



General Assembly

Distr.
GENERAL

A/45/6 (Prog. 20)
8 May 1990

ORIGINAL: ENGLISH

CONFIDENTIAL
MAY 10 1990

Forty-fifth session

PROPOSED MEDIUM-TERM PLAN FOR THE PERIOD 1992-1997*

MAJOR PROGRAMME IV. INTERNATIONAL ECONOMIC CO-OPERATION FOR DEVELOPMENT

Programme 20. Energy

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* The present document contains programme 20 of the proposed medium-term plan for the period 1992-1997. The complete medium-term plan will subsequently be issued in final printed form as Official Records of the General Assembly, Forty-fifth Session, Supplement No. 6 (A/45/6/Rev.1).

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PROGRAMME 20. ENERGY

A. Programme

1. General orientation

20.1 In order to attain the overall development and sectoral goals of the forthcoming international development strategy for the fourth United Nations development decade and the Nairobi Programme of Action for the Development and Utilization of New and Renewable Sources of Energy, the present programme will aim at providing assistance to policy makers and international organizations to enable them to evolve an integrated response to energy issues of global significance and to promote appropriate forms of international co-operation.

20.2 Energy will continue to be a major factor in attaining national socio-economic objectives. The amount of energy consumed will grow at a faster pace than before, in particular, in the developing countries. The population growth, together with the process of urbanization in the developing countries, will create an increased demand for energy.

20.3 Market responses to changes in relative prices and to measures undertaken by Governments led to shifts in the level and composition of energy production between 1973 and 1990. Coal, natural gas and nuclear energy and renewable sources, such as hydropower, solar and geothermal energy, increased their share in total production of primary energy, while the share of liquid hydrocarbons fell. Considerable substitution from fuel oil to gas and coal for electricity generation has taken place and the outlook for nuclear power is uncertain. The development and utilization of new and renewable sources of energy can, in the long term, make a significant contribution to meeting energy requirements. Those sources of energy open up the prospect of increasing indigenous energy supply and thereby decrease a country's import dependency.

20.4 Low energy prices have brought about a fundamental re-orientation of energy investments, which may be expected to continue, at least for the medium-term. The flow of investment in oil exploration towards developing countries for energy resource development has been reduced. The capacity for accumulation of capital and access to external financing by energy-importing developing countries has deteriorated. Therefore, the high level of capital investment required for the exploration and exploitation of energy resources continues to be one of the major constraints.

20.5 Over the past two decades, there has been a growing awareness of the close relationship between energy and environmental issues that has opened an entirely new area for international concern. There is a need to intensify the monitoring and analysis of environmental aspects, policies and measures of development and use of energy, particularly with regard to issues transcending national boundaries.

20.6 Notwithstanding the current excess of production capacity in the world, maintenance of an adequate energy supply for development remains a central concern in the medium- and long-term at both the national and international levels. Projections of consumption, production and prices are, therefore, essential to the formulation of development strategies. The sizeable investments required to

increase energy supplies and the long lead time involved in energy issues cannot be addressed in the same way as many other development issues.

20.7 There is a need to strengthen international co-operation and to promote concerted action with the support of the international community according to national plans and priorities in the areas identified in the Nairobi Programme of Action. There is also a need to stimulate the mobilization of additional and adequate financial resources for their development and to provide for an exchange of information and manpower training in new and renewable sources of energy.

2. Overall strategy

20.8 The basic approach to the implementation of the programme will be to assist member countries in strengthening their capability to define and manage their energy related problems and to do so on a self-sustained and continuous basis. Towards that end, the Department of International Economic and Social Affairs and the Department of Technical Co-operation for Development of the United Nations Secretariat will implement the following overall strategy, while maintaining close co-ordination.

20.9 The Department of International Economic and Social Affairs through its Energy and Resources Branch under the Office for Development Research and Policy Analysis, will undertake research and analysis of supply and demand and other trends in energy that affect the world economy, and will conduct studies concerning the relationship (a) between energy and economic performance, including, inter alia, energy conservation and utilization and (b) between energy and balance of payments and investment requirements of the energy sector. Much of the work of the programme will focus on the identification of trends and issues of international concern and on bringing those to the attention of policy makers in the energy field.

20.10 The Department of Technical Co-operation for Development, through its Energy Resources Branch, will identify, promote and execute technical co-operation projects. The Department will implement a technical assistance programme covering the exploration and rational utilization of energy resources, upgrading and ensuring the efficient utilization of the existing energy infrastructure, developing human resources, reviewing the institutional framework of the energy sector, establishing national energy information systems, and assessing and controlling the impact of energy activities on the environment. All those activities will be aimed at strengthening energy policies and programmes of the developing countries. It is expected that the Governments, recipients of technical assistance, will assign due priority to the energy sector and provide adequate counterpart personnel to the technical assistance effort in order to secure an effective transfer of technology and create a self-sustained capacity for project implementation.

20.11 Another line of action by the Department will consist in providing direct advisory services to the developing countries on matters of energy resource development, energy planning and energy related technology transfer. International seminars, workshops and study tours will be organized to train personnel and to provide the opportunity to exchange experiences and information among experts from developed and developing countries. Technical studies will be carried out for the purpose of exploring new directions, new methods and new technologies relevant to

the needs of the developing countries, while at the same time examining past experiences for valuable lessons learned. Those studies will be disseminated through special technical publications and periodicals.

20.12 The energy programme will be closely co-ordinated with the natural resources programme and with the regional commissions in relevant activities included in major programme VI (regional co-operation for economic and social development). Efforts of co-ordination and co-operation with the United Nations Development Programme (UNDP), the World Bank and other bodies of the United Nations system will be enhanced.

3. Subprogramme structure and priorities

20.13 The following six subprogrammes are proposed in the light of the general orientation and overall strategy outlined above:

- Subprogramme 1. Monitoring and analysis of global energy trends and prospects and their impact on development
- Subprogramme 2. Promotion of energy exploration and development in developing countries
- Subprogramme 3. Furthering the development and use of new and renewable sources of energy
- Subprogramme 4. Energy resources assessment and exploration
- Subprogramme 5. Energy planning and management
- Subprogramme 6. Development and transfer of technology for exploiting critical energy resources

Subprogrammes 1 to 3 will be implemented by the Department of International Economic and Social Affairs; subprogrammes 4 to 6 by the Department of Technical Co-operation for Development.

20.14 Highest priority will be given to subprogramme 1 (Monitoring and analysis of global energy trends and prospects and their impact on development) (Department of International Economic and Social Affairs), and subprogramme 4 (Energy resources assessment and exploration) (Department of Technical Co-operation for Development).

B. Subprogrammes

SUBPROGRAMME 1. MONITORING AND ANALYSIS OF GLOBAL ENERGY TRENDS AND PROSPECTS AND THEIR IMPACT ON DEVELOPMENT

(a) Objectives

20.15 The legislative authority for the subprogramme derives from General Assembly resolutions 32/174, 32/197 and 39/176 and Economic and Social Council resolution 1761 (B) (LIV).

20.16 Discussions on global energy policies and national energy planning need a coherent common basis of analysis of the current and likely future situations relating to energy supply and demand. Future supply and demand are, however, subject to the influence of many changing factors, and those factors themselves must be the object of research and analysis in order to derive realistic estimates of future energy supply and demand. For example, energy demand is influenced by, inter alia, the rate of economic growth, conservation efforts and energy use practices, technological innovation and investment designed to speed energy efficiency, possibilities for inter-fuel substitution and a broad spectrum of governmental policies. Similarly, supplies of energy are influenced by investments, changes in energy institutional structures, laws and regulations affecting exploration and development of energy resources and the state of energy technologies.

20.17 The interrelationship between energy demand and supply, on the one hand, and environmental degradation, on the other, needs to be better understood. Environmental consequences will act as a constraint on the evolution of the global energy sector over the medium-term plan period, and energy developments, in turn, will be a major factor in determining the trend of environmental well-being. The environmental implications of different forms and levels of energy use and related policy options will also constitute important inputs for environment-related work in other programmes of the medium-term plan.

20.18 By 1992, a foundation will have been established for a realistic appraisal of long-run supplies from specific energy sources by analytical work and elaboration of an energy databank.

20.19 The objectives are (a) to assure a flow of universally accessible competent analyses of the current and projected balance between global energy supply and demand, which can be used as an objective basis in addressing energy issues at both the national and international levels and (b) to strengthen the ability of national and international policy makers concerned to anticipate global energy trends, thereby reducing some of the uncertainty involved in formulating energy plans, programmes and policies.

(b) Course of action of the Secretariat

20.20 A series of mutually reinforcing lines of analysis on energy supply will be pursued. Examination of prospects of renewable energy sources will complement a set of studies addressed at delineating supply-time profiles for exhaustible energy sources. Those studies will analyse the long-run supply elasticities of such fuels with respect to technological, economic, environmental and policy factors. They will also pinpoint potential bottle-necks in the development of energy resources, such as problems in technology transfer and insufficiency of capital flows to developing countries, and will identify remedial measures.

20.21 The planning options on the demand side of the energy balance will be significantly extended through a series of studies focusing on possible future patterns of energy consumption. Prospects for further declines in the energy intensiveness of aggregate production in developed and developing countries will be analysed. In that regard, particular emphasis will be given to energy efficiency and conservation.

20.22 Research and analysis on those longer-run phenomena will be supplemented by continuous monitoring of the prevailing energy supply-demand balance. The decision-making ability of policy makers and other concerned bodies will be strengthened by the increased availability of timely information on current developments and emerging problems. Considerable use of energy models of varying degrees of generality is foreseen. Use of those models and other types of analytical work will be facilitated by the completion of the energy data-bank mentioned above.

20.23 Results will be made available to intergovernmental bodies and Governments through three classes of reports: documents requested by intergovernmental bodies, technical reports for general distribution and sections of broader reports on world development matters. Evaluation of the results of the subprogramme will be on the basis of the usefulness of the various studies and documents provided to intergovernmental bodies, Governments and energy institutions.

SUBPROGRAMME 2. PROMOTION OF ENERGY EXPLORATION AND DEVELOPMENT IN DEVELOPING COUNTRIES

(a) Objectives

20.24 The legislative authority derives from General Assembly resolutions 40/208 and 43/193.

20.25 There are gaps between investment requirements and financing availability in developing countries, which can be reduced by appropriate action aimed towards achieving greater understanding and harmonization of interests between such countries, financial institutions and foreign investors.

20.26 The objective of the subprogramme will be to foster the acceleration of energy exploration and development, particularly in energy deficient developing countries, and to define and subsequently elaborate a programme of action aimed at improving the effectiveness of national policies and bilateral and multilateral programmes in the exploration and development of energy resources.

(b) Course of action of the Secretariat

20.27 Secretariat action will focus on identifying gaps between investment requirements and financing availability and bringing these to the attention of the relevant intergovernmental bodies. Research and analytical studies on the exploration and development of energy resources in developing countries, particularly those identified as energy deficient, will continue to be emphasized during the period 1992-1997 of the medium-term plan. This work will include monitoring of those factors influencing overall energy resource investment, such as changes in the institutional structures, energy prices, developments in exploratory techniques and changes in the provisions of longer-term agreements between host countries and foreign investors. Reports will pinpoint changes in trends and in such factors and the implications of those changes for resource development prospects. Investment requirements of developing countries in the energy sector will be kept under review, and financing methods available to those countries will also be the subject of investigation.

20.28 Furthermore, symposia, seminars and other meetings will be an essential part of the subprogramme.

SUBPROGRAMME 3. FURTHERING THE DEVELOPMENT AND USE OF NEW AND RENEWABLE SOURCES OF ENERGY

(a) Objectives

20.29 The legislative authority for the subprogramme derives from General Assembly resolutions 36/193, 37/250 and 38/169, 41/170 and 43/192.

20.30 Despite some significant progress, the pace of implementation of the Nairobi Programme of Action for the Development and Utilization of New and Renewable Sources of Energy has, over the past decade, been somewhat slow. Moreover, the reduction in the price of conventional energy, notably that of oil, has led to a waning of interest in the question of development and utilization of new and renewable sources of energy. Nevertheless, there is a need for continued effort in that field and an appreciation of the fact that development of new and renewable sources of energy, although long-term, requires continuous attention. That is particularly true for developing countries, where new and renewable sources of energy will be required to meet energy needs in rural areas and will also be required as their economies grow stronger with increased industrialization.

20.31 Associated with the need to rekindle interest in new and renewable sources of energy is the need to ensure additional adequate resources for their development and use, particularly in view of environmental considerations and the depletable nature of fossil fuels. There is obviously a need to move towards a better energy mix that will reduce the pressure on traditional energy resources.

20.32 The objective of the subprogramme will be to facilitate the implementation of the Nairobi Programme of Action by the creation of an expanded database on activities in the field of new and renewable sources of energy and by a strengthened co-ordination of effort within the United Nations system in the field of new and renewable sources of energy, as indicated by an increase in instances of co-operation in planning and implementation.

(b) Course of action of the Secretariat

20.33 The primary activity under the subprogramme will be the provision of substantive support to the Committee on the Development and Utilization of New and Renewable Sources of Energy, which is entrusted with the monitoring of the implementation of the Nairobi Programme of Action; and the preparation of substantive documentation for the Committee. The monitoring, collecting and reporting will be intensified on multilateral, bilateral and other programmes in that field and on the situation with regard to financial resources for the implementation of the Nairobi Programme of Action.

SUBPROGRAMME 4. ENERGY RESOURCES ASSESSMENT AND EXPLORATION

(a) Objectives

20.34 The legislative authority derives from General Assembly resolutions 34/201, 36/193, 43/192, 43/193 and 44/227 and Economic and Social Council resolutions 1989/6 and 1989/10.

20.35 Developing countries often lack the capacity to evaluate their indigenous energy resources potential and to execute exploration programmes. In addition, the

utilization of energy resources is hampered by inefficiency. The central objective is to increase the capacity to identify and evaluate the energy resource potential and contribute to a more efficient utilization of resources.

(b) Course of action of the Secretariat

20.36 The Secretariat will carry out efforts to expand the energy supply base of the developing countries through continued support for the exploration and exploitation of indigenous energy resources, which will focus specifically on assistance in the exploration for fossil fuels, hydropower, natural gas, coal and geothermal energy.

20.37 In order to improve the efficiency of energy use and promote more intensive energy conservation measures, national energy conservation programmes will be comparatively evaluated with the aim of ensuring an optimal allocation of financial and other resources of the country. That comprehensive approach to energy conservation can be adequately addressed only within the framework of national energy policy and planning.

20.38 The programme will continue to support technical co-operation projects and provide advisory services to Governments to assist in strengthening their national capacities for undertaking expanded exploration, survey and evaluation activities to broaden the conventional, new and renewable energy resource base in developing countries. Intensified activities will be undertaken to promote the flow of financial resources for further in-depth exploration programmes and development.

20.39 Studies on new technological developments, techniques, and strategies for identifying, locating and evaluating conventional, new and renewable sources of energy will be prepared and disseminated to Governments. Interregional seminars, workshops and study tours for training national personnel and exchanging experiences in energy resource exploration techniques, as well as for evaluation of selected new and renewable sources of energy will be convened through the period of the medium-term plan. They will include a greater emphasis on the organization of training seminars for energy experts from developing countries on the issues associated with financing energy exploration and development.

SUBPROGRAMME 5. ENERGY PLANNING AND MANAGEMENT

(a) Objectives

20.40 The legislative authority derives from General Assembly resolutions 36/193, 43/192, 43/193 and 44/227 and Economic and Social Council resolutions 1989/6 and 1989/10.

20.41 The objective of the subprogramme is to increase the capacity of developing countries to manage and plan effectively the development of their energy sectors in the context of national development planning processes. In that context, the subprogramme will seek to develop further effective national capacities that will enhance the ability of the countries concerned to formulate integrated energy policies and plans and will allocate scarce investment resources to energy development in a way that will most effectively meet the needs of the various sectors of their economies. That will require a capability to identify and evaluate viable scenarios of energy supply and demand patterns, to determine energy consumption and production objectives, to formulate activities and to allocate

resources in order to attain such objectives. It will contribute also to the assessment of the institutional changes needed and training and information requirements. The subprogramme will also create an awareness of the environmental impact of energy activities.

(b) Course of action of the Secretariat

20.42 Training of personnel from the developing countries in planning and management of the energy sector is a continuous and key ingredient to reaching successfully the objectives indicated above and securing a permanent capability in the country required for judicious policy-making and effective development of energy resources.

20.43 Strengthening of the policy-making and operational institutions of the energy sector will be supported and encouraged. Legislation, regulations and contractual terms need to be reviewed in order to maintain the national interest of the countries and, at the same time, attract the needed capital investment.

20.44 Assistance will be provided to developing countries in establishing national information systems for energy policy decision-making, energy planning and monitoring of the activities related to the development and use of all energy resources available to the country. That will be done especially through microcomputer-based energy databases and models for formulating policy and energy planning and for integrating energy planning activities and programmes more closely with the overall economic and sectoral development plans. The technology of computer-aided decision-making and monitoring, as applied to the exploration and exploitation of energy resources, will also be pursued.

20.45 Technical co-operation activities and the provision of advisory services to developing countries for strengthening institutions concerned with energy planning, training of national personnel, and the methodological and informational infrastructure for energy planning will increase. The flow of information among countries through meetings and publications on technologies and factual experiences of both the developing and developed countries will be facilitated.

SUBPROGRAMME 6. DEVELOPMENT AND TRANSFER OF TECHNOLOGY FOR EXPLOITING CRITICAL ENERGY RESOURCES

(a) Objectives

20.46 The legislative authority derives from General Assembly resolutions 36/193, 43/192, 43/193 and 44/227 and Economic and Social Council resolutions 1989/6 and 1989/10.

20.47 There is a need to increase the availability and operational use of the technologies required by developing countries to develop, harness and exploit their indigenous energy resources in order to meet their energy requirements. The subprogramme will promote the use of enhanced recovery techniques, the upgrading of technologies currently in use and the rehabilitation of the energy production and distribution technologies.

(b) Course of action of the Secretariat

20.48 During the medium-term plan period, efforts will be increased to transfer directly through technical co-operation mature technologies that are readily available for exploiting identified conventional and new and renewable energy resources, as well as to provide information for use by Governments on the range of technological options that are available to exploit selected energy sources. The use of enhanced oil recovery techniques will be promoted. In the electricity sector, the problem of aging electricity generating systems will be addressed with plant upgrading and rehabilitation projects. The subprogramme will support government efforts to improve or develop technologies for a more efficient use of firewood and the utilization of solar, wind and small hydropower resources to meet or supplement the demand in rural areas and isolated energy consumption centres. In general, support will be provided through technical co-operation projects to develop the national capacity to analyse potentially viable energy technologies and facilitate their transfer to the developing countries.

20.49 National energy information systems will include information on technologies available for harnessing various energy sources: to gain access to and have a capacity to evaluate energy technologies for exploitation of identified conventional and new and renewable energy potential; and to strengthen the national technical manpower of developing countries and their institutional capabilities to develop, adapt and apply the technologies required, including the conduct of national research and development programmes. The flow of technical information to the developing countries from a world-wide network of information sources will be supported to serve as a clearing house for the exchange of information and experiences among developing countries.

20.50 Studies, interregional symposia and workshops will be organized for in-depth review and exchange of experiences concerning the impact of technological developments on the broadening of the energy resource base in developing countries. Increased effort will continue towards the establishment and strengthening of national facilities for research, development, demonstration and application of relevant technologies to exploit national potential in conventional and new and renewable sources of energy. Studies on technological developments relevant to energy development in developing countries will be presented to intergovernmental bodies at their request.
