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S U P P O R T

OTHER FUNDS AND PROGRAMMES IN ENERGY DEVELOPMENT

Report of the Administrator

Summary

This report provides an overview of activities funded from the Energy Account specially in relationship to programmes and projects in the area of new and renewable sources of energy, as recommended in the Nairobi Programme of Action.

It further provides a financial statement of the contributions received by the Account and the status of approvals.

CONTENTS

	<u>Paragraphs</u>	<u>Page</u>
INTRODUCTION	1 - 2	3
I. OVERVIEW OF PROGRAMME MANAGEMENT.....	3 - 13	3
II. FINANCIAL STATUS	14 - 17	7

Annexes

- I. Resource availability and utilization
- II. Projects approved in 1985
- III. Contributions received in 1985
- IV. Ongoing projects approved from the Energy Account

INTRODUCTION

1. This report has been prepared in response to Governing Council decision 85/31 and provides an overview of activities undertaken since the last report (DP/1985/52). These activities, as recommended in the Nairobi Programme, include such areas as energy assessment and planning, energy management and conservation, development of specific sources of new and renewable energies, training and information flows. The report also discusses the financial status of the Energy Account and its catalytic role in mobilizing resources from official and private sources.

2. With the current decline in the world market price of petroleum and the "glut" of oil, there is a tendency to think that energy supply is no longer an urgent matter for the oil-importing developing countries. Unlike the industrialized countries which have been able to reduce their overall petroleum consumption through effective conservation measures and development and use of alternative energies, developing countries are expected to continue to increase their demand for commercial energy if they are to achieve sustained economic growth. Much of the increased demand for energy, particularly in those developing countries which have few or no deposits of oil and natural gas, will have to be met largely from increased oil imports (required for essential transportation or for the power sector), complemented by the development and utilization of indigenous new and renewable energy resources. The Energy Account has been one of the principal means of mobilizing additional resources by which UNDP has been able to expand its activities in support of technical assistance to energy programmes and projects in developing countries. The Account has also been catalytic in initiating projects for identification of further technical assistance and pre-investment activities which have later been taken up for funding either under the UNDP country programmes or by bilateral programmes.

I. OVERVIEW OF PROGRAMME MANAGEMENT

3. While the major part of the resources of the Energy Account was utilized to support, in collaboration with the UNDP's Division for Global and Interregional Programmes, the joint UNDP/World Bank 70-country energy sector assessment surveys and their follow-up, the Energy Sector Management Assistance Programme, a number of other projects have been undertaken by the Energy Account in the areas of technological assessment, resource assessment and development, training, and information flow.

4. With respect to the surveys, as of December 1985, 50 country assessment reports have been completed and work is in progress in another 12 countries.

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The remaining eight country reports will have been completed and published by the end of 1986, whilst the Assistance Programme has covered 41 countries since April 1983 with about 100 activities, and these have led to the identification of some \$250 million in investment possibilities. Many of the projects identified by the assessment reports have been included for funding in the fourth UNDP programming cycle, or undertaken for implementation through bilateral and other multilateral arrangements.

5. At a consultative meeting in Paris in January 1986, attended by practically all countries members of the Development Assistance Committee (DAC) of the Organization for Economic Co-operation and Development (OECD) and 20 participating developing countries, after a review of the past, present and proposed future activities, the representatives judged both programmes to be a success and expressed support for projects in priority areas. As regards future funding, it is expected that specific projects which are identified will be implemented through co-financing with donors or under general contributions to the Energy Account. The financing of the core staff is expected to be undertaken by the UNDP/World Bank.

6. In the area of technological assessment, two major activities have been undertaken with the World Bank as executing agency, namely the Global Gasifier Monitoring Programme and the Global Wind Pumping Evaluation Programme. The long-term objective of the gasifier programme is to help to identify projects and promote investment in biomass technology that effectively utilize, for energy production, waste biomass materials available in developing countries. Phase I of the programme required \$450,000 and approximately two and a half years to accomplish and was funded primarily by the Energy Account. Monitoring guidelines and procedures for field testing and evaluation of the technology have been established, and the monitoring of gasifiers has started in Brazil, the Philippines, Mali, Burundi and Seychelles, as well as strengthening of local expertise in order to perform the monitoring. In addition to providing advice to various international development institutions relating to gasifier technology, a formal network of technical institutions participating in the programme has been established. Phase II, which will cost about \$600,000, has been initiated with financial contributions to the Energy Account from several donors, including the European Economic Community (EEC). This involves building upon Brazilian, Philippine and African efforts and initiating monitoring of the EEC-supplied gasifier installations in the South Pacific. Following the analysis of the monitoring data collected, studies of the market potential for gasifiers in each of the participating countries will be estimated. In addition, a handbook will be prepared covering guidelines for evaluating biomass gasifier projects.

7. The second technology assessment activity involved the convening of a workshop to consider the need for and possible content of a global wind-

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pumping evaluation programme in Amersfoort, the Netherlands, in October 1984. The experts attending the workshop concluded that there was persuasive evidence that wind-pumping had the technical and economic potential to make an important contribution to meeting urgent rural water needs in developing countries. In this regard, the experts recommended a programme which would include studies that would summarize the status of wind-pumping in 18 countries with extensive experience in the technology, development of uniform measurement techniques, test and performance monitoring standards and the preparation of a wind pump handbook to guide decision-makers and practitioners in the evaluation of wind-pumping. This initiative has led to contributions of funds by several donors through the Energy Account in order to make a start on implementing this project with the World Bank as executing agency.

8. In previous reports to the Council, the Administrator has reported on the development of small-scale hydropower demonstration projects in several countries as an alternative energy resource for rural areas. A new project has been approved in this field in the Dominican Republic which involves the final selection of the site, preparation of engineering design and supervision of construction. The supply of major equipment, such as the turbine-alternator, will be undertaken by the Government through the State Power Authority, and the Energy Account will provide, in addition to consultancy services, some specialized equipment.

9. Small power systems using photovoltaics, that is, production of electricity through sunlight, have reached the stage where their wider application and use should be promoted in developing countries for pumping water, providing power for essential services such as medical dispensaries and telecommunications and preserving food through refrigeration in areas far from large-scale power systems. Information on the application of this technology is limited in some developing countries. Six main manufacturers of photovoltaic systems in Europe and the United States have joined with the UNDP Energy Account in the joint funding of two workshops, each for one week, for African and Asian countries to which decision-makers and systems-design engineers are invited. An international consultant has been retained by UNDP for the purposes of assisting in the preparation of training materials for these workshops. The photovoltaic companies have provided the required technical data and information on their systems to the consultant. This initiative with the private sector is the first of its kind in the energy sector organized by UNDP and it could serve as a model for co-operation and greater involvement of the private sector for increased activities in the energy sector (including new and renewable sources of energy) of developing countries.

10. The UNDP has joined with the United Nations Institute for Training and Research (UNITAR) in co-sponsoring a centre on small energy resources which

has been established at Rome, with financial support from the Governments of Italy and Belgium and UNDP. The purpose of the Centre is to improve the flow of information to developing countries on existing technologies related to small energy resources, particularly new and renewable sources. Furthermore the Centre is expected to help to promote the exchange of information between the public and private sectors. In this respect, consultants and energy-equipment suppliers have been invited to become members. The Centre has already published two issues of a bi-monthly newsletter and is currently organizing a promotional meeting for Sahelian countries which will be held later in 1986.

11. In the area of conventional energy, the Energy Account continues to support activities for promoting coal and petroleum exploration and development in developing countries. One such initiative is the organization at the University of Newcastle in Australia, with the co-operation of the Joint Coal Board of New South Wales, of an international training programme in coal technology. The programme will be started in July/August 1986 and will initially involve sponsoring 15 participants from developing countries to each of three courses. In addition to providing a period of classroom training, the participants will spend time in Australian national coal research laboratories and will have access to a decommissioned coal-fuelled power station currently utilized as an experimental pilot plant. The Joint Coal Board is a jointly sponsored organization of the State Government of New South Wales and the Government of Australia and is involved in all aspects of coal technology.

12. In the area of training, the Energy Account, in partnership with the Economic Development Institute (EDI) of the World Bank, has financed and helped to organize a number of seminars or training courses in energy planning and policy. The participants attending these seminars or courses have been involved in energy planning and management including the energy assessments undertaken by the joint UNDP/World Bank missions. In order better to structure the trained manpower requirements of the developing countries, in January 1986 EDI, in co-operation with the UNDP Energy Office, convened an informal meeting of United Nations organizations which are responsible for various aspects of training. This meeting resulted in an agreement to organize joint agency missions to some selected African countries for the purpose of developing training plans and strategies for the countries involved. It is expected that, on the basis of these plans, the recipient countries will find it possible to incorporate into their country programmes specific project proposals which can strengthen their capabilities to meet their needs for trained manpower in the energy sector at all levels. At the same time, these training plans could be useful in promoting technical co-operation under bilateral assistance programmes.

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13. During the reporting period, several projects have been successfully completed and, in some cases, further follow-up activities have been undertaken under the country programmes. The Energy Account has proven to be a convenient and flexible means for donors to channel additional financial assistance towards specific programmes. Furthermore, the programme has demonstrated UNDP's capacity to organize specific projects with a wide geographical application in support of increased energy activities in the recipient countries. The work has been made possible by a small group of technical energy specialists located in the Energy Office.

II. FINANCIAL STATUS

14. Resources through the Energy Account have been mobilized either through the annual United Nations Pledging Conference for Development Activities or by means of donor contributions to specific programmes and projects. These resources are utilized for the implementation of energy programmes and projects which are identified by the Energy Office, in the case of country activities, in collaboration with the recipient government and with the assistance of the Resident Representative; and in the case of global activities, including new and renewable sources of energy, with the World Bank and other executing agencies within the United Nations system. Contacts are made with the donor community and, more recently, with the private sector in order to mobilize the necessary financial resources in support of these programmes and projects. Contributions received in this manner are treated as cost-sharing through the Energy Account. The Energy Sector Management Assistance Programme has also resulted in joint funding of projects with bilateral programmes.

15. The resources of the Energy Account have been used to provide a catalytic role in the mobilization of additional resources. In this connection, reference may be made to the Djibouti Geothermal Exploration and Development project initiated by the Energy Account where a contribution of \$1 million to the Energy Account has led to the mobilization of an additional \$15.5 million from the World Bank, the African Development Bank (AfDB), the Fund for International Development of the Organization of Petroleum Exporting Countries (OPEC) and the Italian Government. Similarly, with the small-scale hydropower project in the Dominican Republic, a contribution in the amount of \$65,000 from the Energy Account has led to a contribution of \$435,000 to the Energy Account from a donor institution as well as the equivalent of \$2 million from local resources.

16. A joint study undertaken by UNDP and the World Bank in 1982 (see document A/AC.215/4) requested by the Nairobi Programme of Action, estimated that the financial resources requested for pre-investment and activities in support of new and renewable sources of energy amounted to \$270 million annually.

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Clearly, the available financial resources for this purpose have fallen far short of the essential requirements, even recognizing that the bulk of these resources will have to be mobilized within the countries themselves. However, despite the continued decline in the price of petroleum on the world market, there continue to be urgent needs in developing countries to build up the necessary infrastructure in terms of institutions and trained manpower responsible for planning the development and management of their countries' indigenous energy resources and to carry out activities involving resource and technology assessments. In many developing countries, the most pressing problem continues to be the supply of energy for the rural areas. The Administrator is of the opinion that continued UNDP assistance to developing countries will be required in these priority areas. The future thrust of assistance through the Energy Account will be directed towards the support of such programmes depending upon the availability of financial resources.

17. The total resources made available by donors to the Energy Account since 1981, including estimated income for 1986 and future years, amounts to \$22.2 million plus \$3.5 million as the balance of a \$6 million pledge by the OPEC Fund for International Development. The 1985 income contributions amounted to \$2.2 million, to be increased to \$4.8 million in 1986 on the basis of commitments made by donors until the end of 1985. Of the total available resources, \$20.3 million had been allocated to about 50 energy projects by the end of 1985, and the balance of \$1.9 million earmarked to new projects to be undertaken shortly. Details of the financial status of the Energy Account and the list of ongoing projects funded by the Account are given in the annexes to this document. Many of these projects have absorbed relatively small resources from the Energy Account either by their very nature or through the mobilization of co-financing from other sources.

Annex I

RESOURCE AVAILABILITY AND UTILIZATION
(in millions of US dollars)

		1983	ACTUAL 1984	1985	ESTIMATED 1986
I.	<u>Availability of resources</u>				
	Balance as at 1 January	3.787	5.778	6.649	4.368
	Additional resources received -				
	Voluntary contributions	0.841	0.073	0.040	0.056
	Cost-sharing contributions	4.008	3.665	1.730	4.384
	Interest and other income	0.316	0.695	0.480	0.400
		5.165	4.433	2.250	4.840
	Total	8.952	10.211	8.899	9.208
II.	<u>Utilization of resources</u>				
	Project expenditure	3.094	3.438	4.292	4.400
	Reimbursement of agency support costs	0.040	0.054	0.081	0.088
	Programme support and administrative services costs	0.040	0.070	0.158	0.180
	Total	3.174	3.562	4.531	4.668
III.	<u>Balance of resources as at 31 December</u>				
	Balance of voluntary and cost-sharing contributions	5.778	6.649	4.368	4.540
	Total	5.778	6.649	4.368	4.540
IV.	<u>Resources available for further programming</u>				
	General resources as at 31 December (as in III above)	5.778	6.649	4.368	4.540
	Less: Unspent project allocations	1.529	6.985	5.631	5.600
	Balance available as at 31 December	4.249	(0.336) ^{a/}	(1.263) ^{a/}	(1.060) ^{a/}

^{a/} Allocations to be met from cost-sharing contributions pledged but not yet paid.

Annex II
PROJECTS APPROVED IN 1985
(in US dollars)

Contributions

<u>Recipient country/Project Title</u>	<u>Recipient Government contribution</u>	<u>Financed from general resources</u>	<u>Financed from other sources</u>		<u>Other contributions</u>		<u>Total Project value</u>
	\$	\$	<u>Amount^{a/}</u>	<u>Donor</u>	<u>Amount</u>	<u>Source</u>	
			\$		\$		\$
<u>Interregional:</u>							
INT/85/E01 - Second International Producer Gas Conference and Course, Fellowships	-	11 564	-	-	-	-	11 564
INT/85/E02 - Photovoltaic Systems Information and Promotion Programme	-	-	108 000	Manufacturing Enterprises	35 025 35 025	IPF/Asia IPF/Africa	178 050
<u>Global:</u>							
GLO/85/E01 - UNDP/UNITAR Centre for Small Energy Resources	-	-	420 000 75 000	Italy Belgium	26 500 25 000	Members Special Programme Resources	546 500
<u>Asia:</u>							
RAS/85/E01 - Study of Regional Petroleum Options for Smaller Pacific Island Countries	-	5 000	-	-	-	-	5 000
<u>Arab States:</u>							
MOR/85/E01 - Wind Energy		20 800	-	-	-	-	20 800
<u>Latin America:</u>							
DOM/85/E01 - Hydro Power -Rio Ocoa	2 000 000	65 000	435 000	OPEC Fund	-	-	2 500 000
Total	<u>2 000 000</u>	<u>102 364</u>	<u>1 038 000</u>		<u>121 550</u>		<u>3 261 914</u>

a/ Cost-sharing contributions.

Annex III

CONTRIBUTIONS RECEIVED IN 1985
(in US dollars)

A. Voluntary Contributions

<u>Donor</u>	<u>For 1985 and prior years</u>				
	<u>Balance</u>	<u>Additions</u>	<u>Collected</u>	<u>Balance</u>	<u>Pledges</u>
	<u>31 December 1984</u>	<u>and</u> <u>adjustments</u>		<u>31 December 1985</u>	<u>for 1986</u>
	\$	\$	\$	\$	\$
Iceland	34 518	5 482	40 000	-	-
Austria	-	-	-	-	56 497
Total	34 518	5 482	40 000	-	56 497

B. Cost-sharing

<u>Donor</u>	<u>Contributions received 1985</u>	<u>Due in 1986 and future years</u>
<u>Countries and intergovernmental bodies</u>		
Belgium	-	75 000
Colombia	125 300	-
Denmark	90 909	109 890
European Economic Community	-	270 193
Italy	-	420 000
Netherlands	455 329	187 500
Norway	117 500	-
OPEC Fund	-	1 449 613 <u>a/</u>
Sweden	63 694	-
Switzerland	<u>456 621</u>	<u>478 469</u>
Sub-total	<u>1 309 353</u>	<u>2 990 665</u>
<u>Others</u>		
Membership contributions	384 805	-
Manufacturing enterprises	<u>36 000</u>	<u>-</u>
Sub-total	<u>420 805</u>	<u>-</u>
Total	<u><u>1 730 158</u></u>	<u><u>2 990 665</u></u>

a/ Represents the balance due against signed project documents. There still remains a balance of \$3,525,112 from the OPEC Fund's pledge of \$6,000,000 to the Energy Account.

Annex IV

ONGOING PROJECTS APPROVED FROM THE ENERGY ACCOUNT

<u>Project title</u>	<u>Project No.</u>	Energy Account <u>contribution</u> (In US dollars)
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A. Global projects

1. UNDP/UNITAR Information Centre for Heavy Crude and Tar Sands - Phase II	GLO/84/E01	1 014 315
2. UNDP/UNITAR Centre on Small Energy Resources	GLO/85/E01	521 500

B. Interregional projects

1. Energy Sector Assessment	INT/80/E09	3 446 531
2. Energy Sector Management Assistance Programme	INT/83/E05	6 491 288
3. Monitoring of Biomass Gasifiers - Phase I	INT/83/E07	451 300
4. Photovoltaic Systems Informa- tion and Promotion Programme Workshops in East Africa and South-East Asia	INT/85/E02	108 000

C. Regional projects

Asia

1. Study of Regional Petroleum Options for Smaller Pacific Island Countries	RAS/85/E01	5 000
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D. National projects

Africa

1. Wood Energy Consumption and Resource Survey - Zambia	ZAM/82/E08	392 000
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<u>Project title</u>	<u>Project No.</u>	Energy Account <u>contribution</u> (In US dollars)
<u>Arab States</u>		
1. Utilization of Domestic Natural Gas - Morocco	MOR/83/E07	23 000
2. Wind Energy - Morocco	MOR/85/E01	20 800
3. Geothermal Exploration - Djibouti	DJI/84/E04	999 888
<u>Asia</u>		
1. Offshore Technical School Ba Ria, VietNam	VIE/83/E03	1 500 000
2. Energy Planner - Solomon Islands	SOI/84/E02	47 600
3. Energy Planner - Tonga	TON/84/E02	58 600
<u>Latin America</u>		
1. Energy-Saving Device - Barbados	BAR/82/E01	163 499
2. Planning Methods for the Expansion of the Colombian Electrical System	COL/82/E25	166 500
3. Management Programming and Control of Hydroelectric Projects - Colombia	COL/82/E38	349 650
4. Small Hydropower- Rio Ocoa, Dominican Republic	DOM/85/E01	500 000
