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SUPPORT

OTHER FUNDS AND PROGRAMMES

PROGRAMMES IN ENERGY DEVELOPMENT

Report of the Administrator

Summary

84/30 This report has been prepared in response to Governing Council decision ~~82/27~~ requesting the Administrator to report to its thirty-second session on the results achieved in assisting countries in the development of their high-priority energy programmes and projects.

In the report, the Administrator provides information on the approaches adopted in implementing Energy Account-financed projects, especially in view of the present energy situation, and as a complement to Indicative Planning Figure supported programmes in the energy sector.

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I. THE ENERGY ACCOUNT

1. The Governing Council, in its decision 84/30 - in addition to authorizing the Administrator to continue with an Energy Account - called upon all Governments that were in a position to do so to contribute on an increasing basis to the Energy Account. It further requested the Administrator to report in a comprehensive fashion to the thirty-second session of the Governing Council on results achieved in the activities financed from the Energy Account. In order to evaluate the activities financed from the Energy Account, it is necessary to characterize them in the context of recent factors which have affected the energy situation and also in relation to the overall UNDP supported programme in the energy sector.

2. It is well known that the energy situation has radically changed in recent years: new resources have been identified; conservation efforts have been successful; and economic growth in many consumer nations has slowed. These changes have led to a slackening in oil consumption and a fall in the international price of petroleum products. It is logical that such conditions have also, to a certain extent, altered the views of the donor community as well as of some of the recipient countries themselves on the urgency of finding solutions to the energy problems which only a few years ago appeared a matter of economic life or death for many. Such an approach, however, overlooks the variety of problems encountered by developing countries, particularly the least developed for which, in many instances, the imbalance between supply and demand is still as burdensome as it was previously. This is primarily because today the energy deficient developing nations import in quantity as much energy as previously and sometimes even more and have to pay for those imports in United States dollars of which the steep rise in value has not been compensated for by the approximate 20 per cent decline in the international price of oil. As a matter of fact, during the 1983-1984 period, for a number of the poorest developing countries, the amount of export resources absorbed by energy imports has continued to increase as is evidenced in a number of UNDP/World Bank energy assessment surveys carried out under the interregional project Energy Sector Assessment Programme (INT/80/009) and shown in the following sample (based on International Monetary Fund statistics):

Export resources absorbed by energy imports

	<u>1978</u>	<u>1981</u>	<u>1983</u>
	%	%	%
Rwanda	16.4	49.4	55.6
Honduras	12.5	20.6	23.9
Ethiopia	21.1	42.1	42.0
United Republic of Tanzania	28.3	56.1	75.0

3. Because of the importance of the sector, a sizeable proportion of indicative planning figure (IPF) resources is still devoted to the

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implementation of energy projects; at the end of 1984 for instance, more than 560 energy projects with ongoing commitments of more than \$200 million were being executed. In comparison the approximately \$20 million available through the Energy Account (see annex I, status of contributions to the Energy Account, and annex II, list of projects approved for funding from the Energy Account) represents a relatively small amount and should not be seen as additional resources per se to the IPF funds utilized for energy development activities. The Energy Account has tended to promote activities of a special nature which could not easily be implemented because resources were already fully committed. Furthermore, because of the central position of the Energy Office, and its overall monitoring of ongoing UNDP energy activities, it is particularly aware of how crucial a small contribution from the Energy Account can be to improve or support ongoing IPF-funded national energy programmes. This is the case, for example, in a number of global or interregional programmes, or with respect to activities of a practical and experimental nature involving techniques related to new and renewable sources of energy which are of interest to a greater number of countries. In other instances, the Energy Account resources are pivotal in the mobilization of bilateral or multilateral support, or in allowing countries to focus on new possibilities for utilizing new and renewable sources of energy or in promoting new approaches in energy production or utilization. For these reasons, the Energy Account should be viewed as in itself a small pool of funds, which can permit the catalytic use of additional funds and the promotion of a more efficient use of existing technical or investment resources for the development of energy programmes.

II. INTERREGIONAL AND GLOBAL ACTIVITIES

4. The main activities supported by the Energy Account are still the Energy Sector Assessment Programme (INT/80/009) and the Energy Sector Management Assistance Programme (INT/83/005). Although not all developing countries involved in those activities executed by the World Bank are included, 70 have requested to participate in the programmes. At the end of March 1985, 52 energy sector assessment studies were completed and field work in the remaining 18 countries will have been completed by the end of 1985. Such a programme is of course basically useful to the country for which the assessment report is being prepared. That these many assessments are undertaken under the supervision of one entity imparts a useful homogeneity. The methodology and criteria employed in conducting the energy situation evaluations are always the same. So is the procedure by which realistic recommendations and conclusions are formulated and presented, always taking into account the ultimate objective of promoting specific actions to be implemented by the country itself possibly with the support of the international community. The impact and the results of the assessments depend greatly on the commitment of the recipient Government to act on these reports. Experience with the programme has encouragingly shown that in general the assessments have indeed induced the recipient country to pursue its efforts to improve its national energy balance. The assessments have been particularly useful in setting up energy policies and in supporting institutions to implement those policies and to help to promote energy investment and technical assistance projects.

5. A few examples illustrate the extent to which assessments have altered the energy situation in some countries. In a very low-income and small energy-market nation such as the Gambia, which relies entirely on imports of oil to meet its requirement of commercial energy, the Government is taking concrete action to implement a number of the assessment's recommendations. To improve the logistics of energy supply and distribution, it was decided to relocate the petroleum storage depot and formulate petroleum allocations for use during emergency periods. A project has been formulated for the purpose of retrofitting existing diesel-fired or electric water-heating systems in the tourist sectors with solar systems. Another project will result in the replacement of small and inefficient diesel and kerosene-fueled power supply units at rural centres and at UHF/VHF rural telecommunications networks with solar photovoltaic power kits. In a higher income developing country such as Costa Rica, the energy assessment has been crucial to the establishment of a maintenance programme for public buses which will require an investment of more than \$4 million but will result in sizeable savings in petroleum product imports. On the other end of the spectrum in the difficult economic environment of Uganda, where so many other concerns are matters of urgency to the Government, it was nevertheless decided to establish, in co-operation with the international community, a small energy department which for the first time will facilitate an integrated sectoral approach for government decisions in matters of energy.

6. The Energy Sector Management Assistance Programme (INT/83/005) is the logical complement of the Energy Sector Assessment Programme. The Management Assistance Programme has by now elaborated a number of projects presented under a pre-investment or pre-feasibility format, to be executed with bilateral or multilateral support. There is a wide variety of activities to be launched under the pre-investment programme; and, although none of those activities have yet been completed, they offer a wide scope of sectoral support to potential donors. At the end of 1984, there were 86 completed or ongoing pre-investment projects in 35 countries, with a potential for co-financing of pre-investment activities in 6 countries, in association with 8 donors. The projects include, for example, activities to improve the efficiency of a country's electric power system, or to increase the efficient utilization of energy in the industrial sector, including rural industries. In other cases, the pre-investment programme has taken preliminary steps to provide institutional and policy support in the energy sector. The package of pre-investment reports elaborated under the programme could lead to more than \$100 million of priority investment. Although it is premature to estimate how many of these pre-investment activities will lead to concrete investments - and what in practical terms will be the impact of such investments - it can nevertheless be expected that in the medium term, many of these projects will have induced a profitable restructuring of the energy picture in a number of countries.

7. The annual report of the Administrator and the President of the World Bank on the Energy Sector Assessment Programme and the Energy Sector Management Assistance Programme has been made available to members of the Governing Council as a supplement to this document.

III. NEW APPROACHES

8. With the World Bank and other interested institutions in both developing and developed countries, UNDP pursues a programme in the area of gasification: Monitoring of Biomass Gasifiers (INT/83/007). Gasifier techniques are obviously not unknown, but they are still beset with a wide variety of operational problems, both technical and non-technical, some of which will be addressed by the programme. Available biomass is increasingly utilized in developing countries to replace petroleum consumption in small-scale (less than 1 megawatt) electric power generation and in industrial heat application. Activities supported by UNDP in this area help to develop and promote investment in gasification technologies applicable to conditions in a large number of developing countries. The project monitors 11 existing power gasifier installations, distributed in a variety of countries such as Mali, Kenya, Burundi, Brazil and the Philippines. It also co-operates with the European Economic Community in connection with projects in the South Pacific. The practical experience gained will foster further installations in Latin America, Africa and South-east Asia. At the end of the ongoing programme, in two to three years, it will have contributed to newly emerging heat gasifier technology, and to improvement in the operation of the steadily increasing number of gasifier systems. The approach adopted by the World Bank, UNDP and others is to develop a pool of knowledge derived from practical experience which will gradually improve the functioning of the increasing gasification activities in a number of developing nations. The monitoring is complemented by such training as that undertaken in the workshop which took place in March 1985 in Bandung, Indonesia, as part of the technical co-operation among developing countries (TCDC) modality. Organized in co-operation with the Beijer Institute of Sweden and the Producer Gas Round-Table, the workshop brought together technicians from such countries as Brazil, Kenya, Mali, Burundi and those of the South Pacific to deal with common national experiences.

9. Another approach recently launched relates to the promotion and strengthening of energy networks: Support to the creation and strengthening of energy networks (INT/84/015). With a relatively small amount of Energy Account resources (the expert is provided by a donor country and the World Bank contributes some logistical support), the project is attempting to create an awareness among officials of developing countries responsible for the energy sector of existing sources of information about the economic as well as the technical status of the major new and renewable sources of energy. With such knowledge, these officials can attempt to solve directly some of their problems. The energy network concept is being developed in the following areas: gasifiers, fuelwood and stoves, windpumping and rural energy technology. The project will involve the increasingly active participation of the developing countries in order to stimulate the utilization of the considerable amount of information and experience that exists in many areas related to new and renewable sources of energy. The expectation is that each country will become a contributor as well as a beneficiary of the network system.

10. Small-scale hydropower is a technique successfully utilized in many developing countries and benefits from the support of many bilateral and multilateral donors. However, the experience of the many UNDP- and World Bank-supported projects in this area shows that the implementation of these schemes could be improved if more efficient methods were utilized for the planning and implementation of small hydropower programmes; a prerequisite is for officials to be made aware of recent technical developments. With this in mind, and with the support of one donor, UNDP, the United Nations Department of Technical Co-operation for Development (DTCD) and the United Nations Industrial Development Organization (UNIDO) are organizing a workshop which will be held in June 1985 in Norway. It will be an opportunity for the representatives of developing countries to obtain practical information on types of available electro-mechanical equipment. They will also learn of the problems and the sequence of the construction cycle, and how to conduct small-scale hydropower feasibility assessments in their respective national contexts. Consultants, from both developing and developed countries are associated in the implementation of this project. In 1985, DTCD will carry out a study of the feasibility of a mini hydropower unit on the Lovo River in Fiji (FIJ/85/E01) which follows the previous extensive evaluation of potential small hydropower sites. The Energy Account contribution amounts to \$140,000 of which \$90,000 will come from the OPEC Fund for International Development.

11. In 1984, a small amount of Energy Account resources was utilized to support a new approach suggested by the United Nations Institute for Training and Research (UNITAR) for the development of small oil and gas resources. After elaborate work was completed by both the World Bank and the Energy Office on a proposal from UNITAR, UNDP decided to contribute to the initial activities for the development of small oil and gas resources. Although it was agreed that funding to identify such small oil and gas resources was not always economically appropriate, it was nevertheless found useful to support activities which would help developing countries to exploit already identified (usually in the course of normal exploration activities) small oil and gas fields in view of their potential to alleviate the financial burden of importing petrol products. UNDP has provided some support for the first international gathering dealing with the development of small oil and gas resources: UNITAR Conference on the Development of Shallow Oil and Gas Resources (INT/83/017). This meeting allowed technicians of oil-producing countries and companies to provide developing countries possessing such potential resources with a framework for further action. Obviously, if such resources can be economically exploited in a number of developing countries, the follow-up activities for the development of the fields' transportation systems will have to be supported through other bilateral or multilateral programmes or the private sector.

12. Preparatory work is going on with UNIDO to develop a programme for industrial energy conservation in the South Pacific region. It involves a small amount of resources from both the Energy Account and the UNIDO's Industrial Development Fund.

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IV. MOBILIZATION OF ADDITIONAL RESOURCES AND CO-FINANCING

13. Increasingly, Energy Account support is being provided to elicit the interest of other donors for worthwhile activities in the development of energy resources. Recently, for example, two small projects were implemented for that purpose in Morocco. The first, Utilization of domestic natural gas (MOR/83/007) established the feasibility of supplying the city of Essaouira with natural gas from the Meskala field. This feasibility study has allowed a number of donors to express their interest in financing the engineering aspects of the project and in follow-up investments; one of the proposals is now being analysed by the Moroccan Government. In the other project, the Energy Account provides the services of a short-term consultant to prepare a rehabilitation programme for the existing, large wind-water pumping system (MOR/85/E01). One bilateral donor and one multilateral donor have already expressed interest in following up on the investment phase of the project.

14. To increase the resources for projects identified with the assistance of the Energy Account, UNDP also attempts to utilize co-financing schemes. In the Dominican Republic, a new project will allow for the rehabilitation of existing mini-hydro stations (DOM/85/E01). The Government is going to supply two thirds of the cost of the programme, and the OPEC Fund for International Development has agreed to provide the other third through the Energy Account. A geothermal exploration project in Djibouti (DJI/84/004), for which the Energy Account has helped to mobilize considerable additional bilateral and multilateral resources, has been operational since the end of 1984. The data to be gathered through the ongoing drilling programme will enable the Government to ascertain whether sufficient geothermal resources are available to justify the installation of the intended 20 megawatt power station. In Fiji, where the feasibility study for the mini-hydro power plant on the Lovo River will be completed in 1985, UNDP will assist in identifying potential donors to provide financing for the construction site and for the procurement of hydropower generator equipment.

15. In one case in Jamaica, a modest Energy Account contribution of \$56,000 has resulted in a private investment. An energy-saving device was developed by an Energy Account-supported expert and has been installed in a number of hotels; it yields a 20 per cent savings in the consumption of electricity and has also induced the Industrial Commercial Development Corporation of Jamaica to establish manufacturing facilities to produce the energy-saving device.

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V. CONCLUSION

16. To pursue such activities as the establishment of energy networks, the monitoring of photovoltaic techniques and the promotion of simple energy-saving approaches such as solar water heaters for commercial types of buildings will involve minimal start-up resources which are not currently available in the Energy Account. It is important to stress that, if any action is to be taken to alleviate the difficult conditions many developing countries still confront in the field of energy, additional resources will be required. Additional financial contributions, minimal as they might be, could be utilized as seed money to initiate such preparatory work as pre-feasibility studies which, as has been proven in the past, could then lead to much larger contributions provided from either bilateral or multilateral donors.
