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**AGENDA 21, CHAPTER 40**

**INFORMATION FOR DECISION-MAKING**

NOTE: This is a final, advanced version of a chapter of Agenda 21, as adopted by the Plenary in Rio de Janeiro, on June 14, 1992. This document will be further edited, translated into the official languages, and published by the United Nations for the General Assembly this autumn.

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## INTRODUCTION

40.1. In sustainable development, everyone is a user and provider of information considered in the broad sense. That includes data, information, appropriately packaged experience and knowledge. The need for information arises at all levels, from that of senior decision makers at the national and international levels to the grass-roots and individual levels. The following two programme areas need to be implemented to ensure that decisions are based increasingly on sound information:

- (a) Bridging the data gap;
- (b) Improving information availability.

## PROGRAMME AREAS

### A. Bridging the data gap

#### Basis for action

40.2. While considerable data already exist, as the various sectoral chapters of Agenda 21 indicate, more and different types of data need to be collected, at the local, provincial, national and international levels, indicating the status and trends of the planet's ecosystem, natural resource, pollution and socio-economic variables. The gap in the availability, quality, coherence, standardization and accessibility of data between the developed and the developing world has been increasing, seriously impairing the capacities of countries to make informed decisions concerning environment and development.

40.3. There is a general lack of capacity, particularly in developing countries, and in many areas at the international level, for the collection and assessment of data, for their transformation into useful information and for their dissemination. There is also need for improved coordination among environmental, demographic, social and developmental data and information activities.

40.4. Commonly used indicators such as the gross national product (GNP) and measurements of individual resource or pollution flows do not provide adequate indications of sustainability. Methods for assessing interactions between different sectoral environmental, demographic, social and developmental parameters are not sufficiently developed or applied. Indicators of sustainable development need to be developed to provide solid bases for decision-making at all levels and to contribute to a self-regulating sustainability of integrated environment and development systems.

#### Objectives

40.5. The following objectives are important:

(a) To achieve more cost-effective and relevant data collection and assessment by better identification of users, in both the public and private sectors, and of their information needs at the local, provincial, national and international levels;

(b) To strengthen local, provincial, national and international capacity to collect and use multisectoral information in decision-making processes and to enhance capacities to collect and analyse data and information for decision-making, particularly in developing countries;

(c) To develop or strengthen local, provincial, national and international means of ensuring that planning for sustainable development in all sectors is based on timely, reliable and usable information;

(d) To make relevant information accessible in the form and at the time required to facilitate its use.

#### Activities

(a) Development of indicators of sustainable development

40.6. Countries at the national level and international governmental and non-governmental organizations at the international level should develop the concept of indicators of sustainable development in order to identify such indicators. In order to promote the increasing use of some of those indicators in satellite accounts, and eventually in national accounts, the development of indicators needs to be pursued by the Statistical Office of the United Nations Secretariat, as it draws upon evolving experience in this regard.

(b) Promotion of global use of indicators of sustainable development

40.7. Relevant organs and organizations of the United Nations system, in cooperation with other international governmental, intergovernmental and non-governmental organizations, should use a suitable set of sustainable development indicators and indicators related to areas outside of national jurisdiction, such as the high seas, the upper atmosphere and outer space. The organs and organizations of the United Nations system, in coordination with other relevant international organizations, could provide recommendations for harmonized development of indicators at the national, regional and global levels, and for incorporation of a suitable set of these indicators in common, regularly updated, and widely accessible reports and databases, for use at the international level, subject to national sovereignty considerations.

(c) Improvement of data collection and use

40.8. Countries and, upon request, international organizations should carry out inventories of environmental, resource and developmental data, based on national/global priorities for the

management of sustainable development. They should determine the gaps and organize activities to fill those gaps. Within the organs and organizations of the United Nations system and relevant international organizations, data-collection activities, including those of Earthwatch and World Weather Watch, need to be strengthened, especially in the areas of urban air, freshwater, land resources (including forests and rangelands), desertification, other habitats, soil degradation, biodiversity, the high seas and the upper atmosphere. Countries and international organizations should make use of new techniques of data collection, including satellite-based remote sensing. In addition to the strengthening of existing development-related data collection, special attention needs to be paid to such areas as demographic factors, urbanization, poverty, health and rights of access to resources, as well as special groups, including women, indigenous peoples, youth, children and the disabled, and their relationships with environment issues.

(d) Improvement of methods of data assessment and analysis

40.9. Relevant international organizations should develop practical recommendations for coordinated, harmonized collection and assessment of data at the national and international levels. National and international data and information centres should set up continuous and accurate data-collection systems and make use of geographic information systems, expert systems, models and a variety of other techniques for the assessment and analysis of data. These steps will be particularly relevant, as large quantities of data from satellite sources will need to be processed in the future. Developed countries and international organizations, as well as the private sector, should cooperate, in particular with developing countries, upon request, to facilitate their acquiring these technologies and this know-how.

(e) Establishment of a comprehensive information framework

40.10. Governments should consider undertaking the necessary institutional changes at the national level to achieve the integration of environmental and developmental information. At the international level, environmental assessment activities need to be strengthened and coordinated with efforts to assess development trends.

(f) Strengthening of the capacity for traditional information

40.11. Countries, with the cooperation of international organizations, should establish supporting mechanisms to provide local communities and resource users with the information and know-how they need to manage their environment and resources sustainably, applying traditional and indigenous knowledge and approaches when appropriate. This is particularly relevant for rural and urban populations and indigenous, women's and youth groups.

Means of implementation

(a) Finance and cost evaluation

40.12. The secretariat of the Conference has estimated the average total annual cost (1993-

2000) of implementing the activities of this programme to be about \$1.9 billion from the international community on grant or concessional terms. These are indicative and order of magnitude estimates only and have not been reviewed by Governments. Actual costs and financial terms, including any that are non-concessional, will depend upon, *inter alia*, the specific strategies and programmes Governments decide upon for implementation.

(b) Institutional means

40.13. Institutional capacity to integrate environment and development and to develop relevant indicators is lacking at both the national and international levels. Existing institutions and programmes such as the Global Environmental Monitoring System (GEMS) and the Global Resource Information Database (GRID) within UNEP and different entities within the systemwide Earthwatch will need to be considerably strengthened. Earthwatch has been an essential element for environment-related data. While programmes related to development data exist in a number of agencies, there is insufficient coordination between them. The activities related to development data of agencies and institutions of the United Nations system should be more effectively coordinated, perhaps through an equivalent and complementary "Development Watch", which with the existing Earthwatch should be coordinated through an appropriate office within the United Nations to ensure the full integration of environment and development concerns.

(c) Scientific and technological means

40.14. Regarding transfer of technology, with the rapid evolution of data-collection and information technologies it is necessary to develop guidelines and mechanisms for the rapid and continuous transfer of those technologies, particularly to developing countries in conformity with chapter 34 and for the training of personnel in their utilization.

(d) Human resources development

40.15. International cooperation for training in all areas and at all levels will be required, particularly in developing countries. That training will have to include technical training of those involved in data collection, assessment and transformation, as well as assistance to decision makers concerning how to use such information.

(e) Capacity-building

40.16. All countries, particularly developing countries, with the support of international cooperation, should strengthen their capacity to collect, store, organize, assess and use data in decision-making more effectively.

B. Improving availability of information

Basis for action

40.17. There already exists a wealth of data and information that could be used for the management of sustainable development. Finding the appropriate information at the required time and at the relevant scale of aggregation is a difficult task.

40.18. Information within many countries is not adequately managed, because of shortages of financial resources and trained manpower, lack of awareness of the value and availability of such information and other immediate or pressing problems, especially in developing countries. Even where information is available, it may not be easily accessible, either because of the lack of technology for effective access or because of associated costs, especially for information held outside the country and available commercially.

#### Objectives

40.19. Existing national and international mechanisms of information processing and exchange, and of related technical assistance, should be strengthened to ensure effective and equitable availability of information generated at the local, provincial, national and international levels, subject to national sovereignty and relevant intellectual property rights.

40.20. National capacities should be strengthened, as should capacities within Governments, non-governmental organizations and the private sector, in information handling and communication, particularly within developing countries.

40.21. Full participation of, in particular, developing countries should be ensured in any international scheme under the organs and organizations of the United Nations system for the collection, analysis and use of data and information.

#### Activities

(a) Production of information usable for decision-making

40.22. Countries and international organizations should review and strengthen information systems and services in sectors related to sustainable development, at the local, provincial, national and international levels. Special emphasis should be placed on the transformation of existing information into forms more useful for decision-making and on targeting information at different user groups. Mechanisms should be strengthened or established for transforming scientific and socio-economic assessments into information suitable for both planning and public information. Electronic and non-electronic formats should be used.

(b) Establishment of standards and methods for handling information

40.23. Governments should consider supporting the efforts of governmental as well as non-governmental organizations to develop mechanisms for efficient and harmonized exchange of information at the local, national, provincial and international levels, including revision and establishment of data, access and dissemination formats, and communication interfaces.

(c) Development of documentation about information

40.24. The organs and organizations of the United Nations system, as well as other governmental and non-governmental organizations, should document and share information about the sources of available information in their respective organizations. Existing programmes, such as those of the Advisory Committee for the Coordination of Information Systems (ACCIS) and the International Environmental Information System (INFOTERRA), should be reviewed and strengthened as required. Networking and coordinating mechanisms should be encouraged between the wide variety of other actors, including arrangements with non-governmental organizations for information sharing and donor activities for sharing information on sustainable development projects. The private sector should be encouraged to strengthen the mechanisms of sharing its experience and information on sustainable development.

(d) Establishment and strengthening of electronic networking capabilities

40.25. Countries, international organizations, including organs and organizations of the United Nations system, and non-governmental organizations should exploit various initiatives for electronic links to support information sharing, to provide access to databases and other information sources, to facilitate communication for meeting broader objectives, such as the implementation of Agenda 21, to facilitate intergovernmental negotiations, to monitor conventions and efforts for sustainable development to transmit environmental alerts, and to transfer technical data. These organizations should also facilitate the linkage of different electronic networks and the use of appropriate standards and communication protocols for the transparent interchange of electronic communications. Where necessary, new technology should be developed and its use encouraged to permit participation of those not served at present by existing infrastructure and methods. Mechanisms should also be established to carry out the necessary transfer of information to and from non-electronic systems to ensure the involvement of those not able to participate in this way.

(e) Making use of commercial information sources

40.26. Countries and international organizations should consider undertaking surveys of information available in the private sector on sustainable development and of present dissemination arrangements to determine gaps and how those gaps could be filled by commercial or quasi-commercial activity, particularly activities in and/or involving developing countries where feasible. Whenever economic or other constraints on supplying and accessing information arise, particularly in developing countries, innovative schemes for subsidizing such information-related access or removing the non-economic constraints should be considered.

Means of implementation

(a) Finance and cost evaluation

40.27. The secretariat of the Conference has estimated the average total annual cost (1993-2000) of implementing the activities of this programme to be about \$165 million from the international community on grant or concessional terms. These are indicative and order of magnitude estimates only and have not been reviewed by Governments. Actual costs and financial terms, including any that are non-concessional, will depend upon, *inter alia*, the specific strategies and programmes Governments decide upon for implementation.

(b) Institutional means

40.28. The institutional implications of this programme concern mostly the strengthening of already existing institutions, as well as the strengthening of cooperation with non-governmental organizations, and need to be consistent with the overall decisions on institutions made by the United Nations Conference on Environment and Development.

(c) Capacity-building

40.29. Developed countries and relevant international organizations should cooperate, in particular with developing countries, to expand their capacity to receive, store and retrieve, contribute, disseminate, use and provide appropriate public access to relevant environmental and developmental information, by providing technology and training to establish local information services and by supporting partnership and cooperative arrangements between countries and on the regional or subregional level.

(d) Scientific and technological means

40.30. Developed countries and relevant international organizations should support research and development in hardware, software and other aspects of information technology, in particular in developing countries, appropriate to their operations, national needs and environmental contexts.

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