated approach to environment and developmentObjective

Provision of guidance, through international co-operation as appropriate, for the integration of environmental concerns into development planning, policies and programmes.

Subprogrammes:(a) Elaboration of the conceptual basis and implementation of case studies of the interrelationships between people, resources, environment and development relationship

Objective: Further clarification of the nature of the environment development relationship, taking into account various constraints and parameters relating, inter alia, to people, resources, environment and development.

(b) Development of economic and other tools in support of environmentally sound development practices

Objective: Promotion of suitable methodologies for the cost-benefit evaluation of environmental measures and changes; environmental impact assessment of development projects; establishment of systems of national and regional environmental accounting and inventories and integrated physical planning for rational use of natural resources and sustainable improvement in the quality of life.

(c) Integration of environmental considerations in international economic co-operationObjectives:

- (i) Promotion of environmental considerations in the implementation of the International Development Strategy for the Third United Nations Development Decade;
- (ii) Review of multilateral development assistance policies and promotion of policies which will further environmentally sound development.

(d) Institutional arrangements and mechanisms

Objective: Promotion of regional and international exchange of experience on effective institutional arrangements and mechanisms for integrating developmental and environmental goals in practice.

Programme 21: Environmental considerations for agricultural development

Objectives

1. Promotion of measures to halt degradation and depletion of agricultural resources, to restore them, and increase and sustain their productive capacity, and to deal with the related problems of pollution by waste and food contamination.
2. Development and promotion of production systems appropriate to ecological conditions, as well as to the socio-economic requirements of small farmers.

Subprogrammes:

(a) Assessment and monitoring of pesticides and fertilizers in the environment

Objective: Assessment and monitoring of the impact of pesticides and fertilizers in the environment and human food chains, with a view to promoting the quick dissemination of relevant information, particularly to developing countries, and providing the basis for the formulation of international legal instruments for the safe use of agro-chemicals.

(b) Integrated pest management systems

Objective: Development and promotion of integrated pest management systems for priority food and industrial crops in order to minimize the impact of pesticide residues in the environment, particularly in the developing countries, and dissemination of the relevant information.

(c) Agro-industrial technologies and residue recycling

Objectives:

- (i) Development and promotion of appropriate agro-industrial and other technologies and farming systems with a view to minimizing pollution and food losses and improving the living conditions of rural populations, and promotion of the recycling of agricultural and agro-industrial residues, including organic materials, so as to increase and maintain productivity;
- (ii) Development of appropriate training schemes for decision-makers, technicians and extension workers.

Programme 22: Industry and environment

Objective

Application of internationally recommended criteria and methods for environmentally sound industrial practices, including the planning, siting and operation of industrial plants, the choice of production technology and the design of production processes with a view to minimizing adverse environmental impacts, including those on the working environment, and conserving natural resources.

Subprogrammes:

(a) Review and assessment of environmental and resource aspects of industrial activities

Objective: Assessment of environmental implications in agro-industries, forest products, chemicals, metallurgy, petroleum, building materials, construction, textiles, mineral extraction, motor vehicles, other transportation<sup>2/</sup> and tourism. (Other industries may be added as need arises and resources are available).

(b) Development and promotion of the application of environmental management and environmentally sound technologies for industrial activities

Objectives:

- (i) Preparation of guidelines and manuals on industrial environmental management for each of the industrial activities to be reviewed and assessed under subprogramme I with a view to providing technical guidance regarding pollution prevention and control in the design, construction and operation of plant and facilities;
- (ii) Review, collation and dissemination of national legislation and practices in respect of environmental standards related to industry, including occupational standards, and their application;
- (iii) Development of procedures, methodologies and institutional mechanisms for environmental management in industry;
- (iv) Development and application of low-waste and non-waste technologies and the recycling and use of waste material and residues.

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<sup>2/</sup> Transport is not treated in SWMTEP as a separate topic. It is expected that the Council will pronounce itself, at its ninth session, on the suitability of giving transport more prominence in the environment programme.

(c) Industrial environmental information and training

Objectives:

- (i) Development of international industrial environmental data bases, in the light of emerging needs, and promotion of their compatibility and inter-linkages with other data accessible through international sources;
- (ii) Assistance to countries in developing capabilities for industrial environmental information systems, and facilitation of access by them to the international systems;
- (iii) Assistance to countries at the regional, sub-regional and national levels, in the assessment of manpower needs, the development of training programmes and materials, and the strengthening of relevant institutions for industrial environmental assessment and management;
- (iv) Preparation and dissemination of industrial environmental information.

Programme 23: Energy

Objective

Study of the environmental impacts of production and use of energy, and promotion of the development of environmentally sound energy policies.

Subprogrammes:

(a) Energy and environment

Objectives:

- (i) Assessment of the environmental impacts of production, transportation and use of different sources of energy;
- (ii) Assessment of the environmental impacts of new energy technologies, for example of coal gasification and liquefaction, production of synthetic fuels from tar sands and oil shales, advanced and alternative nuclear fuel cycles, ocean thermal power, energy farms, etc.

(b) Renewable sources of energy

Objectives:

- (i) Promotion of research and development to harness locally available renewable sources of energy;
- (ii) Evaluation of renewable sources of energy in the context of rural development;



- (iii) Establishment of pilot experiments to study the technical performance of renewable energy systems, their environmental impacts and their socio-economic feasibility;
- (iv) Increasing the efficiency of production and use of energy from renewable sources.

(c) Increasing the efficiency of energy production and use

Objectives:

- (i) Promotion of energy conservation through the development of technologies for more efficient production of energy and its more efficient use in the different sectors (industry, agriculture, residential and transport);
- (ii) Assessment of the socio-economic and environmental impacts of energy conservation measures;
- (iii) Promotion of national energy policies oriented towards more efficient use of energy.

Programme 24: Environmental law

Objective

Encouragement of national and international efforts to develop and enforce environmental law as an essential part of environmental management.

Subprogrammes:

(a) Enforcement of existing environmental conventions and protocols

Objective: Development of procedures, mechanisms and means (guidelines, procedures and standards) to ensure effective implementation of selected international agreements relevant to environmental protection and improvement, including agreements on the promotion of technical co-operation.

(b) Development and codification of a new body of international environmental law

Objective: Contribution towards the development, at both global and regional levels, of legal principles and agreements to meet new requirements generated by environmental concerns and by the international strategy in the field of environment, based particularly on the Stockholm Declaration; follow-up of the new Law of the Sea Convention, the World Conservation Strategy, and promotion of international agreements and codes of conduct on environmental management and the use of the international commons as an essential aspect of international co-operation for the implementation of the new International Development Strategy.

(c) Strengthening of national and regional capacities

Objectives:

- (i) Development of an adequate legislative data base, with analyses, for use by programme planners and decision-makers in determining priorities in the field of environmental law; evaluation of the effectiveness of the measures taken;
- (ii) Development and strengthening of national and regional mechanisms and co-operative programmes of information exchange using, as appropriate, the TCDC approach with a view to ensuring that new environmental legislation responds to societal needs and priorities;
- (iii) Encouragement of the initiation or intensification of teaching and research on environmental law in a selected number of universities and institutions, and promotion as appropriate of training programmes for the development and implementation of environmental legislation and related measures.

Programme 25: Environmental education and training 3/

Objectives

1. Integration of environmental knowledge and concerns in educational systems at all levels.
2. Preparation and dissemination of educational and training materials, provision of guidelines and support for the development and implementation of environmental education and training programmes.

Subprogrammes:

(a) General and out-of-school education

- (i) Preparation, development and testing of appropriate methodologies, procedures and techniques for environmental education;
- (ii) Preparation, development and dissemination of education and training materials;
- (iii) Introduction of environmental education components in school and out-of-school curricula and programmes.

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3/ The training component dealt with here does not concern programme-specific training activities.

(b) Education for particular social and professional groups

Objectives:

- (i) Preparation, development and testing of appropriate methodologies, procedures and techniques for environmental education and training;
- (ii) Preparation, development and dissemination of education and training materials.

(c) Regional and international co-operation

Objective: Exchange of experience and expertise in the formulation and implementation of environmental education programmes, with a view in particular to furthering integrated approaches.

Programme 26: Environmental information

Objective

Enhancement of general public awareness of, and positive response to environmental issues and concerns.

Subprogrammes:

(a) Environmental information for the public

Objective: Preparation and effective dissemination of environmental information targeted specifically at the public audience through various mass media.

(b) Environmental information for other target audiences

Objective: Preparation and dissemination of environmental information to specific target groups (e.g. decision-makers) so as to promote integration of environmental considerations in economic and social development planning.

(c) International co-operation for exchange of environmental information

Objective: Development of communications networks and of the capabilities of national and regional institutions to acquire, process and disseminate environmental information.

Annex III

SAMPLE PROGRAMME 15: GENETIC RESOURCES

I. General orientation of the programme

(a) Introductory remarks

1. The term "genetic resources" refers to the total variety of plants, animals and microorganisms, considered as utilizable resources which constitute the basis of the economic bioproductivity of the planet and an element in the ecological integrity of managed ecosystems. They are the main source of food and fibres and a major source of medicine and chemicals, and play a significant role in the capture of solar energy, in the recycling of elements and in maintaining the general health of the environment. The genetic material of these resources is fragile and cannot be duplicated by man: once they perish, their potential is permanently lost.

2. The issue is particularly urgent and important in the case of the relatively few species which are heavily exploited by man. Through millenia of evolution, an unusually rich genetic diversity has been created in such species, making them adaptable for useful exploitation in a variety of environments. This diversity is under heavy and immediate pressure because of the current emphasis on more intensive production systems based on specially bred strains with uniform and narrow genetic constitution, and in some species - especially in the case of microorganisms - current exploitation is based on only a small fraction of the available genetic potential.

3. While over-all genetic diversity may be maintained by protecting natural ecosystems and ensuring minimum interference with them, genetic resources conservation needs to be closely linked to a system of retrieval of well documented genotype samples for specific needed functions, to the development of environmentally sound bioproductive systems that exploit the fullest potential of genetic resources, and to the maintenance of essential interactions between these species and wild genotypes.

(b) Intergovernmental approach and strategy for the programme

4. While the management of specific genetic resources will always be a national concern, a certain degree of international co-ordination is necessary, both because the genetic base for a given species often lies outside the countries where it is exploited, and because preserved genetic resources - and information thereon - should be freely accessible to all users. The resources required for such co-ordination will be extremely small, compared to the total resources required at national levels, and geared mainly towards filling essential gaps of international significance.

5. Genetic resources conservation and deployment are components of the rational utilization of resources to satisfy human needs which figures prominently in the mandates of several United Nations bodies, and organizations, including FAO, WHO, UNIDO and UNESCO, and have featured in the conclusions of several United Nations Conferences, especially in recommendations 28 and 39-45 of the United Nations Conference on the Human Environment. This programme interlinks with several other Programmes including: Soils, Environmental Considerations for Rural and Agricultural Development, Energy and Industry.

(c) Derivation of the programme from legislation

6. The over-all objective of the programme, as approved by the Governing Council (decision 8/6, sect. IV, para. 1 (a)), is to promote the safeguarding of the widest genetic diversity within each of these species which have significant, or potentially significant socio-economic value, and their optimum deployment for environmentally sound and sustainable development and, especially in the case of microorganisms, in environmental betterment. Subprogrammes are structured in such a way that collectively they address the over-all programme objective, with each addressing a coherent set of more specific objectives.

2. Subprogrammes

Subprogramme (a) Assessment and management of plant and animal genetic resources

Problem addressed

Lack of reliable methodologies for assessing genetic impoverishment within individual fish and woody plant species and economic species in protected areas - and for long term conservation of certain types of genetic resources - hinders conservation efforts.

While genetic diversity within economic plant and animal species is fast disappearing, its potential is yet to be adequately deployed in environmentally sound systems. Intensive efforts are needed to preserve the remaining resources in a deployable form, within an international framework which would make preserved resources, and information on them, accessible to all member States. National action is often constrained by, inter alia, inadequate awareness of and access to relevant information.

In most developing countries, awareness on the part of decision-makers and the public, and specialized expertise in relevant issues, are at present too limited, to support national programmes. Accordingly, emphasis will be placed on training.

The situation at the end of 1983

Continuing assessment and conservation of genetic diversity in most species of crop plants, and animals, publication of regular information newsletters, and completion of draft methodologies or preliminary reports and studies on questions of accessibility to all stored genetic resources.

Objectives

Intergovernmental objectives

To maintain the widest genetic diversity within plant and animal species which have a significant, or potentially significant, socio-economic value; to help make such genetic material and information freely accessible for utilization; and to promote its environmentally sound deployment.

General Objectives of the United Nations system

- (i) Increased knowledge of the genetic diversity of plant and animal species; compilation and dissemination of relevant information;
- (ii) Development of methodologies for conservation of plant and animal species, with emphasis on national efforts to conserve threatened plant and animal genetic resources in situ, or ex situ; development of international systems for storage and retrieval of information on available genetic resources;
- (iii) Promotion of training and public awareness, especially in developing countries;
- (iv) Promotion of efforts aimed at ensuring accessibility to available genetic resources and related information, with a view to concluding international agreements.

Time-limited subsidiary objectives of the United Nations system

- (i) Methodologies for assessment of genetic impoverishment within individual species of economic plants in protected areas and of woody plants (1986), and of fish (1989);
- (ii) Methodologies for in situ conservation of plants, and for regional gene banks for animals (1986); experimental conservation schemes for in situ conservation of selected crops and woody plants (1986), and for selected animals (1987);

- (iii) Agreements on accessibility to crop plant genetic resources in all World Base Collections, and provision of a framework for formulation and conclusion of relevant international instruments (1985).

Continuing subsidiary objectives of the United Nations system

- (i) Co-ordination of the assessment of genetic diversity within plant and animal species; exploration, collection, and long-term storage - in World Base Collections - of crop plant genetic resources; and co-ordination, and monitoring the utilization, of a global system for storage and retrieval of information;
- (ii) Studies and pilot schemes for environmentally sound deployment of specially adapted plant and animal genetic resources in agriculture, forestry, animal husbandry and fisheries, with initial emphasis on the use of crops and woody plants in arid ecosystems;
- (iii) Provision of technical assistance to member States, on request, in the incorporation of genetic resources management in national planning and the dissemination of relevant information;
- (iv) Promotion of training for scientists from developing countries in the assessment, management and deployment of plant and animal genetic resources, and dissemination of information directed at raising awareness among decision-makers, specialists, extension workers and the general public;
- (v) An operational information referral system to assist developing countries in gaining access to needed genetic resources.

Strategy for the period 1984-1989

The strategy is based on utilization of existing institutions and systems, ad hoc expert groups and consultants; development of methodologies to be tested in pilot projects before final elaboration; publication and possible application. Literature surveys to gather relevant information and ex situ and in situ conservation of crop, and to a lesser extent woody plant, genetic resources would continue to be co-ordinated internationally through the International Board for Plant Genetic Resources. A similar co-ordinating body for animal genetic resources is envisaged. Through these co-ordinating bodies and through experts, advice on national genetic resources management will be provided to member States on request. A working mechanism for negotiating access to available genetic resources will be established.

### Evaluation

#### Purpose

To assess the extent to which: methodologies developed are used; national development planning has been sensitized to conservation needs; a significant portion of genetic resources are under protection; and information thereon has become accessible to national users.

#### Performance and impact indicators

This will be based upon the extent to which: (a) assessment efforts are not constrained by lack of methodologies; (b) documentation on economic species in protected areas includes information on variation within individual species; (c) conservation is not constrained by lack of reliable methodologies and expertise; (d) management efforts are capable of backing the needs of economic bioproductive systems; and (e) unique genetic resources are contributing to environmentally sound development.

### Subprogramme (b) Assessment and management of microbiological genetic resources

#### Problem addressed

Although the experience gained in operating a pilot MIRCEN network showed the validity and viability of the concept, it also demonstrated that the pilot phase has its limitations, and that further development of the MIRCENS is essential if developing countries are to be able to make independent use of microbial genetic resources in environmentally sound development schemes. Lack of information on genetic resources, and in particular of catalogues of microorganisms for specific technologies, often constraints wide application of relevant technologies.

#### The situation at the end of 1983

A central system for informational storage and retrieval is in operation; and catalogues of strains for specific applications will have been produced and five pilot MIRCENS in developing countries will have established gene banks geared to nitrogen fixation, residue utilization and biotechnology.

#### Objectives

##### Intergovernmental objective

Operation of a global network of microbiological resources centres (MIRCENS) to conserve microbial genetic resources and apply them in environmental management.



General objective of the United Nations system

- (i) Compilation and dissemination of catalogues of strains of microorganisms for various applications; development of microbial resources centres from the pilot to an operational phase, and expansion of the network to other regions in developing countries;
- (ii) Stimulation of the development, testing and application of environmentally sound and appropriate biotechnologies;
- (iii) Promotion of training and public awareness, especially in developing countries.

Time-limited subsidiary objectives of the United Nations system

Catalytic support for the further development of MIRCENs into focal points for development, testing and application of relevant microbial technologies:

- (i) Establishment of a standing body for scientific back-stopping, co-ordination, and dissemination of information on relevant programmes and technologies (1984);
- (ii) Strengthening of links between existing regional MIRCENs and reliable national gene banks in each participating country (1985);
- (iii) Development, testing application and dissemination of information on environmentally sound and appropriate biotechnologies, with initial emphasis on symbiotic and nonsymbiotic nitrogen fixation, agro-industrial residue utilization, energy conversions, microbial pesticides and pollution control through waste management;
- (iv) Production of catalogues of microbial strains for selected environmentally sound and appropriate technologies with emphasis on biological nitrogen fixation (1985), energy conversions (1986), pest and pathogen control (1987), and waste-free technologies (1989).

Continuing subsidiary objectives of the United Nations system

- (i) Constant review of emerging biotechnologies, with emphasis on degradation of pollutants, genetic engineering, ore-leaching and the biogeochemical cycles; co-ordination and monitoring of the utilization of a global register of microbial strains;
- (ii) Promotion of training in the assessment and management of microbial genetic resources, and public awareness of their uses.

### Strategy for the period 1984-1989

The strategy is based on provision of an effective mechanism for system-wide co-ordination, scientific back-stopping, planning and training, with the assumption that national interest will be significant; and collaborative monitoring of scientific literature. Catalogues of microbial strains compiled and appropriately reviewed.

### Evaluation

#### Purpose

To assess the extent to which the MIRCEN network is regarded by member States as an appropriate mechanism for optimizing the potential of microorganisms in environmental betterment and environmentally sound development, by surveying the views of Governments and analysing the interactions between operational MIRCENS and relevant sections of SWMTEP.

### Performance and impact indicators

This will be based on the extent to which exploitation of microorganisms have been integrated into national programmes with strong environmental relevance, with paucity of trained staff no longer a constraint.

## 3. Co-ordination

### (a) Needed intergovernmental co-ordination

Regulation of accessibility to conserved genetic resources by users may require legal instruments which would require intergovernmental co-ordination. The secretariat will be responsible for planning and, if so directed by the Governing Council, preparing for such co-ordination.

### (b) Formal co-ordination within the United Nations system

Review of policies and harmonization of activities will be effected through thematic joint programming meetings and the designated officials for environmental matters. It will be necessary however to establish a mechanism for continuous interaction, along the lines of, or through the Ecosystems Conservation Group, with effective participation of FAO, WHO, UNESCO, IAEA, UNIDO, UNDP, IBPGR, IUCN, and other organizations.

(c) Units with which significant joint activities are expected during the period 1984-1989

UNEP will co-ordinate and catalyse activities, but implementation will be generally carried out by other bodies or organizations, along the following lines:

(a) Crop plants: by FAO in close collaboration with IBPGR and with the assistance of WHO, UNESCO, IAEA, UNDP and IUCN;

(b) Woody plants: by FAO in collaboration with IBPGR and the assistance of WHO, UNESCO, UNDP and IUCN;

(c) Animals and fish: by FAO with the assistance of UNDP;

(d) Microorganisms: by UNESCO and FAO with the assistance of UNIDO, UNDP, WHO and IAEA.

Annex IV.

SUGGESTED ACTION BY THE GOVERNING COUNCIL

The Governing Council may wish to give consideration to:

- (a) Expressing its appreciation for the efforts and co-operation of members of the United Nations system, and urging them to continue rendering such support, particularly during 1981 and until the system-wide medium-term environment programme is fully developed;
- (b) Expressing its views on the structure of the document;
- (c) Provisionally approving the structure and objectives as a basis for the development of the system-wide medium-term environment programme, subject to further review at its tenth session;
- (d) Indicating, on the basis of the sample programme presentation on genetic resources, the level of detail it deems necessary.

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