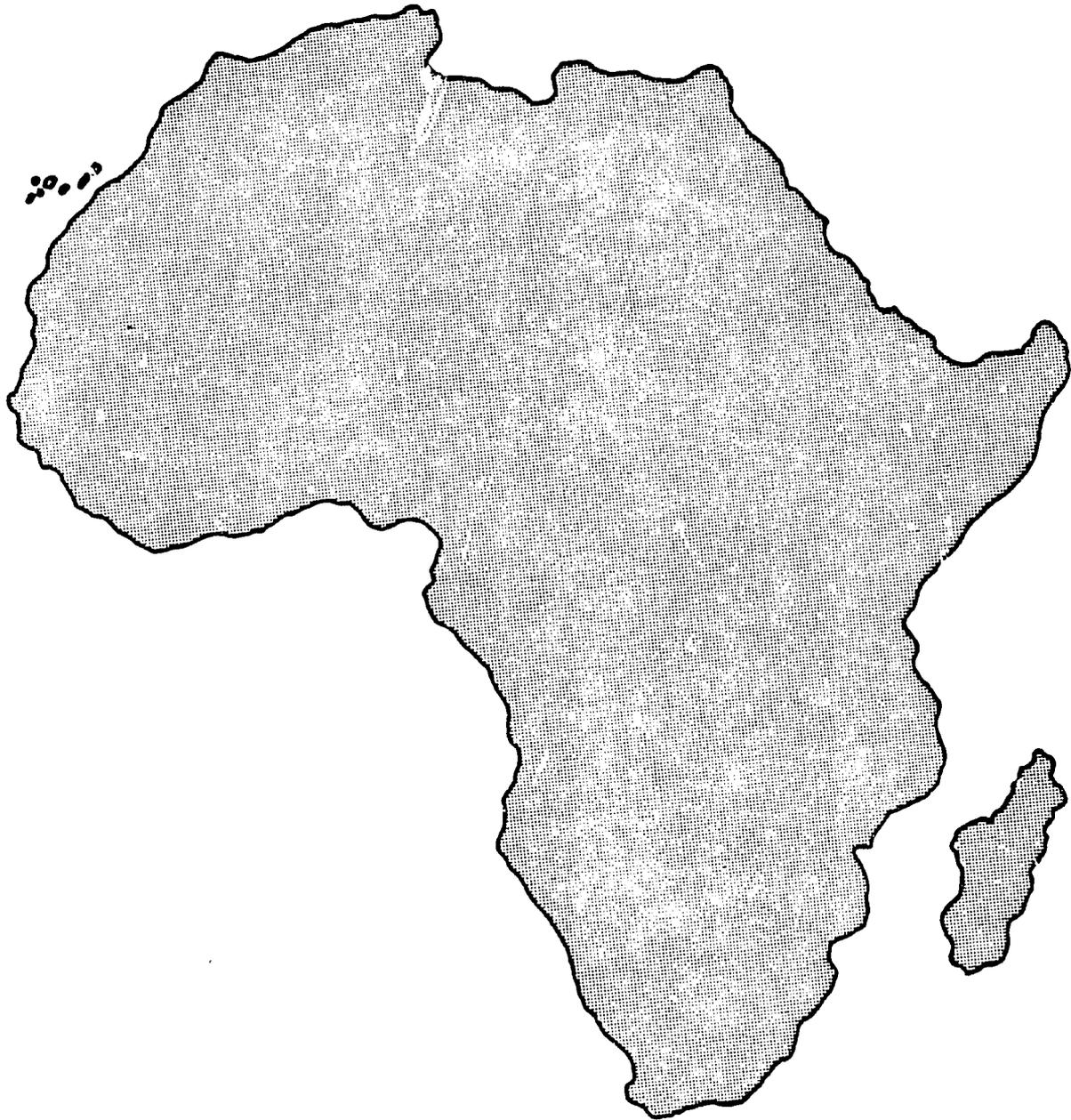


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Energy, Forestry and Natural Resources Activities in the Africa Region



Bureau for Africa
Agency for International Development

July 1982

ENERGY, FORESTRY AND NATURAL RESOURCES
ACTIVITIES IN THE AFRICA REGION

BUREAU FOR AFRICA
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D.C.
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Foreword

In 1981, two overviews of projects in the technical sectors covered by AFR/DR/SDP¹ were produced: "Energy Activities Supported by the Africa Bureau," by Patricia Larson, and "Forestry and Natural Resources Activities Supported by the Africa Bureau," by John Comings. Together, they were intended to provide a comprehensive picture of the budgetary and programmatic status of authorized/operational and planned projects in the Africa Region, to AID, Congress and the private sector.

During the year since these reports were compiled, a large body of valuable new information has become available, mostly as a result of preparations for the "Workshop on Energy, Forestry and Environment,"² sponsored by the Africa Bureau in Nairobi, Kenya, December 6-11, 1981. Data-gathering efforts by ST/FNR for the report to the House Appropriations Committee on forestry-related assistance to developing countries synthesized information on tree-planting activities, including the application of PL480 funds. Thus, in preparing a format for updating the Larson and Comings reports, incorporation of this new data, as well as suggestions by users in AFR/DR/SDP and other offices for the inclusion of other information were taken into consideration; with the aim of creating a more comprehensive resource, several modifications were made:

- the two reports have been combined into one, primarily for the purpose of treating forestry as a single activity. Most of the forestry projects are reported in the "Fuelwood" section; if the tree-planting activity is undertaken purely for environmental protection, the project will be found under "Natural Resources";
- centrally-funded projects (ST/EY, ST/FNR, ST/MD, FVA) have been included, with summaries of their Africa-specific activities, to complement information on bilateral projects;
- an attempt has been made to identify the forestry/natural resources applications of PL480 Titles I, II and III;
- categories have been added to separate discrete energy, forestry and natural resources projects from other projects with one of the three as a component;
- project summaries have been expanded to include PACD and length of project, contractor, AID-financed inputs and other new information.

¹Bureau for Africa, Office of Development Resources, Division of Selected Development Problems.

²Most of this information is presented in the three-volume "Proceedings of Workshop on Energy, Forestry and Environment"; AID; Washington, D.C.; 4/82. (Volume I: Workshop Summary. Volume II: Discussion Papers/Case Studies. Volume III: Country Energy Papers.)

These changes have been incorporated into an established structural framework of an introduction including the legislative and policy settings for the Africa Bureau's energy, forestry and natural resources activities, a set of project summary sheets providing descriptive and fiscal data, and a collection of budgetary, technology-according-to-country and other information in a number of appendices. A concerted effort has been made to provide as current as possible a view of project status, gathered from field cables, interviews with project officers and contractors, and field reports; project development being a dynamic process, some information is already outdated in the short lead time between writing and publication. Therefore, this report should be considered like a recently-taken photograph, capturing programs at a fixed point in time (April to July, 1982).

This document is intended to serve as a reference tool for AID/Washington, the AID field missions and regional offices, Congress and other Federal agencies, international development and private voluntary organizations, companies and individuals interested in the areas of energy, forestry and natural resources in Africa. It is the hope of this office that users will continue to provide feedback on its strengths and weaknesses, so that subsequent updates can evolve in the direction of increasing utility.

Acknowledgements

The time and effort given by many individuals both in and out of AID, in the field and in Washington, contributed to the wealth of information gathered for this report. Foremost, I would like to thank John Blumgart, Sally Patton and Mark Ward for their invaluable support and ongoing collaboration, and the rest of the staff of AFR/DR/SDP -- Bessie Boyd, Bernadette Bundy, Fran Gulick, Kevin Mullally, Dennis Panther and George Thompson, for their constant cooperation and inputs. To Ruth Wilson and Amy Zimmerman, special thanks for support services.

I would also like to express my gratitude for assistance and information, to the project officers in AFR/DR, AFR/RA, AFR/DP, the OICs and desk officers, and the staffs of ST/EY, ST/FNR, ST/MD, the FSP, FVA/PVC and FVA/FFP (especially in WFP). Their ready cooperation made this task much less herculean than it might have been; likewise, the responsiveness of the AID field Missions made a most significant contribution to the status reports on the projects.

Staff members of other Federal agencies also contributed to this report, for which I am appreciative: Peace Corps, NAS, NASA/Lewis Research Center, NOAA, and USDA (especially the USDA Forest Service). Cooperation from the PVO, consulting and university communities accounts for a great deal of information in this report; in particular, I would like to thank staff members of: ARD, CARE, CRS, Chemonics, Louis Berger International, ED/I, NRECA, TAMS, Lutheran World Relief, VITA, South Dakota State Remote Sensing Institute, Colorado State (CID), Experience, Inc.

I would also like to thank Peter Dewees for the use of his statistical tables, and Patricia Larson and John Comings, for having laid the foundations on which this report is based.

Sheila Reines

I. Introduction

This report describes projects that have been developed in response to Congressional mandates and AID policies, formulated to assist developing countries in the alleviation of critical shortages of wood and fossil fuels, and the environmental degradation ensuing from deforestation. In Africa, this response spans a gamut of project actions, from village-scale woodlots to large commercial plantations for fuelwood, from testing and development of small, pilot solar pumps to procurement and installation of equipment to strengthen a national power grid, from training in management of petroleum resources to development of institutions carrying on research in alternative energy technologies (sun, wind, hydro, biogas).

In addition to project activities, AID funds have supported studies, including environmental profiles, the social impact of new technologies, petroleum use and distribution patterns, community participation in African fuelwood surveys-- in many cases these studies have led to policy recommendations for LDC resource management agencies. Such studies are supplemented by workshops, seminars and conferences providing fora for LDC energy planners, and experts from AID and other international agencies to share knowledge and experience (these include a Workshop on Firewood in Africa (June, 1978), an African Solar Energy Workshop (May, 1979), an AID/Peace Corps community fuelwood workshop (February, 1980), the Workshop on Energy, Forestry and Environment (December, 1981) and the workshops on small water power resources (March) and Sahel resource inventory and mapping coordination (May) of this year). AID funds have also supported participation in international conferences, such as the UN Conference on New and Renewable Sources of Energy, held in Nairobi last August, and an ECOWAS "Energy for Survival" conference last November.

Drawing on the technical expertise of other Federal agencies, such as the Department of Agriculture and the National Academy of Sciences, the Africa Bureau has worked to maximize the efficacy of assistance to the many LDC government agencies and universities that have begun to take an active role in the conservation and development of their renewable resources. Increasing collaboration with Peace Corps has led to the design of projects using volunteer expertise to implement actions at the village level. Through agreements with US universities, AID has been able to rely not only on training services for LDC participants, but on the technical expertise of members of the academic community as well. Traditionally close ties with US private voluntary agencies, contractors, consulting firms and industries engaged in energy development have been expanded, and efforts are being made to enlist the participation of indigenous African research, consulting and manufacturing firms.

Together, these diverse activities add up to a concerted, cooperative action to bring over thirty different technologies to over twenty African countries, while developing a cadre of trained professionals within those countries to plan

for and meet their energy needs. It is a program that more than tripled from FY78 to FY81¹, and shows promise of additional increase in FY82. Moreover, the momentum gained in the past years is carrying forward activities that fulfill Congressional and agency directives in the Africa Region.

A. The Legislative Setting

In the Foreign Assistance Act of 1975², AID received its first major Congressional mandate to assist less developed countries in finding solutions to acute problems of energy shortages, through intermediate technology development and energy-oriented rural infrastructure. This mandate was further elaborated in Section 119 of the Foreign Assistance Act of 1977³, which instructed AID to support the promotion of:

"small-scale, decentralized, renewable energy sources for rural areas carried out as integral parts of rural development efforts... directed at the earliest practicable development and use of energy technologies which are environmentally acceptable, require minimum capital investment, are most acceptable and affordable by the people using them, are simple and inexpensive to maintain and are transferable from one region of the world to another."

Congress addressed the issues of deforestation and natural resource depletion in the International Cooperation and Development Act of 1979⁴, stating in Section 103 that:

"The Congress recognizes that the accelerating loss of forests and tree cover in developing countries undermines and offsets efforts to improve agricultural production and nutrition and otherwise meet basic human needs of the poor...In order to maintain and increase forest resources, the President is authorized to provide assistance under this section for forestry projects...Emphasis shall be given to community woodlots, agroforestry, reforestation, protection of watershed forest, and more effective forest management."

In the same Act, acknowledging the severe impact of rising oil prices on the economies of LDCs, Congress extended AID's mandate to include assistance in geological and geophysical surveys, and exploration for potential oil, natural gas and coal reserves, covering conventional as well as alternative energy sources.

¹From approximately \$3 million in FY78 to \$10 million in FY81 for fuelwood and renewable energy projects. Natural resource project figures show about a 250% increase, from just over \$6 million in FY78, to \$15.56 million in FY81 (figures taken from Summary Budget Table, Appendix A, updating Tables A and B, Volume I, Proceedings of Workshop on Energy, Forestry and Environment).

²PL94-161, H.R. 9005, 89 Statutes at Large 849 et. seq.

³PL95-88, H.R. 6714, 91 Statutes at Large 937, et. seq.

⁴PL96-53, S.588, 92 Statutes at Large 360, et. seq.

B. The Africa Bureau's Energy/Forestry/Natural Resources Policy and Program

"Whether it takes the form of fuelwood, muscle-power or commercial fuels, energy is only one of several inputs in any human activity. In recent years, however, shortages in such energy inputs as fuelwood and petroleum have made dramatically more difficult the job of meeting a wide range of needs throughout the developing world...As a result, foreign assistance agencies have been called upon to develop programs which would specifically address energy implications of these activities"¹

Echoing the mandate of Congress, the Africa Bureau sent to its missions in August, 1979 an airgram on "Energy in Africa--AFR's Program Emphasis," providing guidelines and priorities for the field Missions in the design of new projects or energy components added to existing projects, with stress on the areas of: (1) cooking and heating by the rural and urban poor, and (2) water supply, grain grinding, irrigation, handicrafts and other basic functions. The message supplemented an earlier study conducted by the Overseas Development Council², suggesting approaches for selection of appropriate technologies; this study provided an initial impetus for AFR's renewable energy program, and the launching of projects in three Sahelian countries in FY78.³ The message identified three basic priorities for project development:

- (1) fuelwood and wood use, as the highest priority since, "one of Africa's most pressing human needs is to maintain the ability to cook food" (At present, there are nine on-going bilateral projects to plant trees for fuelwood, eight projects with tree-planting components, at least five projects with a major focus on the training of foresters and forestry management experts, a regional project to support the testing and dissemination of improved wood-burning stoves, and several projects with woodstove components. Two forestry projects are planned, to provide trees for fuelwood in or near refugee camps)⁴;
- (2) energy surveys, to identify projects in accord with local needs (surveys on village-level energy use and needs are an integral part of eight out of 15 on-going bilateral renewable energy projects);
- (3) institution building, establishing the basic capacity to formulate national energy policies, develop energy survey techniques, design analytical tools for evaluation, and carry out research and development on appropriate technologies (of the 60 authorized/operational projects described in this report, institution building and/or resource planning and management are identified as components of 29).

¹"Energy in Africa--AFR's Program Emphasis"; AIDTO Circ A-204; 8/30/79; p.2.
²Howe, J. et. al.; "Energy for the Villages of Africa"; ODC; Washington, D.C.; 1977.
³For a more extensive description of the AFR program, see "Proceedings of Workshop on Energy, Forestry and Environment," Volume I, pp. 23-30.
⁴These activities are supplemented by centrally-funded projects in ST/FNR, and the FVA-funded CARE matching grant (see chapter II). Likewise, energy survey activities are also carried on under projects supported by ST/EY (Chapter II).

This message has been further developed in AID's "Energy Assistance Policy Paper" (January, 1981) and the Administrator's energy guidance message (May 12, 1981), both setting forth a wide range of conventional, renewable and fuelwood activities to be tailored to regional and country-specific priorities. The policy paper advised that AID's energy program should:

- "(1) support a wide range of activities, primarily technical assistance, tailored to the specific needs of countries in coping with the impact of petroleum price increases and the depletion of traditional renewable fuels...giving major attention to renewable energy sources, especially fuelwood;
- (2) promote least-cost energy alternatives selected on the basis of life-cycle cost calculations (total cost of the technology over its useful life);
- (3) stress coordination with other US agencies, bilateral donors, the World Bank and other multilateral assistance organizations, and the private sector;
- (4) reflect the importance of energy as an integral element in AID's various sector activities--rural and urban--in support of equitable growth;
- (5) Emphasize those areas in which AID has special competence and experience: analysis and planning assistance, including project preparation and feasibility studies; training and institution-building; site testing and demonstration, and evaluation of technologies."

These guidelines are to be implemented through programs in the following areas: energy analysis and planning; energy training and institutional development; site testing, demonstration and evaluation of new energy technologies; increasing energy supplies (fuelwood, hydropower, new renewable energy technologies, oil and gas, coal and energy efficiency improvements); rural electrification. The projects described in the pages that follow represent the concrete ways in which these directives are being implemented.

Concurrent with development of broad energy policies, the Africa Bureau has generated strategies for forestry and fuelwood. In 1979, an airgram on "Village Firewood Production and Other Cooking Fuels" (AIDTO Circ A-157; 7/3/79) was sent to the field. A broad policy for AID's Forestry and Natural Resources Program was signed by the Administrator on April 15, 1981; the basis for the Africa Bureau's policy, it stresses forestry programs which seek to :

- (1) ensure that the production and harvest of fuelwood and timber is carried out on a sustained yield basis;
- (2) integrate the production of trees and tree crops into agricultural systems (ie: encourage agroforestry approaches);
- (3) direct the clearing of forest cover or conversion of forest lands to other uses in ways which are consistent with land use capability;

- (4) reforest, afforest or encourage the natural regeneration of lands not currently supporting any forest cover to help balance conversion and transformation losses that will occur as forest lands are converted to other uses;
- (5) restore the productivity of degraded watersheds and depleted soils;
- (6) develop communities' capabilities to initiate and undertake forestry and forestry-related activities in their own behalf;
- (7) protect forests and set aside certain ecological areas for protection of plant and animal species.

A key element of this policy is that in addition to bilateral support, AID is directed to provide assistance in collaboration with other donors, UN specialized agencies, other US Government agencies, US land grant institutions, and private voluntary organizations. The Africa Bureau has played a leading role in collaboration with other donors in the area of forestry and fuelwood. In 1977, Belgium, Canada, France, Great Britain, West Germany and the United States joined together in an association for "Concerted Action for Development in Africa" (CDA); as the lead country, the US is working with CDA members and African governments to develop projects as part of a CDA forestry/fuelwood initiative.

In addition to programs in energy, fuelwood and forestry, the Africa Bureau has expanded activities in environment and natural resource management, assisting LDCs in the development of a capacity to forecast and plan for natural disasters such as the drought that paralyzed the Sahel in the early 1970s, to carry out natural resource inventories and land use planning projects, to measure and monitor ecological change through techniques such as remote sensing, and to manage resources through activities such as river basin studies, dune stabilization and other anti-desertification measures, and regional development. These actions are implemented through bilateral and regional projects, as well as the centrally-funded projects described in the following chapter.

II. Centrally-Funded Energy, Forestry and Natural Resources Project

In designing projects to implement AID's energy, forestry and natural resources policies, field Missions can draw upon resources and expertise at two levels: (1) the central bureaus, whose offices work to address issues of broad concern world-wide, through studies and other interventions in individual countries, and (2) the regional bureaus¹, sponsoring region-wide or country-specific bilateral projects. In the sectors covered by AFR/DR/SDP, the Africa Bureau can utilize the resources of the Bureau for Science and Technology (S&T) Offices of Energy (ST/EY) and Forestry and Natural Resources (ST/FNR); the Office of Multi-Sector Development (ST/MD) also supports several projects seeking solutions to LDC constraints in the energy/forestry/natural resources sectors.

The Bureau for Food for Peace and Voluntary Assistance (FVA) Office of Private and Voluntary Cooperation (FVA/PVC) sponsors a CARE matching grant which enables the US-based PVO to execute forestry and natural resources projects in all four geographic regions; these include projects in three African countries at present. The FVA Bureau directly and indirectly covers a wide range of forestry and natural resources activities through its Office of Food for Peace (FVA/FFP), which oversees the diverse programs connected with the grant or sale of commodities under PL480, Titles I, II (including Food for Work, the World Food Programme and Emergency Relief), and III (Food for Development programs).

A. ST/EY, ST/FNR, ST/MD

The Offices of the S&T Bureau support the Agency's operational program with funding and technical assistance for: workshops, conferences and seminars; studies, plans and policy recommendations that will better enable LDCs to manage their land, water and energy resources; training to establish the capacities of LDCs to implement policies, strategies and projects; project activities to provide an empirical basis for developing solutions to problems facing LDCs worldwide.² The authorized/operational and planned projects presented in the following pages indicate the ways in which countries in the Africa Region have profited from such assistance.

Notes and Definitions

End-of-Project Date: usually refers to the year specified by the project paper or current amendments. Where an extension has been proposed in the FY84 ABS, FY83 CP or elsewhere, the proposed PACD is footnoted (length of project follows).

¹The four geographic regions are covered by Bureaus for Africa (AFR), Asia, Latin America and the Caribbean (LAC), and Near East (NE). In this report, "Africa" is defined by the countries covered by the Africa Bureau.

²Refer to FY84 ABS Office Narratives for a more extensive description of each one.

Contractor: the prime contractor is listed first (sub-contractor follows).

Project Purpose, Summary, AID-Financed Inputs, Major Outputs: this information is taken from a combination of Project Papers, ABS Activity Data Sheets FYs 83 and/or 84), and in some cases project evaluations. It is meant to reflect the goals and activities of projects as planned; changes are reported under "Project Status."

Africa-Specific Activities: describes the project applications planned for Africa, or cumulative totals of applications in Africa to date.

Project Status: describes the progress of Africa-specific activities, conferences which have included African participation, and studies which may be relevant to the Region. Where possible, the dollar value of an activity is provided, along with the fiscal year in which it was funded.

Financing of Overall Project: covers the totality of activities world-wide. The figures are taken from the FY84 ABS; projects not covered in FY84 are described with fiscal data from Project Papers, authorizations, or ABS figures from previous fiscal years.

LOP: Life-of-Project funding data is taken from the FY84 ABS for planned projects; on-going projects show LOP levels for the currently-authorized duration of the project (LOP levels pegged to a proposed extension of the PACD in the FY84 ABS are indicated in a footnote).

Office: ST/EY
 Project Title: Energy Management Training
 Project Number: 931-1160
 Authorization Date: 1977
 End-of-Project Date: 1982 (5 years)
 Contractor: State University of New York/Stony Brook

PROJECT PURPOSE:

To provide short-term training in energy policy formulation and program management to key personnel in less developed countries (LDCs).

PROJECT SUMMARY:

Through eight-week courses, mid-level LDC officials from governmental, academic, financial and private organizations are being trained in: (1) energy planning and management, and (2) energy analysis and assessments (financial needs analysis and institutional strategies, analytic techniques and technology review). Visits to financial and private sector institutions are included in the training program. The project is also designed to help build LDC institutional capacity to assess resources and plan programs.

AID-FINANCED INPUTS:

1. Personnel;
2. Travel;
3. Operations;
4. Participant support.

MAJOR OUTPUTS:

1. LDC participants trained in US and in-country;
2. Energy planning institutes strengthened.

AFRICA-SPECIFIC ACTIVITIES:

Of the 57 countries that have participated in the project, 17 have been African nations (see below).

PROJECT STATUS:

The project was authorized in July, 1977. From 1977 to 1982, two sessions have been held per year, training a total of 192 people, including 41 from Africa:

Burundi	(2)	Ministry of Energy and Mines
Cameroon	(1)	National Refining Company
Ethiopia	(1)	Ethiopian National Energy Committee
The Gambia	(1)	Ministry of Economic Planning and Industrial Development
Ghana	(1)	School of Engineering/Howard University (USA)
Kenya	(5)	National Council for Science and Technology, Ministry of Energy
Liberia	(1)	Ministry of Land and Mines (Bureau of Hydrocarbon)
Madagascar	(2)	not provided
Malawi	(2)	Office of the President and Cabinet, Economic Planning Division
Nigeria	(5)	Ministry of Economic Development, Nigerian National Petroleum Corporation
Rwanda	(1)	not provided
Senegal	(2)	Energy Directorate, Renewable Energy Organization (SERST)
Somalia	(1)	Ministry of Industry
Sudan	(5)	Ministry of Energy and Mining, Ministry of National Planning, National Energy Administration, Petroleum Products Pipelines Public Corporation
Tanzania	(6)	Ministry of Energy, Water & Minerals, Tanzania Petroleum Development Corporation, Rufiji Basin Development Authority, Tanzania-Italian Petroleum Refining Co.
Zaire	(1)	Presidential Research Department
Zambia	(4)	National Commission for Development Planning, Zambia Electricity Supply Corp.

The next session is scheduled to begin on September 20, 1982.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 1977.

FINANCING OF OVERALL PROJECT: (\$000s)	<u>Through FY81</u>	<u>FY82 (est)</u>	<u>FY83 (proposed)</u>	<u>FY84 (proposed)</u>
	2,368	---	750	1,000

LOP: \$2,368,000

Office: ST/EY -9-
 Project Title: Low Cost Energy Technology for Rural Poor
 Project Number: 936-5701
 Authorization Date: 1979
 End-of-Project Date: 1984 (6 years)*
 Contractor: Volunteers in Technical Assistance (VITA)

PROJECT PURPOSE:

To enhance VITA's capabilities to effect technology transfers and to provide technical and financial advice for the support and advancement of low cost energy technologies based on renewable resources in less developed countries (LDCs).

PROJECT SUMMARY:

The project consists of three major elements: (1) technology transfer services, to expand VITA's existing technical assistance mechanisms through on-site and by-mail consulting services and alternative energy publications and training; (2) international alternative energy network, to expand and develop the existing network of VITA and appropriate technology users/suppliers, to facilitate the transfer of alternative energy information, and (3) a program implementation fund, to support the ability of local implementing organizations to carry out successful rural energy efforts through a small grants program.

AID-FINANCED INPUTS:

- Funds to VITA for:
1. Personnel;
 2. Travel;
 3. Small grants;
 4. Information support services.

MAJOR OUTPUTS:

1. Technical workshops;
2. Publications prepared;
3. Grants awarded;
4. On-site consultancies provided;
5. Information requests answered.

AFRICA-SPECIFIC ACTIVITIES:

All elements are on-going in Africa. (see below).

PROJECT STATUS:

The project began in the fall of 1979; as a result of an evaluation conducted in May, 1981, several changes were made, including removal of networking activities from the program. Between 10/1/79 and 3/31/81, 1,102 requests for technical assistance and information were answered from African governmental agencies, schools, universities, PVOs, businesses, etc. As of 3/31/82, the following small projects had been funded: Upper Volta (Kaya Woodstoves, \$7,000; Sahel Energy Bulletin, \$12,000 and \$7,080; Woodstoves, \$1,522; Woodstove Training/Dissemination, \$3,723); Zimbabwe (Fact Finding/ENDA, \$3,929; Silveira House, \$16,500; Spiral Tube Water Wheel/Blair Research Laboratory, \$2,000); Guinea (Documentation Center Training, \$15,103); Niger (Solar Fence/CARE, \$3,750); Mali (Wind Irrigation Project, \$9,000; Woodstoves, \$2,200); Kenya (Wanyororo Women's Project, \$1,467); Lesotho (Solar Oven/Thaba Tseka, \$3,600).

Consultancies in the past year have included: Africa Regional (technical analysis for "Energy Initiatives for Africa"/698-0424); Burundi (development of appropriate models of peat stoves, Peat II/695-0103); Guinea (technical assistance for windmills, preparation of an OPG renewable energy proposal); Kenya (training in stove construction and testing); Mali (technical assistance to develop wind-pumping system and evaluate project, Mali Renewable Energy/688-0217); Niger (development of second World Bank project); Rwanda (technical assistance to Renewable/Improved Traditional Technology/698-0407.22); Somalia (assessment of potential for renewable energy projects, technical assistance for training in construction of fuel-conserving stoves for refugee camps), and Sudan (part of team to write Project Paper for Sudan Rural Renewable Energy/650-0041).

The project also funded training of documentalists from Botswana (1) and Mali (1), and a delegation to the UN Conference on New and Renewable Sources of Energy in Nairobi (August, 1981).

PROJECT DOCUMENTS AND REPORTS:

- Project Paper; 6/79.
 VITA Quarterly Reports; VITA; Rosslyn, VA; Nos. 1-11.
 Eighteen Month Review documents; AID; Washington, O.C.; 3/81.
 Wyatt, A., and Baldwin, S.; "Wind Energy Activities in Africa"; VITA; 1982.

FINANCING OF OVERALL PROJECT: (\$000s)	Through FY81	FY82 (est)	FY83 (proposed)	FY84 (proposed)
LOP: \$6,039,000	3,239	800	1,000	1,000

*Continuation is proposed until FY87, with an LOP of \$9,989,000 in the FY84 ABS.

Office: ST/EY
 Project Title: Energy Technical Service Support
 Project Number: 936-5702
 Authorization Date: 1978
 End-of-Project Date: continuing
 Contractor: Department of Energy (DOE)/RSSA

PROJECT PURPOSE:

To provide short-term professional, scientific and technical consultants to respond to expressed AID Mission and LDC needs for advice on energy program planning and technology.

PROJECT SUMMARY:

A full range of technical consultancies will be provided to assist LDCs in : (1) energy analyses, and (2) formulation of specific projects and solutions to local energy problems, through the adaptation and improvement of conventional and non-conventional energy technologies, and the adoption of energy conservation approaches. These technical support services will be made available upon the request of the AID field Missions.

AID-FINANCED INPUTS:

1. Personnel;
2. Travel;
3. Analyses of energy programs.

MAJOR OUTPUTS:

1. Technical evaluations and analyses of energy programs;
2. Field consultancies completed;
3. Projects designed and implemented.

AFRICA-SPECIFIC ACTIVITIES:

Requests for assistance include African countries (see below).

PROJECT STATUS:

The project was originally authorized in August, 1978. In 1979, assistance was provided to the Sudanese Petroleum Administration in the design of an energy management training program (Sudan Petroleum Training/650-0039), which ended last year; a DOE planning team and consultant completed a mission to lay the groundwork for the program (cost: \$17,000). Other activities include:

Mali	Renewable Energy Team (two consultants from the Solar Energy Research Institute (SERI), for work on Mali Renewable Energy, 688-0217). January, 1979.	\$18,000
Senegal	Observation tour, Bakel Solar Pump (one consultant from Sandia Laboratory, to observe tests of a ThermoElectron turbine at SOFRETES, in France. See Bakel Crop Production, 695-0208, page 72). June, 1979.	\$ 2,000

The project also funded NAS participation in the ECOWAS conference on "Energy for Survival," held in Freetown, Sierra Leone, November 2-6, 1981.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 1978.

FINANCING OF OVERALL PROJECT: (\$000s)	<u>Through FY81</u>	<u>FY82 (est)</u>	<u>FY83 (proposed)</u>	<u>FY84 (proposed)</u>
	900	200	450	500

LOP: continuing*

*Shown as \$3,350,000 in FY84 ABS.

Office: ST/EY
Project Title: Energy Policy and Planning Assistance
Project Number: 936-5703 -11-
Authorization Date: 1979
End-of-Project Date: 1981 (3 years)
Contractor: Resources for the Future; National Academy of Sciences; International Science and Technology, Inc. (ISTI), Energy Development International (ED/I)--Sudan; Associates in Rural Development--Togo; Oak Ridge National Laboratory--Liberia

PROJECT PURPOSE:

To increase knowledge about the relationship between energy and development, to encourage the analysis of energy implications of various development strategies, and to develop within the governments of LDCs, a capability to carry out energy planning and policy-making.

PROJECT SUMMARY:

The project has supported activities in: (1) national energy studies and planning assistance, including country-level technical assistance to national planning organizations, data-gathering, management, etc. (ISTI, ED/I, other contractors); (2) policy-related research and economic analysis of issues relating to energy in developing countries in three major policy areas (costs and benefits of rural electrification, potential contribution of biomass to energy supply, and issues relating to energy efficiency and demand management. This component is carried out by Resources for the Future), and (3) workshops, notably the International Workshop on Energy Survey Methodologies for Developing Countries (managed by the NAS Board on Science and Technology for International Development).

AID-FINANCED INPUTS:

1. Personnel;
2. Workshops and training;
3. Publication costs for studies and reports.

MAJOR OUTPUTS:

1. Country studies;
2. Analyses and discussion papers of particular energy/development issues;
3. Workshop proceedings;
4. Field consultancies.

AFRICA-SPECIFIC ACTIVITIES:

Sudan, Liberia, Malawi, Togo and other African countries have received assistance (see below).

PROJECT STATUS:

The project was authorized in June, 1979. A long-term resident project coordinator arrived in Khartoum in early 1981; the resident coordinator and short-term consultants have been working with the National Energy Administration (NEA), concentrating on the preparation of policy recommendations and reports for the Ministry of Energy on issues of immediate economic and political concern, including petroleum supply and distribution and ways of improving reliability of the power sector. As a result of their recommendations, AID/Sudan considered and approved the purchase of electric power equipment to improve the reliability of the Blue Nile Power Grid (see related projects, pages 69 and 106). A project consultant is now working with senior officials to improve the petroleum allocation system. The results of the first phase study will be available in the fall of 1982. (Cost: \$650,000).

In 1981, the project funded a one-month mission to study the energy situation in Togo; the Togolese have since requested the services of a long-term energy advisor to help implement the report's recommendations. (Cost: \$40,000). Technical assistance was also provided in Malawi, to work on a World Bank planning assessment. In September, 1981, an agreement was signed with the government of Liberia, to provide energy planning assistance; field work, under the Oak Ridge National Laboratory, began in April, 1982. (Cost: \$200,000).

Resources for the Future (RFF) began its activities in Africa in 1981. Missions in 1981-82 have covered: Kenya (team to study energy conservation; \$30,000); Tanzania (fieldwork for studies of social forestry; \$30,000. Fieldwork for studies of forest soils; \$20,000); Sudan (fieldwork to study afforestation; \$4,000).

The International Workshop on Energy Survey Methodologies for Developing Countries was held on Jekyll Island, Georgia in January, 1980.

Activities begun under this project will be continued under Energy Policy Development and Conservation (936-5728; see page 19).

PROJECT DOCUMENTS AND REPORTS:

- Project Paper; 1979.
"Proceedings from the International Workshop on Energy Survey Methodologies for Developing Countries; NAS/BOSTID; Washington, D.C.; 8.80.
"An Overview of the Energy Situation in Togo"; Associates in Rural Development; Burlington, VT; 1982. (in French and English)
Schipper, L. et. al.; "Energy Conservation in Kenya: Progress, Potential, Problems"; RFF; Washington, D.C.; (report in progress).
Allen, J.; "Forest Soils in Developing Countries"; RFF; Washington, D.C.; (report in progress)
Skutsch, M.; "Social Forestry in the Sahel"; RFF; Washington, D.C.
Hammer, T.; "Afforestation in the Sahel"; RFF; Washington, D.C.

FINANCING OF OVERALL PROJECT: (\$000s)	Through FY81	FY82 (est)	FY83 (proposed)	FY84 (proposed)
	3,488	---	---	---

LOP: \$3,488,000

Office: ST/EY
 Project Title: Bio-Energy Systems and Technology
 Project Number: 936-5709
 Authorization Date: 1979
 End-of-Project Date: 1985 (6 years)
 Contractor: US Department of Agriculture (USDA)

PROJECT PURPOSE:

To increase the availability of energy through more effective use of existing bioresources as well as through the development of new bioenergy systems.

PROJECT SUMMARY:

The project provides technical assistance for: (1) development of state-of-the-art technology reviews of bioenergy systems which have possibilities for applications in LDCs; (2) organization of field planning meetings in the regions and technology workshops in the United States; (3) performance of country or regional assessments of bioresources; (4) project design assistance for bioresource production systems (starting from the needed end use for the biofuel and working back through choice of conversion technology, production management and cultivation systems, and (5) preparation of summary and conclusion papers by a core team of bioenergy specialists.

AID-FINANCED INPUTS:

1. Personnel;
2. Travel;
3. Training;
4. Operation costs, commodities.

MAJOR OUTPUTS:

1. Field consultancies;
2. Workshop participants trained;
3. 10 resource/technology assessments;
4. 8 pilot projects undertaken;
5. Research background papers prepared;
6. 5 applied research projects.

AFRICA-SPECIFIC ACTIVITIES:

Technical assistance, energy assessments and workshops are planned for Africa as well as the other geographic regions (see below).

PROJECT STATUS:

The project was authorized in October, 1979; until 1982, most of the work in Africa consisted of responding to inquiries from field Missions, providing information and materials on technologies. In 1981, the project funded seed packets of fuelwood species for distribution at the UN Conference on New and Renewable Sources of Energy, and an informational exhibit (Nairobi; 8/81). This year, consultancies have been carried out in:

			(cost)
Niger	2/82	Three-man team to assess the energy potential of native brushland.	\$50,000
Sudan	4/82	Three-man team reconnaissance visit to work with the Ministry of Energy to identify plausible bioenergy (biomass) projects/programs.	\$35,000
Kenya	5/82	Two-man team to work with the Ministry of Energy to identify potential bioenergy projects and programs.	\$20,000

There is the possibility of further project definition in Sudan and Kenya, based on suggestions for projects presented to the Ministries. Discussions for an assessment of wood-fired electric generation in the Gambia, a planning project in Liberia and the possibilities of conducting arid lands work in Senegal and Upper Volta have taken place.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 1979 ("Bioresources for Energy"). Revised Project Paper; 8/81.
 "Energy Potential from Native Brushland in Niger: The Economic Perspective"; AID; Washington, D.C.; 5/82.
 (Sudan and Kenya reports in preparation)

FINANCING OF OVERALL PROJECT: (\$000s)	<u>Through FY81</u>	<u>FY82 (est)</u>	<u>FY83 (proposed)</u>	<u>FY84 (proposed)</u>
	2,710	1,000	900	900

LOP: \$8,710,000

Office: ST/EY
Project Title: Photovoltaic Development and Support Program
Project Number: 936-5710
Authorization Date: 1979
End-of-Project Date: 1983 (5 years)
Contractor: NASA--Lewis Research Center (PASA)

PROJECT PURPOSE:

To facilitate the use of photovoltaics for a variety of applications in support of development assistance activities; to demonstrate the suitability of photovoltaic power systems for meeting basic electrical requirements in rural areas of developing countries.

PROJECT SUMMARY:

The program will fund applications of photovoltaic technology in on-going socio-economic development projects, covering the phases of: (1) planning and studies, including survey, analysis and selection; (2) field test support, covering project definition, load identification, acquisition, testing and evaluation; (3) applications, specifically deployment on-site to obtain operational data; (4) training and information, and (5) project management, providing descriptive material and technical assistance for existing and planned projects.

AID-FINANCED INPUTS:

1. Personnel for technical supervision, monitoring of field activities, etc.;
2. Equipment (photovoltaic systems); *
3. Training for host country officials and technicians.

MAJOR OUTPUTS:

1. Photovoltaic systems installed in health clinics for lighting, refrigeration, etc.;
2. Photovoltaic refrigerators installed and field-tested for vaccine storage in remote areas;
3. Application studies determining cost and operation factors, etc.;
4. Host country officials and technicians trained;
5. Consultancies completed.

AFRICA-SPECIFIC ACTIVITIES:

The project began with an application in Upper Volta. Countries programmed for installation of PV-powered health facilities include Kenya (2) and Zimbabwe. Twenty PV-powered medical refrigerators are being placed in 19 countries, including Zaire, Zimbabwe, Liberia, Upper Volta. Responses to requests for technical assistance include African countries (see below).

PROJECT STATUS:

This PASA was signed in August, 1979. It was preceded by one in 1978, to examine the utility of photovoltaic technology in a Third World Country; under it, a small water pump and grain grinder was set up in Tangaye, Upper Volta (see Upper Volta Solar Energy Demonstration, 698-0410.13, page 66), which NASA will continue to backstop until March 31, 1983. Under the present PASA, NASA activities are concentrated on rural health systems and rural satellite systems.

Implementation plans have been developed for the Kenya and Zimbabwe medical systems. A contract has been awarded for the development and installation of the systems (scheduled for the fall of 1982). The contractor is preparing technical seminars for presentation in-country at the time of installation. In June of 1982, officials from the health ministries of both countries visited the US to observe testing of the equipment. Sites have been tentatively identified for medical refrigerators in Zaire, Zimbabwe, Liberia and Upper Volta. A contract has been awarded for the refrigerators; installation is expected in the fall of 1982. A Request for Proposals (RFP) is about to be issued for the development of two satellite earth stations, one possibly in Senegal. Experts are visiting Senegal during June, 1982 to explore possibilities for such an installation.

The project is funding a technical expert to check the Tangaye system, and a follow-up social impact analysis (see page 66). In February, 1982, in an effort to increase provision of technical assistance, NASA sent cables to the field outlining the program; to date, African countries requesting information and/or technical assistance include Botswana, Kenya, Mali, Mauritania, Mozambique, Sudan and Swaziland. The project was evaluated in February and December, 1981.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 1979.
NASA Management Reports; NASA/Lewis Research Center; Cleveland, OH.

FINANCING OF OVERALL PROJECT: (\$000s)	<u>Through FY81</u> 3,421	<u>FY82 (est)</u> 2,000	<u>FY83 (proposed)</u> 3,000	<u>FY84 (proposed)</u> ---
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LOP: \$8,500,000

*The project is no longer funding equipment.

Office: ST/EY
Project Title: Renewable Energy Survey and Demonstration
Project Number: 936-5711 -14-
Authorization Date: 1979 (5 years)
End-of-Project Date: 1983
Contractor: Peace Corps (PASA)

PROJECT PURPOSE:

To survey energy needs and resources of rural areas as a basis for planning small-scale renewable energy projects; to train Peace Corps volunteers (PCVs) and support their efforts to use small-scale renewable energy technologies in rural areas.

PROJECT SUMMARY:

This agreement will enable Peace Corps to: (1) conduct workshops for field staff and host country personnel in programming opportunities for Renewable Energy Technologies (RETs), and provide technical overviews and hands-on experience with selected RETs; (2) assist the field in the identification and development of village-based projects, through technical assistance to requesting countries (includes conducting of pilot village-level energy surveys in four countries), and (3) develop RET resource materials and programming guidelines (includes training models and field manuals for pre- and in-service training). Technologies include wood-conserving stoves, improved charcoal production techniques, hydram applications and construction, simple solar technologies (food drying, water heating), wind systems for water pumping, blacksmithing techniques and agricultural tool production).

AID-FINANCED INPUTS:

Funds to Peace Corps for:

1. Technical assistance in energy sector programming to AID, Peace Corps and host country ministries;
2. Workshops and training for PCVs and host country counterparts;
3. Development of manuals and training materials.

MAJOR OUTPUTS:

1. Four surveys of village-level energy uses;
2. PCVs and host country counterparts trained in RET dissemination;
3. Village-level RET projects implemented;
4. Training manuals.

AFRICA-SPECIFIC ACTIVITIES:

Senegal is one of the four countries targeted for a village-level energy survey. Volunteers in African countries are being trained; African countries are receiving programming assistance from Peace Corps energy sector experts (see below).

PROJECT STATUS:

The project began in 1979; from 1979 until 1981, the project funded pre-service training, including approximately 50 PCVs assigned to appropriate technology projects in Africa. In-service training activities (in which AID funds have enabled inclusion of host country counterparts), include: (1980) Swaziland (hydrams); Mauritania (appropriate technology); Kenya (hydrams); (1981) Lesotho (hydrams); Swaziland (hydram demonstration installation); Cameroon (charcoal, solar); (1982) Togo (solar, stoves); Kenya (solar, stoves). Programming and evaluation activities have included: (1980) Gabon (programming assistance, hydrams); Mali (programming workshop for Peace Corps staff in 12 countries in appropriate technology); Senegal (programming assistance, mud stoves); Mauritania (programming and evaluation in appropriate technology); Togo (appropriate technology programming); (1981) Liberia (water energy programming assistance, evaluation of appropriate technology projects); Swaziland (programming assistance); Botswana (programming assistance); Mali, Ghana (evaluation of appropriate technology projects); (1982) Togo (training of trainers conference, programming workshop). In addition, the project provided for training of a Senegal volunteer at Aprovecho (Eugene, Oregon), to train Senegalese masons in stove construction, and for the attendance of four Peace Corps staff-people at last year's UN Conference on New and Renewable Sources of Energy in Nairobi (August, 1981). The Senegal energy survey has been completed; the final report is in preparation.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 1979.
"Profiles of Selected Senegal Villages (Based on Data from the Peace Corps Energy Survey)"; Peace Corps/OPTC; Washington, D.C.; 12/81. (final report in preparation)
"A Training Manual in Conducting a Workshop in the Design, Construction, Operation, Maintenance and Repair of Hydrams"; Peace Corps/OPTC; Washington, D.C.; 12/81.
"A Training Manual in Appropriate Community Technology: An Integrated Approach for Training Development Facilitators"; Farallones Institute Rural Center/CHP International/Peace Corps; 1/82.
(training manuals on simple solar technologies, improved charcoal production techniques and improved agricultural tools & blacksmithing techniques are in production).

FINANCING OF OVERALL PROJECT:	<u>Through FY81</u>	<u>FY82 (est)</u>	<u>FY83 (proposed)</u>	<u>FY84 (proposed)</u>
(\$000s)	1,550	350	---	---

LOP: \$1,900,000

Office: ST/EY
 Project Title: Small Decentralized Hydropower
 Project Number: 936-5715
 Authorization Date: 1980
 End-of-Project Date: 1985 (5 years)
 Contractor: National Rural Electric Cooperative Association (NRECA)

PROJECT PURPOSE:

To expand supplies of electrical power by developing indigenous water power resources to serve local and regional needs.

PROJECT SUMMARY:

The project provides assistance in: (1) administration, developing arrangements with small decentralized hydropower (SDH) specialists to respond to requests from AID Missions and host country agencies, arrange workshops and seminars, and provide field support; (2) project identification, to identify potential hydropower sites for development, determine the role of SDH in a country's energy development, examine the project from its technical, financial, economic, sociological, institutional and environmental aspects; (3) site selection and project design, to develop the assessment and design of new projects or SDH installations (including preliminary designs, investment and operating costs estimates, and evaluations of the aspects examined during project identification); (4) SDH data base development, surveying existing SDH facilities in developed and developing countries, providing descriptions of system performance, economics, implementation procedures and management, organizing a data base of hydropower resources, available technology and skills resources via manuals, bulletins and directories, and (6) training, developing classroom and hands-on training programs in SDH, for engineers, planners and operators from developing countries.

AID-FINANCED INPUTS:

1. Personnel (long-term and consultants);
2. Training;
3. Travel;
4. Research.

MAJOR OUTPUTS:

1. Field consultancies provided;
2. Participants trained;
3. Engineering site studies and country studies completed.

AFRICA-SPECIFIC ACTIVITIES:

Resource assessments, feasibility studies and economic analyses will be performed in African countries; regional workshops will be held in East and West Africa (see below).

PROJECT STATUS:

The project was authorized in May, 1980; Africa activities began in 1981. To date, the following missions have been completed:

			(cost)
Zaire	3/81	Two engineers to assist in evaluating several proposed small hydro projects.	\$30,000
Togo	4/81	Three-man team to conduct country assessment.	\$50,000
Cape Verde	11/81	In-house desk study of hydro potential.	\$ 3,000
Rwanda	11/81	Two-man team for a detailed study of one site and an assessment of nine undeveloped sites.	\$20,000
Liberia	2/82	Two-man team to evaluate Peace Corps micro-hydro project (see Liberia Mini Hydro Project/698.0407.07; page 57).	\$10,600
Zaire	5/82	Three-man team to assist with the preparation of a PID (see Zaire Small Decentralized Hydropower/660-0095; page 108).	\$12,000
Sudan	5/82	Country assessment.	\$25,000

A workshop on small waterpower resources was held in Abidjan, Ivory Coast, in March, 1982; 2 workshops in East Africa are planned for late 1982. * Feasibility studies are planned for Burundi and Lesotho for the fall of 1982. A major project evaluation was conducted in May, 1982. *(or early 1983)

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 8/79.
 Howe, J., and Omkar, S.; "Zaire: A Proposed Small Hydropower and Rural Electrification Project"; NRECA; Washington, D.C.; 3/81.
 Lawrence, W. et. al.; "Togo: Small Decentralized Hydropower Study"; NRECA; 4/81.
 Rubin, D.; "Assessment of Small Hydroelectric Potential in Cape Verde"; NRECA; 11/81.
 Jackson, B. and Topik, J.; "Small Decentralized Hydropower in Rwanda"; NRECA; 11/81.
 Inversin, A. and Lawrence, W.; "Liberia: Evaluation of Yar John Micro-hydro Project"; 2/82.

FINANCING OF OVERALL PROJECT:	<u>Through FY81</u>	<u>FY82 (est)</u>	<u>FY83 (proposed)</u>	<u>FY84 (proposed)</u>
(\$000s)	2224	800	800	800
LOP: \$5,500,000				

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Office: ST/EY

Project Title: Alternative Energy Training

Project Number: 936-5716

Authorization Date: 1979

End-of-Project Date: 1984 (4 years)*

Contractor: University of Florida (Solar Energy and Energy Conversion Laboratory)

PROJECT PURPOSE:

To provide less developed countries (LDCs) with a cadre of trained people able to identify the renewable energy resources in their individual countries and select the most appropriate technologies with which to exploit these resources.

PROJECT SUMMARY:

Through a 15-week program at the University of Florida, mid-level LDC officials and technicians will be trained to: (1) identify energy resources available in their countries (ie: solar, biomass, hydropower, wind energy, geothermal and ocean thermal resources), and (2) to build, test and install the best, replicable small-scale alternative energy technologies with which to exploit such energy resources. The program also provides for continuing contact and support to participants and their institutions, for conducting training and constructing/testing/adopting technologies studied.

AID-FINANCED INPUTS:

1. Participant training costs;
2. Personnel.

MAJOR OUTPUTS:

292 participants trained by FY84.

AFRICA-SPECIFIC ACTIVITIES:

Participants to be trained include officials and technicians from African countries (see below).

PROJECT STATUS:

The project was authorized in August, 1979. From 1979 to 1982, five 15-week training sessions have been held; in that period, 33 Africans have been trained from:

Ghana	(2)	Building & Road Research Institute; Food Research Institute
Kenya	(2)	Ministry of Energy
Liberia	(3)	Ministry of Lands and Mines (Bureaus of Hydrocarbon & Geological Survey)
Mali	(1)	not provided
Mauritania	(1)	Direction of Mines and Geology
Nigeria	(1)	Department of Mechanical Engineering/University of Nigeria
Senegal	(1)	Semiconductors and Solar Energy Lab/University of Dakar
Somalia	(1)	not provided
Sudan	(9)	National Energy Administration, Energy Research Institute, University of Khartoum
Tanzania	(2)	National Scientific Research Council, University of Dar Es Salaam
Zaire	(1)	Presidential Service of Studies
Malawi	(1)	Economic Planning Division
Togo	(1)	National Meteorological Directorate
Burundi	(2)	Ministry of Energy and Mines (Public Works, Energy Department)
Rwanda	(4)	National Pedagogical Institute, Center for Applied Energy Studies (CEAER)
Sierra Leone	(1)	Faculty of Engineering/Fourah Bay College

The next session is scheduled to begin on August 20, 1982.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 1979 (unsolicited proposal).

FINANCING FOR OVERALL PROJECT: (\$000s)	<u>Through FY81</u>	<u>FY 82 (est)</u>	<u>FY83 (proposed)</u>	<u>FY84 (proposed)</u>
	2,048	900	750	1,000

LOP: incremental*

*Authorization until FY86 is proposed, with an LOP of \$8,445,000.

Office: ST/EY
 Project Title: Conventional Energy Technical Assistance
 Project Number: 936-5724 -17-
 Authorization Date: 1980
 End-of-Project Date: 1984 (5 years)
 Contractor: US Geological Survey (USGS), Bechtel National, Inc. (Arthur D. Little, Burns & Roe, United Engineers and Constructors, and other sub-contractors)

PROJECT PURPOSE:

To assist less developed countries (LDCs) to identify and evaluate potential indigenous conventional energy resources, and to develop and utilize them in a way that reduces the importation of petroleum and petroleum products.

PROJECT SUMMARY:

The project will enhance indigenous conventional energy supplies, improve LDCs' information bases and capacity to plan and manage programs for the exploration of hydrocarbon and geothermal resources, through: (1) development of specific country-level activities, through reconnaissance visits, activity definition and implementation, and (2) development of generic programs involving conventional technologies involved in the production, extraction, conversion and utilization of a country's indigenous fossil fuel energy resources (eg: substitution of coal-slurry fuel for petroleum oil, production of clean-burning household fuel briquette from coal). The project will employ a wide range of technical disciplines, including remote sensing of geological structures favorable for fossil fuel energy finds.

AID-FINANCED INPUTS:

1. Personnel for country activity design and project implementation;
2. Travel and support;
3. Workshops and seminars.

MAJOR OUTPUTS:

1. Country activities designed and implemented;
2. Geological data compilations;
3. Conventional energy workshops;
4. Advisory committee established.

AFRICA-SPECIFIC ACTIVITIES:

Sudan is one of the initial countries budgetted for projects (\$1,041,000, FY 81/82); Niger and Senegal have been identified for consideration in FY83. Generic technology projects include modification of the Mombasa Refinery in Kenya (\$300,000, FY82). (see below).

PROJECT STATUS:

The project was approved in September, 1980; 10 of the 20 countries that responded to announcement of the project are in Africa. In 1981, reconnaissance visits were made to Senegal (discussion of potential lignite deposits, 2/81; no further action to date) and Sudan (part of country-level activity definition, 12/81). As a result of analyses undertaken by the Energy Planning Project (936-5703, see page 11), it became apparent that in Sudan, there is significant use of petroleum distillate fuels to supply on-site electricity generation, due to the poor reliability of the Blue Nile power grid (BNG); rehabilitation of the BNG was set as a major priority for AID assistance. As part of this project, a four-person team from Bechtel went to Sudan in February, 1982 to develop a list of specifications for commodities necessary to rehabilitate the BNG; the commodities will be procured through the Commodity Import Program (650-0049, see page 69), with procurement, delivery, etc. contracted to Bechtel (the procurement contract is presently being drawn up). For preparation of an analysis of issues and problems involved in the transfer of coal-slurry fuel technology to developing countries, a Burns and Roe team went to Kenya in January, 1982 (as well as other countries), to study fuel oil-consuming industries; a final report is currently under review.

In February, 1982, a reconnaissance visit was made to Kenya, to study options to modify the refinery in Mombasa, so that it can reprocess residual fuel to reduce petroleum importation (addition of hydrogen or removal of carbon during refining); an Arthur D. Little team is beginning field work on June 28, 1982. Possible future activities include: Niger (fuel-from-coal project, based on the results of the forthcoming report prepared by United Engineers and Constructors, Inc., on the manufacture, distribution and use of household fuel briquettes made from low-temperature carbonization of coal); Gambia (investigation for hydrocarbon potential); Kenya (possible remote sensing applications).

The project has also funded a preliminary study of geology and hydrocarbon potential in ECOWAS (Economic Community of West African States) countries. The participation of several US experts in the UNESCO/AID seminar on "Geothermal Power Development" held in Nairobi, June 15-22, 1982 was also supported with project funds.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 9/80.
 Mattick, R.; "Hydrocarbon Resources of the ECOWAS Region"; USGS; Washington, D.C.; 1981.
 "Study of Coal Carbonization Processes in India for Domestic Fuel"; United Engineers and Constructors, Inc.; Philadelphia, Pa.
 (report on coal slurry fuel technology in preparation).

FINANCING OF OVERALL PROJECT: (\$000s)	Through FY81	FY82 (est)	FY83 (proposed)	FY84 (proposed)
	1,938	3,450	2,000	3,000

LDP: \$13,750,000 (for estimated PACD in FY86; current authorization is \$5,500,000).

Office: ST/EY
 Project Title: Training in Conventional Energy
 Project Number: 936-9997
 Authorization Date: 1980
 End-of-Project Date: 1984 (2 years)*
 Contractor: Institute of International Education (IIE)

PROJECT PURPOSE:

To train LDC nationals in scientific, engineering, planning and managerial skills necessary to develop and manage indigenous conventional energy programs (exploration for, development/production of oil, natural gas, coal, oil shale, tar sands, geothermal and hydroelectric resources).

PROJECT SUMMARY:

The project will provide: (1) graduate-level academic training in science and engineering related to conventional energy, ranging from several-month periods to two-year programs leading to MS degrees, and (2) on-the-job practical training through internships with US oil companies, utilities, mining enterprises, seismic and drilling companies and research institutions, tailored to the participants' individual professional needs, and the needs of their countries.

AID-FINANCED INPUTS:

Training for LDC participants (2,000 man-months).

MAJOR OUTPUTS:

LDC participants trained to effectively assume posts in their governments energy ministries, national oil companies, utilities, etc.

AFIRCA-SPECIFIC ACTIVITIES:

The project was authorized in October, 1980. As of June, 1982, participants from six African countries were involved in non-academic programs (industry internships, short courses in energy conservation, petroleum management, electric power planning, energy project evaluation and management): Burundi (one participant currently in program); Liberia (three completed programs, one currently in program, 6 to start in future); Kenya (one completed program); Sudan (2 currently in programs; 6 pending placement in programs); Tanzania (one completed program); Zaire (2 currently in programs).

As of the same date, participants from six countries were in various stages of acceptance or study at a total of 21 US universities in fields related to oil, gas, coal, hydropower, etc.:

Country	#Currently Studying**	#Accepted for Fall, 1982	#Pending acceptance	Total
Kenya	3	5	0	8
Mali	0	3	0	3
Rwanda	0	0	1	1
Sierra Leone	1	0	0	1
Sudan	4	5	5	14
Tanzania	10	0	0	10

**Participants are currently studying at: University of Pittsburgh; Texas A&M; Montana Tech.; George Washington University; Washington State University; Virginia Polytechnic Institute; Southern Illinois State; University of Utah.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 1980.
 Progress Report; IIE; Washington, D.C.; 4/82.
 (Descriptive brochures in English, French and Spanish)

FINANCING OF OVERALL PROJECT: (\$000s)	Through FY81	FY82 (est)	FY83 (proposed)	FY84 (proposed)
	2,521	2,000	2,000	3,000

LOP: \$16,500,000

*Authorization for an additional 3 years is being requested; total LOP proposed in the FY84 ABS is \$16,525,000.

Office: ST/EY
Project Title: Energy Policy Development and Conservation
Project Number: 936-5728
Authorization Date: planned
End-of-Project Date: 1987 (5 years)
Contractor: to be chosen

PROJECT PURPOSE:

To provide technical assistance to developing countries, so that they may effectively address their national energy problems through analysis, institution building and policy development.

PROJECT SUMMARY:

This project continues and expands upon efforts begun under Energy Policy and Planning (936-5703; see page 11), on two levels: (1) country-level activities, including organizational and manpower development in energy policy-making and planning entities, establishment and maintenance of programs for energy data collection and analysis, analysis of energy resources, economic evaluation of energy supply projects/government policies/demand management needs/private-sector opportunities, preparation of energy plans, investment codes, laws, funding proposals, etc., and (2) global activities, including a conference bringing together host country officials, AID personnel and technical assistance contractors active in the predecessor and other projects, conservation services (including energy audits and transfer of energy auditing capability to LDC engineers and managers, studies, program designs, etc.) and a research program to investigate selected economic and other social science areas related to energy policy development (including an analysis of the potential applications of microcomputers for energy planning, policy development and conservation in LDCs).

AID-FINANCED INPUTS:

1. Personnel;
2. Travel and logistical support;
3. Commodities (computer hardware and software, energy audit instruments);
4. Document and publications costs.

MAJOR OUTPUTS:

1. Country-level programs;
2. Regional and/or global studies;
3. Coordination workshops, conferences and publications;
4. Evaluations of country programs and regional activities.

AFRICA-SPECIFIC ACTIVITIES:

Second-phase activities are planned for Sudan, and under consideration in Togo. In Sudan, activities include: (1) continued data collection and development of routine reporting forms, to improve the Sudanese energy data base; (2) a shift in the emphasis of detailed analysis, from short-term to long-term problems; (3) provision of documents and equipment (including microcomputer hardware and software), to improve analytical capability and expand the energy library established during Phase I; (4) continued training and long-term advisory services for the National Energy Administration, the General Petroleum Corporation and the Public Electricity and Water Corporation, and (5) special studies on key issues (eg: optimal use of recently-discovered oil and gas resources, fuel basis for future electric power expansion). In Togo, technical assistance in energy policy development will depend on the possibility of effective coordination with planning for the World Bank's Mono River Hydroelectric Dam and other projects. Exploratory discussions have taken place on the possibility of new activities in Senegal, Tanzania and/or Somalia.

PROJECT STATUS:

The project paper is under review; authorization is expected in late June or early July, 1982.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 5/82.

OVERALL PROJECT FINANCING: (\$000s)	<u>Through FY81</u>	<u>FY82 (est)</u>	<u>FY83 (proposed)</u>	<u>FY84 (proposed)</u>
	---	1,000*	1,000	1,800

*\$400,000 estimated for activities in Sudan

LOP: \$8,000,000

Office: ST/FNR
 Project Title: Environmental Training and Grants
 Project Number: 931-1113
 Authorization Date: 1977
 End-of-Project Date: 1982 (5 years)
 Contractor: US Man & the Biosphere Program, Dept. of State/RSSA (18 sub-contracts, including Library of Congress, U. of Arizona, National Park Service, US Forest Service, Fish & Wildlife Service, etc.)

PROJECT PURPOSE:

To assist less developed countries (LDCs) to manage their natural resources, through training and seminars.

PROJECT SUMMARY:

The project consists of various sub-activities in two broad areas: (1) field support, including preparation of country environmental profiles (desk and field studies), environmental issues papers and environmental newsletter and development of an environmental research and training reference service, and (2) training and support on integrated, interdisciplinary approaches to development planning through conferences, seminars, workshops, research/training grants and provision of technical advisory services (topics covered include tropical forestry, sea turtle conservation, mutagen and carcinogen detection, watershed and natural resource management, concepts and techniques for conducting resource inventories and resource monitoring).

AID-FINANCED INPUTS:

1. Personnel (technical assistance and project management);
2. Report and study preparation.

MAJOR OUTPUTS:

1. Environmental profiles;
2. Training directory;
3. Two short seminars for ministerial-level officials;
4. Mid-level seminars for 15-20 LDC government planners;
5. Short seminars and workshops;
6. Training grants awarded.

AFRICA-SPECIFIC ACTIVITIES:

Phase I (desk study) profiles include nearly 20 African countries; Phase II studies are planned for Mali, Upper Volta and Zaire. Training activities include assistance and staff training for the College of African Wildlife in Mweka, Tanzania.

PROJECT STATUS:

The project began in 1977; the environmental profile activity was evaluated in February, 1980, and the overall Man & the Biosphere (MAB) program was evaluated in July, 1980. The Arid Lands Information Center (U. of Arizona) and Library of Congress have completed Draft Environmental Profiles for: Cape Verde, the Gambia, Ghana, Mali, Niger, Senegal, Upper Volta, Liberia, Mauritania, Swaziland, Zaire, and Rwanda; studies for Burundi, Zambia, Lesotho, Malawi, Uganda and Sudan are in progress or contracted but not yet in progress. In addition to general conferences and training programs, training for the staff of the College of African Wildlife, including visits to US resource management programs and curriculum revision for the College, has been completed (US visits were made in 1980 and 1981). A final evaluation is scheduled to take place in July-August, 1982; the PACD has been extended to 9/30/82.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 1977. Revised Project Paper; 8/80.
 Evaluation; 8/80.
 Draft Environmental Profiles; US Man and the Biosphere Program, Department of State; Washington, D.C..
 Tillman, R.E.; "Environmental Guidelines for Irrigation"; New York Botanical Garden; 6/81.
 Prescott-Allen, R. and C.; "Economic Contributions of Wild Plants and Animals to Developing Countries"; 2/82.

FINANCING OF OVERALL PROJECT: (\$000s)	<u>Through FY81</u>	<u>FY82 (est)</u>	<u>FY83 (proposed)</u>	<u>FY84 (proposed)</u>
	1,180	---	---	---

TOP: \$1,180,000

Office: ST/FNR
Project Title: Environment and Natural Resources Expanded Information Base
Project Number: 931-1209
Authorization Date: 1979
End-of-Project Date: 1984 (4 years)
Contractor: National Park Service (National Academy of Sciences, American Association for the Advancement of Science, International Institute for Environment & Development)

PROJECT PURPOSE:

To develop improved information on environmental and natural resource issues related to less developed countries (LDCs), for the design of environmentally-sound programs.

PROJECT SUMMARY:

The project consists of four major components: (1) preparation of state-of-the-art review papers (including a review and/or analysis of selected ecological problems in the humid tropics and methods for conducting natural resources/environmental surveys and collecting environmental baseline data, a study of legal, regulatory and institutional approaches to conservation/management of natural resources, and a projection of future regional scarcities and environmental degradation); (2) development of case studies (focusing on integrated regional planning in Latin America, social forestry, coastal development in Asia and Africa, and rangeland management in Africa); (3) development of project design aids (for desert, semi-arid, savanna, dry forest, humid tropical and coastal/estuarine regions), and (4) dissemination of the papers, studies and aids through workshops and special publications.

AID-FINANCED INPUTS:

1. Personnel;
2. Travel.

MAJOR OUTPUTS:

1. Review papers;
2. Case studies;
3. Project design aids;
4. Regional workshops;
5. Special publications and translations.

AFIRCA-SPECIFIC ACTIVITIES:

Project activities include case studies of range management and coastal resources in Africa, projections of renewable and natural resource scarcities in East Africa, and institutional studies in selected countries (see below).

PROJECT STATUS:

The project was authorized in June, 1979. The "Natural Resource Technical Bulletin" was first published in 1981. Studies on environmental and natural resource management covering Ghana and Sudan were completed in 1981. Case studies of range management are expected to start in the fall of 1982. Projections of resource scarcities in Africa (covering Kenya, Tanzania, Rwanda, Burundi and Uganda) are scheduled for the summer of 1982.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 6/19/79.
"Natural Resource Technical Bulletin"; AID/NPS; Washington, D.C.; Nos. 1/1981, 2/1982.
"Ecological Aspects of Development in the Humid Tropics"; NAS; Washington, D.C.; 1982.
"Legal, Regulatory and Institutional Aspects of Environmental and Natural Resource Management in the Developing World"; International Institute for Environment and Development; Washington, D.C.; 1982 (includes Ghana and Sudan; country reports will be available for each).

FINANCING FOR OVERALL PROJECT: (\$000s)	<u>Through FY81</u>	<u>FY82 (est)</u>	<u>FY83 (proposed)</u>	<u>FY84 (proposed)</u>
	1,790	700	---	---

LOP: \$2,490,000

Office: ST/FNR
 Project Title: Environmental Planning and Management
 Project Number: 936-5517
 Authorization Date: 1982
 End-of-Project Date: 1985 (4 years)
 Contractor: International Institute for Environment and Development (IIED)
 (Joint Environmental Service with the IUCN).

PROJECT PURPOSE:

To strengthen less developed countries (LDCs) in their institutional ability to better manage and conserve their natural resources, in the interests of sustainable development.

PROJECT SUMMARY:

The project will: (1) provide short-to medium term advisory services to AID Missions and host government institutions, to improve their capacity for environmental protection and natural resources management, surveying, planning, assessment and project design, using a large, informal network of specialists coordinated through a central management group; (2) encourage countries to undertake a longer-term pilot activity directed toward removing systematic barriers to effective resource management across sectors (eg: development of a national or regional natural resources strategy closely related to a country's economic development planning process), and (3) provide informational analyses based upon experience gained from the provision of advisory services and the pilot activity, to improve dissemination of such experience and provide instruction on the replicability of the national environmental strategizing processes and solutions to specific environmental problems.

AID-FINANCED INPUTS:

1. Personnel for project management;
2. Short- and medium-term advisory services;
3. Pilot natural conservation strategy preparation.

MAJOR OUTPUTS:

1. Short-term technical advisory service missions;
2. Pilot national conservation strategies in selected LDCs;
3. Studies and reports.

AFRICA-SPECIFIC ACTIVITIES:

Pilot projects to develop national natural resource management strategies (national conservation strategies) will be developed; countries will be chosen when project implementation begins.

PROJECT STATUS:

The Project Paper was approved in May, 1982. Twenty-two Africa Missions and both REDSOs responded to the PID, suggesting ways in which proposed technical services could be of use; these responses, as well as other sources, will provide the basis for choosing pilot activities.

PROJECT DOCUMENTS AND REPORTS:

- PID; 3/81.
- Project Paper; 3/82.

FINANCING FOR OVERALL PROJECT: (\$000s)	<u>Through FY81</u>	<u>FY82 (est)</u>	<u>FY83 (proposed)</u>	<u>FY 84 (proposed)</u>
	---	250	850	750
LOP: \$1,850,000	ST/FNR			
\$1,650,000	Missions and Regional Bureaus			
<u>\$3,500,000*</u>				

*Represents funding for authorized project LOP; an extension until 1988 is proposed in the FY84 ABS (proposed LOP: \$7 million).

Office: ST/FNR
 Project Title: Forest Resources Management
 Project Number: 936-5519
 Authorization Date: 1980
 End-of-Project Date: 1983 (4 years)
 Contractor: USDA Forest Service (RSSA); Peace Corps (PASA)

PROJECT PURPOSE:

To improve delivery of effective forestry assistance to less developed countries (LDCs), by providing AID Missions and LDCs with ready access to sound technical advice and quality professional field support in forest resources, and by mobilizing Peace Corps capabilities in support of collaborative grassroots-level village forestry projects.

PROJECT SUMMARY:

The project consists of two major components: (1) a Forestry Support Program (FSP), to provide AID/W and field Missions with technical advice in tropical forestry and natural resources (in areas including fuelwood, natural woodlands, agroforestry, reforestation, community resource use, etc.), to locate long-term staff and short-term consultants for AID or cooperative AID/Peace Corps projects (in areas such as forestry economics, remote sensing, plantation establishment, soils, etc.), and (2) a joint AID/Peace Corps Forestry Initiative, providing technical programming and backstopping expertise to Peace Corps to develop collaborative community-based forestry projects that can be staffed by Peace Corps Volunteers.

AID-FINANCED INPUTS:

1. Personnel (Washington-based and field);
2. Training;
3. Commodities.

MAJOR OUTPUTS:

1. Development of an International Forest Resources Experts Network;
2. Peace Corps/AID cooperative demonstration projects;
3. Peace Corps support for PL480 forestry programs in African LDCs;
4. Forestry training programs for Peace Corps volunteers and host country counterparts;
5. Workshops and conferences; general forestry and natural resources training support for LDCs.

AFRICA-SPECIFIC ACTIVITIES:

One FSP field staff member will be based in Nairobi, in REDSO/EA. Peace Corps activities will include provision of special training and demonstration programs for PCVs and counterparts working with private voluntary organizations to support tree-planting in Africa under the PL480 program.

PROJECT STATUS:

The project was authorized in August, 1980. The FSP was established during the spring of 1981; most of the Washington staff began work in August, 1981, and the resident field advisor arrived in Kenya in the fall of 1981. The Washington-based staff has been developing a roster of experts and fielding consultants. FSP staff consultancies have included: Somalia (natural resources and environment input to the Country Development Strategy Statement; forestry sector pre-assessment; assistance on forestry projects using Food for Work funds. Fall, 1981); Mali (consultant to prepare issues paper for workshop on remote sensing, mapping and resource inventory held in Bamako in May, 1982. Winter: May, 1982); Botswana (assistance in the establishment of fuelwood plantations; advice on nurseries. Winter, 1982).

Studies of the potential for AID/Peace Corps/host country collaboration in forestry have been conducted by consultants in 11 African countries (Benin, Botswana, Kenya, Liberia, Mauritania, Mali, Niger, Senegal, Tanzania, Upper Volta and Zaire). A Peace Corps forestry workshop sponsored under this project was held in Mombasa, Kenya, in May, 1982. In July, 1982, pre-service US training will be provided to 25 forestry volunteers going to Senegal (13) and Kenya (12).

PROJECT DOCUMENTS AND REPORTS:

- PID; 5/80.
- Project Paper; 7/80.
- FSP Progress Report; AID/W; 11/81.
- Peace Corps Progress Report; Washington, D.C.; 1981.
- "An Assessment of the Potential for Peace Corps/AID/Host Country Cooperation in Social Forestry Projects"; Peace Corps; Washington, D.C. (11 country studies).

FINANCING FOR OVERALL PROJECT: (\$000s)	Through FY81	FY82 (est)	FY83 (proposed)	FY84 (proposed)
	1,900	1,300	850	1,350

LOP: \$3,700,000

Office: ST/FNR
 Project Title: Agroforestry Research and Training
 Project Number: 936-5545
 Authorization Date: planned
 End-of-Project Date: 1984 (3 years)
 Contractor: International Council for Research in Agroforestry (ICRAF)/cooperative agreement

PROJECT PURPOSE:

To assist less developed countries (LDCs) to better manage their natural resources, and to increase forestry's contribution to on-farm production of food, fodder, energy, water and shelter by supporting research, development and training in agroforestry.

PROJECT SUMMARY:

The project will utilize an interdisciplinary approach to focus on: (1) research, in the areas of inventorying existing agroforestry systems around the world, development of a practical methodology for diagnosis of land use problems, and design of productive agroforestry management solutions; (2) training, in the use of the methodology for land use problems diagnosis, to be provided to research scientists, resource planners and development agents at sites where the methodology has been applied and evaluated (includes development of training materials), and (3) expansion and strengthening of an international network of LDC agroforestry research and development institutions, through the research and training activities supported by the project. The project will be implemented via a cooperative agreement with the International Council for Research in Agroforestry (ICRAF), located in Nairobi, Kenya; project resources will provide assistance to ICRAF to support projects in their "Agroforestry Systems Research and Evaluation" and "Training and Education" programs.

AID-FINANCED INPUTS:

1. Personnel;
2. Training;
3. Materials and equipment.

MAJOR OUTPUTS:

1. Diagnostic methodology for land use problems, including on-farm testing and evaluation;
2. Agroforestry systems inventory and evaluation;
3. Training packages developed;
4. Agroforestry training courses sponsored;
5. Network of collaborating agroforestry R & D institutions strengthened.

AFRICA-SPECIFIC ACTIVITIES:

ICRAF will fulfill its mandate to promote, initiate and support agroforestry research in Africa and developing countries world-wide, through the development of a methodology, an information dissemination program and an information documentation center. Project activities will be implemented to develop world-wide applications; farm trials will be conducted in Kenya, as well as other regions. Training includes two courses in Kenya (one per year), of two-to-three weeks, for African scientists, planners and development agents.

PROJECT STATUS:

The PID was approved in March, 1982; the Project Paper was approved on June 24, 1982. The cooperative agreement between AID and ICRAF should be negotiated by September 1, 1982.

PROJECT DOCUMENTS AND REPORTS:

- PID; 2/23/82.
- Project Paper; 1982.
- FY84 ABS Activity Data Sheet (ST/FNR).

FINANCING FOR OVERALL PROJECT: (\$000s)	<u>Through FY81</u>	<u>FY82 (est)</u>	<u>FY83 (proposed)</u>	<u>FY84 (proposed)</u>
	---	1,000	---	---

LOP: \$1,000,000

Office: ST/FNR
 Project Title: Forestry Sector Development
 Project Number: 936-5546
 Authorization Date: planned
 End-of-Project Date: 1989 (6 years)
 Contractor: N/A

PROJECT PURPOSE:

To support initiatives in forestry sector macro-economics, private sector involvement in forestry management, reforestation of sites with major problems, and the creation of an international research network to strengthen forestry research in the LDCs

PROJECT SUMMARY:

The project will support investigations to: (1) provide information on the potential macro-economic contributions of the forestry sector, the linkages between the forestry sector and other sectors of the national economy and the role forestry can play in rural development. Two-to-five LDCs will be selected for initiatives, where AID has a program, and the forest resource base and/or potential forest production is considered significant in economic terms; (2) carry out state-of-the-art studies and field-based technical workshops on techniques for reforestation of the major problem sites (based on experience from projects that have failed, as well as successes); (3) demonstrate activities that mobilize previously-untapped sources of local, national and international private sector resources for LDC forestry programs; (4) strengthen national forestry research institutions in LDCs, through the establishment of an international network of forestry research centers linked by a central Secretariat, and "twinning" arrangements between existing research institutions.

AID-FINANCED INPUTS:

Personnel.

MAJOR OUTPUTS:

1. State-of-the-art studies, technical workshops and technical packets on reforestation of problem sites;
2. Macro-economic forestry sector examinations;
3. Private sector linkage demonstrations;
4. Establishment of a pilot forestry research institution "twinning" arrangement.

AFRICA-SPECIFIC ACTIVITIES:

Countries for pilot projects and state-of-the-art studies will be chosen at a later stage.

PROJECT STATUS:

Background documents to be used in preparation of a PID are currently being developed.

PROJECT DOCUMENTS AND REPORTS:

ST/FNR ABS, FY84.

FINANCING FOR OVERALL PROJECT: (\$000s)	<u>Through FY81</u>	<u>FY82 (est)</u>	<u>FY83 (proposed)</u>	<u>FY84 (proposed)</u>
	---	---	300	850

LOP: \$3,700,000

Office: ST/FNR
Project Title: Coastal Resources Management
Project Number: 936-5518
Authorization Date: planned
End-of-Project Date: 1989 (6 years)
Contractor: N/A

PROJECT PURPOSE:

To identify economic development opportunities in designated LDCs that involve coastal resources and to provide the knowledge and support needed to solve natural resources degradation problems that undermine such development.

PROJECT SUMMARY:

This project will address problems encountered by LDCs which are coastal states or islands (such as depletion of fish resources, coastal erosion due to mangrove deforestation, pollution of coastal waters, lack of data, water quality and seafood standards, marine laboratories, etc.), by: (1) conducting surveys to define specific needs and problems in coastal resources management in selected LDCs; (2) identifying sources of expertise to satisfy LDC needs; (3) developing approaches to improve resource management capabilities in LDC institutions; (4) improving indigenous capacity to plan and carry out environmentally-sound economic development activities, through training and technical assistance.

AID-FINANCED INPUTS:

Personnel.

MAJOR OUTPUTS:

1. Survey of LDC problems and development opportunities;
2. Identification of technical assistance sources;
3. Development of approaches to improved management capability;
4. Institutionalization of LDC capacity for economic development in coastal areas.

AFRICA-SPECIFIC ACTIVITIES:

A pilot operation will be developed for one country in each geographic region; at the PID approval stage, AID Missions will be contacted to solicit expressions of interest. A country will be chosen on the basis of a set of criteria including the capability of entering into a joint venture with AID.

PROJECT STATUS:

The PID is currently being written; the National Academy of Sciences is conducting a comprehensive study as background for the PID preparation.

PROJECT DOCUMENTS AND REPORTS:

ST/FNR ABS, FY84.

FINANCING FOR OVERALL PROJECT: (\$000s)	<u>Through FY81</u>	<u>FY82 (est)</u>	<u>FY83 (proposed)</u>	<u>FY84 (proposed)</u>
	---	---	250	400

LOP: \$3,050,000

Office: ST/MD -27-
Project Title: Area Development
Project Number: 931-1135
Authorization Date: 1978
End-of-Project Date: 1983 (5 years)*
Contractor: Clark University; Institute for Development Anthropology (IDA)/Binghamton

PROJECT PURPOSE:

To provide AID Missions and their LDC counterparts with a source of highly-qualified expertise to consult in the design, implementation and evaluation of area-based projects.

PROJECT SUMMARY:

The Clark/IDA team will provide consulting services for: (1) area-based resource planning, assessing physical resource problems, analyzing resource management issues and assisting with local resource management and development; (2) resettlement programs, assisting in the development of projects to relocate populations in new areas in a way that integrates the settlers into the economy of their new region, and (3) rural-urban linkage analysis, assessment and development of projects for their improvement, addressing problems including the location of marketing facilities for agricultural inputs and produce, the improvement of farmer access to urban-based rural services, and the stimulation of employment in small urban centers using private and public sector approaches. The project will support applied research in these three areas, to generate resource assessments, strategies and guidelines for project development.

AID-FINANCED INPUTS:

1. Personnel;
2. Support costs.

MAJOR OUTPUTS:

1. Long-term field applications in sub-national planning and resource management;
2. Special studies;
3. Information dissemination and workshops;
4. Short-term research and consulting services.

AFRICA-SPECIFIC ACTIVITIES:

Short-term consulting activities include African countries (see below).

PROJECT STATUS:

During the first three years, the project was implemented by the University of Wisconsin; their principal activity in Africa was a study of marketing in Kenya. In September, 1981, a new agreement was signed with Clark University. Clark/IDA activities include two separate area studies in Zimbabwe: (1) a proposal for a study in the Sabi Valley has been developed, to identify the particular nature of the resource degradation problems in the Chipinga area of the Sabi basin (soil erosion and siltation), through a reconnaissance survey using landsat imagery, an investigation into sources of sediment, rates of soil loss, etc., a study of land and water use systems, and other activities. The proposal has been accepted, and a consultant will go into the field in July, 1982 to define the terms of reference for the study; (2) involvement in a computerized regional planning exercise in the Sebungwe Region has been proposed. The Department of Physical Planning and the Ministries of Local Government and Housing, and of National Parks and Wildlife are already undertaking efforts in this exercise; the project would support data collection on local production systems and the future of agriculture in the Tonga-speaking areas of the region.

Assistance to Somalia is planned for the review of several AID program activities in support of refugee resettlement efforts, in August, 1982.

Due to office reorganization in early 1982, two other projects were incorporated into this one: Urban Functions in Rural Development (UPRD) and Rural Demand for Urban Services Systems (ROUSS) project assessments. The assessment activity will consist of follow-up visits to investigate what has been achieved in UPRD and ROUSS sub-projects, in Cameroon and Upper Volta, among other countries.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 1978.

"Area Studies: Zimbabwe Project/Resource Management Issues in Zimbabwe"; Clark University/IDA; (proposal to carry out a study for the Sabi Valley); 5/82.

FINANCING OF OVERALL PROJECT: (\$000s)	<u>Through FY81</u>	<u>FY82 (est)</u>	<u>FY83 (proposed)</u>	<u>FY84 (proposed)</u>
	1,794	550	400	400

LOP: \$4,594,000

*An FY88 end-of-project date is proposed, according to the FY84 ABS.

Office: ST/MD
 Project Title: Access to Land, Water and Natural Resources
 Project Number: 936-5301
 Authorization Date: 1979
 End-of-Project Date: 1983 (4 years)*
 Contractor: University of Wisconsin Land Tenure Center (LTC)

PROJECT PURPOSE:

To help and encourage LDC governments to address inequitable asset distribution by increasing the access of the rural poor to income-producing resources, particularly land and irrigation water.

PROJECT SUMMARY:

The cooperative agreement between AID and the University of Wisconsin will help LDC governments through: (1) provision of technical assistance to help LDC governments with policies and programs to increase resource access for the rural poor; (2) applied research, and (3) conducting workshops and seminars for AID and LDC personnel, and disseminating information on issues concerning land tenure. In Africa, efforts will be focused not so much on the problem of equitable distribution of assets, but on conversion of communal or traditional tenure to more modern tenure systems, in a way that will provide incentives to production but not create inequitable land-holding patterns (see "Africa-specific Activities").

AID-FINANCED INPUTS:

1. Personnel;
2. Other direct costs.

MAJOR OUTPUTS:

1. Short-term consulting and project design;
2. In-depth applied research;
3. State-of-the-art papers and special studies;
4. Workshop and information dissemination.

AFRICA-SPECIFIC ACTIVITIES:

Of the thirteen countries world-wide in which consulting has been provided, five are in Africa (see below). The change from traditional to modern tenure systems described in "Project Summary" will be effected with special consideration given to preservation of traditional rights (eg: Liberia) and solution of the problem of communal overgrazing (the "tragedy of the commons" problem; eg: Botswana).

PROJECT STATUS:

The project began in 1979; since its inception, activities in Africa have included:
Cameroon--Michigan State University and the LTC provided assistance for an analysis of the land tenure situation in the Mandara Mountains, the site of a proposed rural development project (for which MSU was the lead design institution);
Botswana--in conjunction with the Rural Sector Grant project (RSG, 633-0077; see page 89); sub-projects have been carried out in the first and second years of the RSG, to help develop the Applied Research Unit of the Ministry of Local Government and Lands by conducting applied research on land tenure. A study of natural resource issues from the perspective of land tenure is planned for the third year;
Mauritania--technical assistance in the preparation of a PID for a land reform project; USAID has approved the AIP (625-0937), under which four Mauritanian students will pursue masters'-level studies at Wisconsin, and work on an examination of land tenure issues that pose serious constraints to development (to be undertaken at a later point);
Liberia--technical assistance for development of a PID for a project to provide the Government of Liberia with the data and technology necessary to design and implement an equitable and developmentally sound land tenure policy in rural areas. The work was done in 1980; in 1982, AID requested an LTC advisor to review the PID and the land tenure situation with the GOL;
Zambia--in 1981, a study of the land tenure situation in Zambia was undertaken for AID and the Dutch government.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 9/78.
 Ormer, P. and Bruce, J.; "Land Tenure Issues in the Development of Zambia's Agriculture"; University of Wisconsin; 9/81 (draft).
 Bruce, J.; "Observations on Land Tenure and Housing in the Major Villages of Botswana"; University of Wisconsin; 9/81.

FINANCING OF OVERALL PROJECT: (\$000s)	Through FY81	FY82 (est)	FY83 (proposed)	FY84 (proposed)
	1,500	525	400	500

LGP: \$5,240,000

*The FY84 ABS proposes a completion date of FY88.

Office: ST/MD
 Project Title: Managing Energy and Resource Efficient Cities (MERECE)
 Project Number: 936-5402
 Authorization Date: 1982
 End-of-Project Date: 1986 (5 years)
 Contractor: Tennessee Valley Authority (TVA)/PASA

PROJECT PURPOSE:

To reduce the energy and resource pressures on rapidly-growing towns and their surrounding areas in LDCs, through improved efficiencies in consumption.

PROJECT SUMMARY:

In a two-phased process, the project will assist secondary cities to establish energy/resource-efficient strategies and coordinated sectoral action plans, through: (1) field demonstrations (in the first phase, in two AID geographical regions) keyed to urban sectors (eg: land use, transportation, solid waste, energy, etc.) that can be examined for resource consumption patterns and wastage as a basis for developing a multi-sectoral energy/resource-conserving strategy; (2) development of case studies based on the field demonstrations, outlining processes, procedures, tools and reusable information for data collection and analysis, strategy formulation, action plans, technical approaches, and training; (3) generation and dissemination of annual reports containing project review and evaluation, updated guidelines for city core designs and adaptation procedures and a compilation of reusable information and experience; (4) establishment of an association of energy/resource-efficient cities, including the network of MERECE demonstrations and other cities (in developed as well as developing countries) pursuing energy/resource-efficient strategies.

AID-FINANCED INPUTS:

1. Personnel, including principal field consultants for each demonstration city;
2. Funds for local technical assistance;
3. Implementation funds.

MAJOR OUTPUTS:

1. At least six strategy development demonstrations (including data and analyses, strategy, action plan, etc.);
2. Case studies;
3. Project reports;
4. Self-maintaining association of MERECE cities;
5. Information and training network.

AFRICA-SPECIFIC ACTIVITIES:

Africa is not one of the two regions identified for Phase I demonstration projects; if the project goes into a second phase, possibilities exist in Sudan, Cameroon, and Kenya (according to the Project Paper).

PROJECT STATUS:

The project was approved in June, 1982.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 5/82.

FINANCING OF OVERALL PROJECT:	<u>Through FY81</u>	<u>FY82 (est)</u>	<u>FY83 (proposed)</u>	<u>FY84 (proposed)</u>
\$000s	---	500	400	400

LDP: \$1,530,000 (Proposed in FY84 ABS as \$2,200,000, with a PACD in FY88)

Office: ST/MD
 Project Title: Community Level Forestry
 Project Number: 936-5427
 Authorization Date: planned
 End-of-Project Date: 1988*
 Contractor: planned

PROJECT PURPOSE:

To increase the capacity in LDCs to design and implement programs focusing on raising and distributing forestry products for household and small-scale commercial use at the local level.

PROJECT SUMMARY:

The project will develop community, or social forestry (defined as management at the local level of resources for the production and use of tree products for fuel, timber, food and forage, by people who do not usually grow trees) programs through: (1) development of village woodlots for fuelwood, forage, food and/or construction materials for intracommunity use; (2) community forestry projects aimed at processing and marketing charcoal, firewood, furniture and handicrafts, etc.; (3) development of the social uses of forestry reserves, integrating local inhabitants into the management of reserves; (4) environmental protection activities, such as windbreaks, sand dune stabilization and anti-erosion projects, as well as actions to change traditional swidden agriculture practices which deplete land resources. The project will also support development and dissemination of community forestry management methodologies, assessment and development of new approaches through long- and short-term technical assistance, analysis of the state-of-the-art through applied research, and technology transfer via newsletters, publications, workshops, etc.

AID-FINANCED INPUTS:

1. Personnel;
2. Travel;
3. Publications and workshops.

MAJOR OUTPUTS:

1. Consultancies provided;
2. Special studies and research monographs;
3. Regional workshops;
4. Consultant network.

AFRICA-SPECIFIC ACTIVITIES:

Activities in the geographical regions will be defined as the project evolves.

PROJECT STATUS:

A draft concepts paper has been completed. An AID-sponsored community forestry workshop is planned for July, 1982, after which a PID will be prepared.

PROJECT DOCUMENTS AND REPORTS:

Blair, H.; "Concepts Paper for a Project on Local Management in Social Forestry"; AID/W; 4/82. ST/MD ABS, FY84.

FINANCING OF OVERALL PROJECT: (\$000s)	<u>Through FY81</u>	<u>FY82 (est)</u>	<u>FY83 (proposed)</u>	<u>FY84 (proposed)</u>
	---	---	---	1,000*

LOP: \$2,600,000

*Funding proposed in the FY84 ABS is for two years.

B. FVA/PVC, FVA/FFP (PL480)

Another source of centrally-administered support to country Missions in Africa and other regions is the Bureau for Food for Peace and Voluntary Assistance. In the areas of energy, forestry and natural resources, this support is connected with the Offices of Food for Peace (FVA/FFP) and Private and Voluntary Cooperation (FVA/PVC).

The FVA/FFP office coordinates activities related to the PL480 program. Whether on a loan or a grant basis, food aid under PL480 furthers development as well as humanitarian objectives, including: (1) use of PL480 resources to supplement and reinforce developmental activities financed through other means, and (2) increase of resource availabilities for agricultural and rural development, through the use of local currency generated from the sale of Food for Peace commodities.¹ As has been noted, "Public Law 480 Food Programs have long been important as instruments of development far beyond the narrow confines of short-term nutritional and food supply supplementation per se."² These programs take a variety of forms, from self-help measures defined by the host country governments, to Food for Work remunerations for labor in development projects; they are described below, Title by Title.

Titles I and III

As part of the agreement for concessional sales (credits on a year-by-year basis) of US farm products, recipient countries must agree to undertake self-help measures to improve food production, storage and distribution, or other actions to stimulate equitable economic growth; these measures are financed with the local currency generated by the sale of the food in the recipient country.

The following self-help measures have been cited in PL480 Title I sales agreements, Item V, as activities in forestry and environmental protection:

TABLE I
PL 480 Title I Self-Help Measures

<u>Country</u>	<u>Year</u>	<u>Title I Program Cost*</u>	<u>Self-Help Measure</u>
Kenya	FY81	\$16,000,000	Support the soil conservation programs of the Ministry of Agriculture in the arid and semi-arid lands.
Mozambique	FY81	\$ 5,000,000	Increase forest resources through labor-intensive reforestation and conserve wood fuel energy sources through improved resource management; establish an agrometeorological department of the Meteorological Service to develop studies of climatological data.

*Excludes cost of ocean freight.

¹FY83 Congressional Presentation; p.112.

²"A Comprehensive Summary of US AID Forestry-Related Assistance to Developing Countries"; AID/ST/FNR/F; 1/82; p.56.

Table I/Self-Help Measures (cont)

<u>Country</u>	<u>Year</u>	<u>Title I Program Cost*</u>	<u>Self-Help Measure</u>
Senegal	FY80- FY82**	\$21,000,000	Construction and rehabilitation of forestry nurseries in "Eaux et Forets" Department, in support of their on-going windbreaks, village woodlots, and resource conservation program.
Somalia	FY81	\$15,000,000	Development of range management projects to conserve natural resources (includes actions to more efficiently utilize wood and charcoal, development of solar cookers and biogas converters, construction of shelter belts).
	FY82	\$14,500,000	Continue Sand Dune Stabilization Program to control encroachment of dunes on farm lands (2,500 ha. to be established 1981-82).
Sudan	FY81	\$ 5,000,000	Support research and implementation programs to reduce desertification and soil erosion, and to restore previously degraded areas. As part of this effort, the Government of Sudan will provide funding for projects in the Desert Encroachment Control and Rehabilitation Program.

*Does not include cost of ocean freight.

** Title III

Food for Development programs, authorized under Title III but financed under Title I, offer special incentives to low-income countries to undertake specific development programs; they provide for full "loan forgiveness" if the commodities or currencies from the sales of the commodities are used to implement these development programs, which are distinct from the Title I self-help measures. In Africa, there is one major Title III forestry/conservation project:

Senegal Food for Development: Reforestation and Dune Fixation

Cost: \$6,910,000 Duration: FY80-FY82

Purpose: To prevent the movement of sand dunes from covering additional fertile land along Senegal's north-west coast, and to protect villages in the area from shifting sands.

Summary: "The Ministry of Rural Development, Water and Forest Service will plant 3,700 hectares on 73 kilometers of sand dunes between Dakar and St. Louis on the seaward edge of some highly-productive vegetable-growing basins. This action will assist in halting the movement of sand, protect villages in the area, provide a source of fuelwood, fruit and nuts to the 9,000 villagers and create a habitat for birds and small animals."

Outputs:

1. 1,800 ha. of sand dunes stabilized with planting;
2. 1,400 ha. of vegetable-growing basins stabilized with planting;
3. 500 ha. of windbreaks planted around villages.

Title II

Title II of PL480 authorizes donations of food for emergency and disaster relief, and for programs such as food-for-work, maternal-and-child health, etc., designed to alleviate the cause of the need for food assistance.¹ Under the provisions of Title II, after free distribution to needy individuals, the recipient country can sell commodities, to use the local currencies for planning and implementing self-help measures; Section 206 of this Title authorizes the use of such revenues for multi-year planning of agricultural and rural development activities to alleviate the causes of the need for food aid. These activities can include forestry and conservation measures; most such activities, however, are supported through Food for Work and the World Food Programme. It has been estimated that Title II Food for Work and contributions to the WFP are "responsible for planting as many as two or more times the number of trees over a four-year period than are expected to be planted by USAID in connection with all of the 77 ongoing forestry-related bilateral assistance-funded projects in 37 countries worldwide."²

Food for Work

Part of the food donated to PVOs for programs to help needy populations is used as remuneration for labor in development projects; in Africa, FFW is managed primarily by Catholic Relief Services.³ Although it is difficult to determine the quantities of food, dollar value, number of hectares and number of trees planted in each sub-activity (since the overall program is usually reported), FFW commodities are being used to remunerate labor in the following forestry and/or conservation projects in Africa:

TABLE II
List of PL480 Food for Work-Supported Activities

<u>Country</u>	<u>PVO</u>	<u>MT: Overall/Specific</u>	<u>Description of Activity</u>
Burundi	CRS	1,603.0	Four small reforestation projects.
Djibouti	CRS	587.0	Establishment of an experimental tree nursery in the Ali Sabieh district, using refugee labor; in the fall of 1982, 20,000 acacia seedlings will be planted at small micro-catchment basins, with the labor of refugees and nationals.

¹ FY83 Congressional Presentation, p. 115.

² "A Comprehensive Summary of US AID Forestry-Related Assistance to Developing Countries"; AID/ST/FNR/F; 1/82; p. 58.

³ CRS has programs in 13 countries; the Seventh Day Adventist World Service has one (in Rwanda, where CRS also has a program).

Table II/FFW Activities (cont)

<u>Country</u>	<u>PVO</u>	<u>MT, Overall/Specific</u>	<u>Description of Activity</u>
Kenya	CRS	1,603.0	Development projects in semi-arid areas. Terracing and planting of fruit trees on terraces (150 acres) in Kilifi and Marsabit Districts. (FY80)
		56.0	
		74.5	
		14.0	
		367.0	
Lesotho	CRS	6,222.0	Soil conservation (donga reclamation), tree planting. (150 projects). (1980) Tree planting. (1981) Tree planting.
		395.0	
		395.0	
Rwanda	CRS	12.7	Small-scale reforestation activities.
	SAWS	337.2	Land resettlement in Rusumo project.
Upper Volta	CRS	229.5	Tree planting (neem, cassia, eucalyptus, nere, flamboyants). 367,500 trees on 490 ha. (FY80) 279,000 trees on 372 ha. (FY81) 300,000 trees on 400 ha. (FY82 est) 300,000 trees on 400 ha. (FY82 est)
		245.3	
		186.0	
		200 (est)	
		200 (est)	

World Food Programme

The United States and 11 other major donors pledge food, transportation and cash to the UN/FAO World Food Programme, to support projects similar to those sponsored by PVOs under the Food for Work Program. Donor contributions are not earmarked for specific sub-activities within a recipient country; therefore it is not possible to determine the direct US contribution to forestry and natural resources projects. Such activities are, however, described in Appendix D, and figures are provided for the total WFP program, the cost of the forestry component and the total AID contribution; no conclusion as to the magnitude of AID assistance in forestry per se should be drawn from these figures.

Section 206 Emergency Food Aid

Cape Verde has been receiving Title II emergency food aid since 1977; during that time, 95,000 trees were planted (55,000, FY80; 40,000, FY81), soil and water conservation measures and hydro-geological surveys were undertaken with funds from

sales revenues of PL480 commodities (FY77-80). A proposal has been submitted for a three-year Section 206 Food for Development program in lieu of recurrent emergency programming. Under the proposal, 15,000 MT/year of commodities would be used to support projects including:

(Cape Verde)¹

Soils and Water Conservation, Eastern Santiago

Control of soil erosion in four watershed areas (three are extensions of rural works under AID Rural Works project 655-0001), through the construction of soil and water retention structures (check dams, terraces, dikes, contour ditches).

Soils and Water Conservation, Sao Filipe and Sao Francisco

Control of soil erosion in two watershed areas, through construction of soil and water retention structures, and a large-scale reforestation effort which includes (1) 200 ha. of watersheds, with 100,000 trees (*Parkensonia aculeata* and *Prosopis juliflora*, the foliage of which is rich in protein for animal fodder), for pasture research by the Rural Development Ministry, and (2) 1,300 ha. with 650,000 trees (native and imported species), to establish part of the national forest reserve (to provide saplings for reforestation programs around the country).

Soils and Water Conservation, Tarrafal

To extend conservation works implemented as part of the Tarrafal Water Resources project (655-0003), to a greater area of the valley next to the original project site, through construction of terraces, dikes, contour ditches, water catchment dams, and some tree planting.

Approval of the project is expected during the summer of 1982; it is the only Section 206 project with significant conservation forestry components.

FVA/PVC

The FVA/PVC office supports the work of over 30 American organizations, primarily through a program of matching grants to PVOs which have demonstrated the capacity to implement effective development programs, and meet a set of criteria, including:

"(the program) deals with a clearly-identified developmental challenge consistent with an analysis of the developmental constraints of the host country."²

One such "clearly-identified developmental challenge" is the problem of deforestation and resultant environmental degradation, which is being met through a matching grant to CARE, for the Promotion and Preservation of Renewable Natural Resources; the project is described in detail on the following page (note Africa-specific activities).

¹Description taken from the revised Project Paper, 4/10/82.

²FY84 AbS, FVA/PVC; p.5.

Office: FVA/PVC
 Project Title: CARE Matching Grant--Promotion and Preservation of Renewable Natural Resources
 Project Number: 938-0216 -36-
 Authorization Date: 1981
 End-of-Project Date: 1984 (3 years)
 Contractor: CARE

PROJECT PURPOSE:

To improve and sustain the well-being and agricultural productivity of the rural poor in less developed countries (LDCs), through the promotion and preservation of renewable natural resources.

PROJECT SUMMARY:

Through a coordinated program of host government-sponsored activities, community-supported projects, private initiatives and individual efforts in forestry and land management, the project will work to: (1) increase fuelwood supplies, through establishment of woodlots and individual planting programs, reforestation and soil conservation projects, and the introduction of improved wood-burning stoves; (2) stabilize/increase agricultural production through soil conservation and forestry activities such as terracing, microcatchments, agroforestry and windbreaks, and (3) improve the quality of life through conservation and ecology measures to check deforestation, desertification and erosion

AID-FINANCED INPUTS:

1. Personnel and support costs;
2. Materials and equipment for sub-projects.

MAJOR OUTPUTS:

1. Pilot projects in at least five countries (as many as 10);
2. Increased fuelwood supply;
3. Agricultural production stabilized or increased
4. Nurseries, windbreaks, woodlots, etc. established.

AFRICA-SPECIFIC ACTIVITIES:

The project proposal describes detailed activities for six countries including:
 Niger--continuation of the Maggia Valley Windbreak Program,* the Yegalalane Valley Dune Stabilization Project,* the Bousa River Bank Protection project (10,000 trees planned for FY82),* the Keita Reforestation Program (windbreaks, woodlots and seedlings for distribution; FY82 plans are for planting 37,000 trees for windbreaks, 9,300 trees for woodlots, and 9,700 for distribution); and beginning of the Tera Reforestation Program (6 years; planting of +500 km. of windbreaks, 1,500 ha. of acacia and the stabilization of 45 ha. of dunes; to begin January, 1982).
 Mali--implementation of a three-year reforestation project in the Fifth Region. It will include village woodlots and nurseries, greenbelts, live fencing, agroforestry, etc. (to begin January, 1982).
 Cameroon--implementation of the Northern Cameroon Community Reforestation Program, using existing nurseries to produce trees for woodlots and other activities for two departments, and providing extension training in resource conservation and the formation of village committees to coordinate and monitor village reforestation efforts (3 years, to begin in July, 1982).
 Sudan, Lesotho and Kenya are mentioned as possible sites for development of new programs to begin after July, 1982. Somalia is also under consideration.

PROJECT STATUS:

The project was authorized on September 10, 1981. To date progress has been made in:
 Niger--Maggia Valley Windbreak Program (FY82: \$230,000 FY83 \$392,000 Dutch \$14,400)
 Windbreaks are being planted in millet fields at the rate of 80 km./year; to date approximately 3,500 ha. have been protected.
 Yegalalane Sane Dune Stabilization Program (part of above fiscal data)
 Dried millet stalks are planted in the dunes to provide protection for eucalyptus trees; 15,000 trees will be planted on the dunes by July, 1982.
 Maradi Region (FY83 (est) \$120,000) a project modeled on that in the Tahoua Department is planned (this will replace the program planned for Tera).
 CARE/Niger is considering the possibility of expanding its program to include the management of classified forests, addition of integrated rural development components to existing reforestation projects, and other activities.
 Cameroon--Northern Cameroon Community Reforestation Program (FY82: \$57,000 FY83: \$200,000)
 The project started during June, 1982, to plant wide-spaced acacia albida among farmers' millet fields. First-year goals include: 200,000 seedlings planted in upgraded nurseries, 80 ha of agroforestry, 100 ha. of village/farmer woodlots, and 12,000 seedlings provided for shade and village beautification.
 Mali-- Village Reforestation (FY83 (est): \$150,000) initial project design is beginning; start-up is planned for October, 1982.

PROJECT DOCUMENTS AND REPORTS:

"Program for the Promotion and Preservation of Renewable Natural Resources"; CARE; New York, NY; 1981. (project proposal).

*Part of Bousa Reforestation Program, Tahoua Department

FINANCING OF OVERALL PROJECT:		Through FY81	FY82 (est)	FY83 (proposed)	FY84 (proposed)	
(*000s)						
LOP:	\$2,698,000	AID	---	583	955	1,160
	\$2,698,000	CARE				
	\$5,396,000	TOTAL				

III. Regional and Bilateral Projects

This section focuses on regional (both Africa-wide and Sahel-specific), and bilateral projects funded by the Africa Bureau in the areas of energy, forestry and natural resources. Each project is reported on a Summary Data Sheet, a modified version of that used in the Congressional Presentation and the Annual Budget Submission. The following information will be useful in interpreting the data. Many of the definitions are taken from "Energy Activities Supported by the Africa Bureau" (Larson, 1981), and are quoted without reference.

Notes and Definitions

The projects have been divided into two broad categories:

Authorized/Operational: projects for which funds have been authorized and activities (including start-up) are on-going. One or two projects may show a PACD that passed within the past few months; they have been included because activities such as training or evaluation still may be on-going;

Planned: the definition used for this report is a project for which a PID or Project Paper exists, or sufficient pre-PID documentation exists to generate a description (eg: in the case of IRTs, an Activity Identification Cable). If a PID or Project Paper has been rejected, and the project does not appear in the FY84 ABS, the project has not been included.

Within these categories, projects are classified according to Energy Source, modifications of categories developed by the Bureau for Program and Policy Coordination (PPC) energy advisor:

Fuelwood (FW): trees planted to be used as fuel. In projects using several energy sources, if over 50% of the funds are earmarked for such tree-planting, they are included here, rather than in Renewable Energy or Natural Resources;

Renewable Energy (RN): direct solar, wind, hydro and biomass;

Fossil Fuel (FF): oil, gas, coal, oil, shale, tar sands and peat;

Natural Resources (NR): planning and protection of land resources, mostly related to forestry (includes mapping, remote sensing, land use planning, etc.). Within this category, tree-planting activities designed for environmental protection (live-fencing, dune stabilization, etc.) are reported; they are indicated as Forestry (F).

In addition, there are two categories, covering Other Projects. These are primarily agricultural production, integrated rural development, etc., with a primary focus other than one of the above, but with an energy or natural resources component.

Country/Project #/Title: in some cases, the name of the country is followed by one of three abbreviations, indicating:

Accelerated Impact Program (AIP): a regional umbrella program that supports small (\$500,000 or less), two-year pilot projects which can be processed in the field, and meet the following criteria: (a) it introduces a new technology; (b) it provides for participation by local institutes and beneficiaries, and (c) it provides for the transfer of productive skills and knowledge to beneficiaries. There are Sahel regional and Africa regional AIPs;

Improved Rural Technology (IRT): another regional umbrella program, that funds small (\$100,000 or under) projects which involve technology innovations undertaken by local organizations in such areas as agriculture, food processing, village water supplies, energy, construction and health (NB: Experience, Inc. is the contractor for the overall program, and is listed as such; in some cases the local proposer is also indicated);

Operational Program Grant (OPG): a general program to provide grants of up to \$1 million to PVOs, which can be approved in the field (these are usually for a maximum three-year duration).

NB: The current project number is provided; former numbers are indicated in footnote. The Upper Volta forestry AIPs have the same project number.

Appropriation Category (App. Cat.): the AID funding accounts; a project can be funded out of more than one account, as is noted for some projects. The abbreviations may differ from those currently being used; the new abbreviations are indicated below in parentheses:

SH (SDP): Sahel Development Program;

SD (SDA): Selected Development Activities (Technical Assistance, Energy, Research, Reconstruction);

FN (ARDN): Agriculture, Rural Development and Nutrition;

PH (PP): Population Planning and Health;

ESF : Economic Support Fund;

MRA (RP): Migration and Refugee Assistance (State Department funds).

LOP AUTHORIZATION/REQUEST BY ACTIVITY: This breakdown of activities (also modifications of the categories developed by the PPC energy advisor) is based on figures in Project Paper budgets, and usually adds up to the proposed LOP funding (unless amendments provided breakdowns of funding that could be incorporated into these totals). There is also a certain degree of subjectivity in assigning budget items to these categories (which do not correspond to the variety of breakdowns in PP budgets). Given these considerations, these figures should be considered indicative rather than definitive (for selected comparisons, see Appendix C). Planned projects do not show a request-by-activity breakdown, as the funding data is tentative at this stage. The activities are defined as:

Technical Assistance (TA): the provision of skilled experts in a variety of fields to provide advice and training to carry out the project, both short- and long-term;

Analysis and Studies (A&S): activities undertaken to compile or assess available energy sources, actual end uses, energy demand, and other studies, and evaluations (where a short-term consultant is hired specifically to do a study or evaluation, the budget for that person is included in this category);

Training (TR): activities of an instructional nature, including in-service or academic training, observational tour training, workshops, public education activities and other promotional actions;

Testing and Demonstration (T&D): activities undertaken to learn how a system works in a laboratory or a controlled field application;

Dissemination (DS): activities undertaken with the primary purpose of disseminating technologies to expand the available supply of energy through production and increased efficiency.

NB: The last two categories generally include funds for laboratory and other building construction, materials and equipment for prototype development and testing, vehicles, operating costs, etc.

The TOTAL is the total Life of Project (LOP) funding.

FUNDING BY YEAR: this table provides past, current and projected fiscal data for:

FY78, FY79, FY80, F'81: Fiscal Years(October 1-September 30). These figures are actual obligations, obtained from the Office of Development Planning (AFR/DP). Final revised FY81 figures are as of 10/19/81;

OYB82: Operating Year Budget, for the current year. These figures, subject to change during the year depending on project circumstances and Bureau budgetary conditions, are updated on a regular basis by AFR/DP. The figures used in this report are the Revised OYB, as of 7/6/82;

CP83: Congressional Presentation proposed funding level, which is submitted to Congress at the beginning of the budgetary cycle; it is likely to change significantly as the AID budget moves through the legislative process;

NB: As this report went to press, Missions' Annual Budget Submissions (ABS) for FY84 were being received and reviewed by AID/W. FY84 ABS data have been used in reporting centrally-funded projects, but are not covered in this chapter's funding tables.

LENGTH OF PROJECT/PACD: Length of project refers to project activities (technical assistance), not funding. PACD (Project Assistance Completion Date) indicates the date on which these activities are scheduled to end.

CONTRACTOR: The primary contractor(s) is listed first, followed by any sub-contractors in parentheses.

PROJECT PURPOSE, PROJECT SUMMARY, AID-FINANCED INPUTS, MAJOR OUTPUTS: these are taken from the Project Paper, and describe the project as originally designed; in some cases, modifications have been incorporated into inputs and outputs, but are usually reported under "Project Status."

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS: in the case of other donors, this refers to contributions to this project, or a project that has been designated as a joint venture with AID.

OTHER DONOR ACTIVITIES: this covers projects relevant to the energy source of the AID project; in a region-specific project, this section may be limited to other donors' projects in the region only. The information is largely based on Volume II, Section VII of "Proceedings of Workshop on Energy, Forestry and Environment."

PROJECT STATUS: this is a descriptive summary of project accomplishments to date; it does not contain evaluative information. It is based on a combination of field cables and interviews with project officers and contractors.

PROJECT DOCUMENTS AND REPORTS: documents referred to are AID project materials, especially:

Project Identification Document (PID): usually a brief description of the project submitted by the field Mission for evaluation by AID/W of project feasibility;

Project Paper (PP): If the PID is approved, a detailed description of the project is written, including analyses of social, economic, technical, environmental and institutional feasibility, an implementation plan and a financial plan. If approved, the project is authorized, a Project Agreement is signed with the host country government, and the funds are obligated.

NB: Authorization date is usually provided in the status narrative, except in the case of IRTs, wherein the obligation date is given.

There was, in the past, an intermediate step between the PID and the PP; this Project Review Paper (PRP) is sometimes listed for older projects.

Reports include those prepared directly with funds from the project, or non-AID documents (indicated as such) related to the project.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					FUNDING BY YEAR						
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB 82	CP83
Burundi 695-0105 Bururi Forest	FN	Fuelwood	244	---	68	87	743	1140	---	---	---	---	1200	---

Length of Project/PACD: 4 years; 12/31/86
 Contractor: to be chosen

Primary Activity: Reforestation for fuelwood (75% of funds)
 Secondary Activities: Institution building/ research

PROJECT PURPOSE:

To preserve one of the last two remaining natural high-altitude forests in Burundi (Bururi Forest), and to develop new sources of firewood and construction timber for the inhabitants of the Bururi area.

PROJECT SUMMARY:

The project will save the 1,200-ha. Bururi Forest by: (1) surrounding it with a 1,000-ha. belt of fast-growing trees to be used for firewood and building poles, which will help reduce soil erosion and increase the availability of alternative energy sources; (2) replenish 100 ha. of native species within the forest; (3) establish a nursery to provide seedlings for the plantation and to local residents; (4) provide an extension program for forest agents and local residents on seedling care and other conservation measures, and conduct research, and (5) introduce improved woodstoves to reduce pressure on fuelwood supplies.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GRB will contribute an estimated \$219,646 for GRB personnel and their housing, construction of trails and firelanes, and maintenance of staff housing. The IDA/French technical assistance team will provide advice as needed.

OTHER DONOR ACTIVITIES:

The project will complement afforestation efforts by the World Bank (7,000 ha.), the EDF (3,200 ha.) and Belgium/Saudi Arabia (12,000 ha.), as well as a UNDP/FAO forestry training program, and French research activities.

AID-FINANCED INPUTS:

1. Short-term technical assistance in forest management and research, and stove development and testing;
2. Observational tour training for two Burundians;
3. Construction of a project office and warehouse;
4. Provision of vehicles, materials and supplies.

MAJOR OUTPUTS:

1. Protection of 1,200 ha. of existing forest;
2. Increased supply of fuel and construction wood;
3. Watershed protection in the headwaters of the Malembwe River;
4. Strengthened institutional capacity of the Department of Water and Forests to develop and manage forest resources;
5. Extended use of fuel-efficient woodstoves;
6. Applied research on fast-growing tree species;
7. Extension programs developed to increase conservation awareness among local population.

PROJECT STATUS:

The project was authorized on April 22, 1982. An agreement was signed with the GRB on June 22, 1982.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 12/16/81.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY						FUNDING BY YEAR					
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB 82	CP83
The Gambia 635-0205 Forestry Project	SH	Fuelwood	240	141	363	---	812	1575	---	1575	---	---	---	---

Length of Project/PACD: 5 years; 12/1/84
 Contractor: North Carolina State (training)

Primary Activity: Reforestation for fuelwood (75% of funds)
 Secondary Activities: Institution building/commercial forestry

PROJECT PURPOSE:

To increase the efficiency of production and utilization of wood and wood products in the Gambia, to prevent depletion of forest resources.

PROJECT SUMMARY:

The project will address manpower, production and consumption constraints through actions in the areas of: (1) training, to broaden and deepen the Forestry Department's skill pool in all aspects of wood production and utilization, through US and third-country education (as well as a program to train masons in woodstove construction and maintenance); (2) outreach, through an educational campaign aimed at rural dwellers that emphasizes the economic and environmental importance of trees and woodlands; (3) technical assistance, in conducting a study of the technical, economic and social feasibility of exploiting mangroves, and providing short-term consultancies by wood production and utilization experts; (4) production, to establish 1,300 ha. of fast-growing *Gmelina arborea*, and support a pilot program integrating tree planting into rural activities through the establishment of village woodlots, and (5) productivity, by improving output at the only sawmill in the Gambia by approximately 30%.

MOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GGTG will contribute \$233,329 for salaries and/or land and fence-posts for plantation establishment and village woodlots, funds for the mangrove study, support and contingencies. The Peace Corps will provide a volunteer for the woodlots, and one for the woodstove component.

OTHER DONOR ACTIVITIES:

The project will supplement actions of other donors, including the UK (providing training and operating funds for forestry programs), West Germany (supplying \$1.5 million for a forestry university and testing), and a \$120,000 FAO/ADB grant for forest nurseries (some to be financed under this project).

AID-FINANCED INPUTS:

1. Funds for training and equipment for plantation establishment, sawmill operation and outreach program development;
2. Short-term technical assistance in wood production and utilization.

MAJOR OUTPUTS:

1. Forestry Department personnel trained in the areas of village and large-scale plantation and wood utilization;
2. Functioning village outreach program using a media campaign as well as direct extension methods;
3. 1,300 ha. of *Gmelina* plantations;
4. Ten village woodlots;
5. Mangrove feasibility study completed;
6. Sawmill productivity increased by 30%;
7. Extended use of improved woodstoves.

PROJECT STATUS:

The project was authorized on August 3, 1979. Two sawyers are training in the US and two have completed studies; four people have completed 2-year forestry degrees in Nigeria; one is getting a BS in Tanzania. As of 2/82, 522 ha. were cleared, and will be planted with *Gmelina* this season. Four woodlots have been established; two more will be established in July, 1982. The mangrove feasibility study was completed in September, 1981. Specifications have been submitted for equipment for the sawmill.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 8/3/79.
 Wood, T.; Woodstove Component Evaluation; 1/82.
 Mullally, K.; Project Evaluation; 3/82.
 "Mangrove Feasibility Study" (final report); Checchi and Company; Washington, D.C.; 9/11/81.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY						FUNDING BY YEAR					CP83
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB 82	
Guinea 698-0410.35 (AIP) Community Forestry School Tree Nursery	FN	Fuelwood	354	---	16	40	50	460	---	---	---	460	---	---

Length of Project/PACD: 2.5 years; 6/30/84
Contractor: PSC

Primary Activity: Reforestation for fuelwood
Secondary Activities: Community forestry

PROJECT PURPOSE:

To develop a technically sound, culturally appropriate, economically feasible and easily accessible set of interventions to provide villagers of the Pita region with fast-growing trees for fuelwood, forage, soil enrichment and erosion control.

PROJECT SUMMARY:

The project is divided into two phases; (1) development of a technical package that includes use of fast-growing species, experimentation with various seeding and composting techniques, and training of forestry agents in basic nursery science, and (2) extension of the proven technical innovations through training villagers in seed selection, use of new species and composting techniques. The agents from the Service of Water and Forests will be trained in extension methods as well as nursery science.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOG will contribute \$164,000 for salaries, travel, materials and supplies (approximately 26% of project cost).

OTHER DONOR ACTIVITIES:

The project is part of an overall multi-donor forestry effort; in particular, it will be implemented in collaboration with the FAO-financed Kouloulo Watershed Management project, which covers 500 km² of the river basin cutting across the Pita and Labe regions. AID/FAO cooperation includes data-gathering and analysis (sharing of species trials results), administrative and logistic coordination.

AID-FINANCED INPUTS:

1. One long-term forester;
2. Short-term assistance from a soils classifier, a composting expert and an anthropologist;
3. Funds for third-country training in nursery management for three Guinean project technicians;
4. Commodities (vehicles, planting supplies, hand tools).

MAJOR OUTPUTS:

1. Two experimental nurseries producing seedlings for demonstration plots and 30 ha. of village lands;
2. Three demonstration plots;
3. Trained Guinean project manager and forestry agents responsible for nursery management;
4. Soils classification system for project area;
5. 1,000 villagers trained in planting, seed selection and composting.

PROJECT STATUS:

After PID approval on 9/4/80, the project design underwent major revisions. The project was authorized on 8/21/81. Three Guinean foresters have received nursery training in Senegal. Most commodities have been ordered, and technical assistance is scheduled to begin following the 1982 rainy season.

PROJECT DOCUMENTS AND REPORTS:

PID; 4/80.
Project Paper; 6/81.
Trip report; 3/17-21/82.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY						FUNDING BY YEAR					
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYR 82	CP83
Kenya	SD	Fuelwood	1030	133	223	622	622	2630	---	---	3482	1318	---	---
615-0205		Renewable	514	133	73	322	322	1364						
Renewable Energy		Fossil Fuels	600	133	73	---	---	806						
			2144	399	369	944	944	4800						
Length of Project/PACD:			5 years; 9/30/84					Primary Activity: Afforestation for fuelwood production						
Contractor:			Energy Development International (TA); Beijer Institute					Secondary Activities: Energy Planning / institution building						

PROJECT PURPOSE:

To stimulate the development and dissemination of renewable energy technologies; to promote and expand afforestation and fuelwood conservation efforts, and support the institutional development of the Ministry of Energy in energy planning and petroleum conservation.

PROJECT SUMMARY:

Major project components focus on: (1) initial planning and surveys, through provision of a computer terminal, and assistance with a data bank, library and planning; (2) institutional development, through provision of four long-term experts and short-term consultants to the Ministry of Energy; (3) applied research and demonstration, by helping to establish a network of nursery, research and fuelwood/agroforestry demonstration and extension centers in Kenya's major ecological zones; and an Energy Development Fund to provide loans and grants to government and non-governmental organizations for renewable energy projects (including woodlots, agroforestry, improved wood and charcoal stoves, improved charcoal production, windmills, hydraulic rams, animal and hand pumps, solar crop dryers and other small-scale renewable energy technologies); (4) training, on-the-job for Ministry counterparts, study tours, workshops for extension workers and villagers, as well as assistance in curriculum development, and (5) monitoring and evaluation, on an on-going basis, of project progress.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOK is contributing \$1,700,000 to the project for support costs, counterpart staff, fuelwood/agroforestry center costs, the energy fund and training; \$83,000 is a matching contribution to \$900,000 in donor assistance for the Beijer Institute Fuelwood Cycle Project.

OTHER DONOR ACTIVITIES:

The project will be coordinated with the efforts of other donors, including the UNDP, EEC, Germany, Japan, Canada, the UK, Sweden, and the World Bank.

AID-FINANCED INPUTS:

1. Hardware, including a computer terminal;
2. Long-term experts in afforestation; agroforestry; cookstoves/charcoal production/biomass conversion; renewable energy/water supply;
3. Short-term consultants in training, sociology, etc.;
4. Technical assistance and initial capital for the Energy Development Fund.

MAJOR OUTPUTS:

1. Fifteen trained energy planning, conservation and renewable energy staff for the Ministry of Energy;
2. Up to six nursery/extension centers established;
3. Energy Development Fund established;
4. Demonstration, dissemination and evaluation of RETs;
5. Analysis and studies in national energy policy/planning;
6. Afforestation, species selection, and seed production.

PROJECT STATUS:

The project was approved in August, 1980. The two-person contractor team has been in-country since October, 1981. Kenyan cookstove and charcoal experts have been recruited; a tree-planting seminar has been held. Implementation plans are complete for three of the agroforestry centers; site surveys are finished for the other three. Start-up work is under way at the Kitul site, and seeds have been planted at Karura.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 8/80.
 "Energy Development in Kenya: Problems and Opportunities"; Beijer Institute; Nairobi, Kenya.
 Initial Project Assessment; AID/REDSO/EA; 3/82.
 Contractor Progress Reports, #1,2; ED/I; Washington, D.C.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					FUNDING BY YEAR						
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB 82	CP83
Kenya 698-0407.23 (IRT) Environmental Liaison Center	SD	Renewable	---	---	---	---	75	75	---	---	---	75	---	---

Length of Project/PACD: 1 year; 5/31/82
 Contractor: Environmental Liaison Center*

Primary Activity: Information Dissemination
 Secondary Activities:

PROJECT PURPOSE:

To enable the Environmental Liaison Center (ELC) to assist in the development of capabilities of indigenous African non-governmental organizations (NGOs) to improve fuelwood production and to implement other workable renewable energy activities.

PROJECT SUMMARY:

The project will enable the Environmental Liaison Center (ELC), an international non-profit private voluntary agency incorporated in Kenya, to assist African NGOs through four major project components: (1) preparation of a sourcebook of African NGOs working in the field of fuelwood; (2) printing and distribution of a booklet on reforestation in English and French; (3) distribution of small (\$200-1,000) grants to African NGOs, to assist in fuelwood plantation and production programs, and promotion of other renewable resources; (4) provide funds to sponsor NGO participation in the UN Conference on New and Renewable Sources of Energy, in Nairobi, August 9-16, 1981, and an NGO forum.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

Approximately 43% of the project will be funded by other donors, including the UNEP, the Netherlands and Canada, in the form of financial assistance for grants to NGOs and support for the NGOs attending the UN conference. Sweden and other countries will provide \$43,000 for the NGO forum; the Rockefeller Foundation will also support NGO activities.

OTHER DONOR ACTIVITIES:

The UNEP, Canada, Sweden and the Netherlands fund the ELC in general.

*Experience, Inc. is the contractor for the overall IRT program.

AID-FINANCED INPUTS:

1. Funds for preparation of sourcebook and reforestation booklet;
2. Grants to NGOs;
3. NGO support at UN conference.

MAJOR OUTPUTS:

1. A sourcebook listing African NGOs working in the field of fuelwood and other renewable sources of energy;
2. Grants between \$200 and \$1,000 to at least 20 NGOs for action programs;
3. A 20-30-page booklet (French and English versions), on preventing deforestation and promoting reforestation;
4. At least 3 workshops on subjects related to fuelwood and tree-planting at the NGO forum.

PROJECT STATUS:

The activity was obligated in May, 1981. At the UN conference, of 11 panels and 75 workshops, project funds helped support a major panel on fuelwood and rural development and workshops on women and energy (with a focus on fuelwood), cookstove design, and the role of local entrepreneurs in fuelwood production. A sourcebook of NGOs worldwide, with a focus on developing countries (particularly in Africa) was produced for the conference. A new Renewable Energy and Environmental Conservation Association has been established; the ELC is the coordinator of regional activities in East Africa, and will use this association to organize grants (some grants have been made to date). An AID evaluation of this activity is scheduled.

PROJECT DOCUMENTS AND REPORTS:

Initial Activity Paper; 4/81.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY						FUNDING BY YEAR					
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB 82	CP83
Mali 625-0937 (AIP) Village Reforestation	SH	Fuelwood	50	22	32	101	290	495	---	---	---	495	---	---

Length of Project/PACD: 5 years; 9/30/85
Contractor: none

Primary Activity: Reforestation for fuelwood
Secondary Activities: Community forestry

PROJECT PURPOSE:

To identify successful and cost-effective processes of reforestation, and more efficient use of wood resources, at the village level in the Fifth Region of Mali.

PROJECT SUMMARY:

The project will, in the "cercles" of Bandiagara and Mopti: (1) create a tree nursery infrastructure, including two nurseries, experimental and demonstration plots; (2) strengthen the Forest Service's extension capabilities through the training of Peace Corps Volunteers and their Malian counterparts who will function as extension teams; (3) promote pilot activities in woodlots, windbreaks, fruit and shade trees, and (4) establish an information system for project monitoring and evaluation in the Water and Forest Service.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GRM will contribute approximately \$97,500 for project personnel (including the project director) and land. The Peace Corps will provide three volunteers to work with the project director and extension teams.

OTHER DONOR ACTIVITIES:

The project supplements a World Bank-funded forestry project in the Fifth Region, and will be integrated with "operations" in millet, rice, livestock and fishing. In other regions, Canada and the World Bank are funding projects. West Germany is supplying machines, equipment and funds to support the Forest Service.

AID-FINANCED INPUTS:

1. Funds for technical assistance support;
2. Funds for in-country and third-country training;
3. Commodities, equipment and construction materials.

MAJOR OUTPUTS:

1. Two nurseries;
2. Village woodlots, demonstration plots, improved wood-burning stoves and other rural forestry interventions;
3. An information system for monitoring and evaluation;
4. A support system for project activities at the national, regional and local levels.

PROJECT STATUS:

The project was authorized on September 18, 1980. An economic methodology has been developed. Two tree nurseries are complete, and production is expected to cover the planting needs of this coming rainy season. Construction of wells has begun; vehicles, seeds, scientific and audio-visual equipment are being ordered. Peace Corps Volunteers and their counterparts have been given technical and extension methods training; US Census Bureau experts prepared data collection forms and provided training in data collection during November-December, 1981.

PROJECT DOCUMENTS AND REPORTS:

PID; 7/21/80.
Project Paper; 9/80.
Shaikh, H., and Larson, P.; "The Economics of Village-Level Forestry: A Methodological Framework"; AID; 2/81.
Peace Corps Country Assessment (see 936-5711; p. 14).

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY						FUNDING BY YEAR					
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB 82	CP83
Senegal 685-0219 Fuelwood Production	SH	Fuelwood	700	187	247	---	1999	3133	---	1400	700	730	600	600

Length of Project/PACD: 4 years; 12/31/83
Contractor: PSCs

Primary Activity: Fuelwood production
Secondary Activities: Industrial forestry

PROJECT PURPOSE:

To improve the efficiency of fuelwood production for the Dakar/Thies area and help stabilize seasonal fluctuations in supply and price; to provide employment and improve the environment and economy of the Thies region, and to reduce pressure on up-country forest cutting.

PROJECT SUMMARY:

The grant will provide in part for the development of: (1) 3,000 ha. of rapid-growing trees in controlled areas of the Bandia Classified Forest near Dakar (a second phase of the project was proposed in the Project Paper, to develop another 3,000 ha.); (2) a central nursery producing 700,000 seedlings per year; (3) harvesting contracts for local timber cutters, timber co-operatives and village groups; (4) easily-extendable fuelwood production systems, and (5) research and evaluation monitoring for nursery planting, clearing techniques, live fencing and agro-silvicultural systems.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOS will contribute use of the Bandia Forest Land, and \$779,000 for all administrative personnel, all skilled and semi-skilled and some unskilled labor, local research costs and travel for overseas training. The Peace Corps will contribute one volunteer, at a cost of \$40,000.

OTHER DONOR ACTIVITIES:

This project is a CILSS first-generation priority; it complements other donor activities by France, Canada and Germany, and a \$9.3 million World Bank Project. The EEC, World Bank and France are working to help bring the Foret du Centre-Est under a management plan. Senegal has been chosen as one of five countries for coordination and project development under the CDA forestry/fuelwood initiative.

*There are no plans for a second phase at present.

AID-FINANCED INPUTS:

1. Project leader; soils, pest control, forest economics and forest pathology consultants; local manpower costs;
2. Training for five professional foresters in the US and third countries, and in-country training;
3. Funds for equipment and commodities;
4. Foreign exchange costs for research activities.

MAJOR OUTPUTS:

1. 3,000 ha. of fast-growing tree species;
2. One nursery;
3. Senegalese expertise in the management of fuelwood production projects;
4. Forestry development at the village level.

PROJECT STATUS:

The project was authorized on April 27, 1979. The project leader has been in-country since May, 1980. About 3,200 ha. have been surveyed and mapped. About 550,000 seedlings have been raised in the project nursery. During the 1980 planting season, 150 ha. were developed; 650 ha. were planted in 1981. Tree survival rate has been 90-95%; based on field trials, the eucalyptus is expected to produce yields 10-15 times higher than in natural forests. An evaluation is scheduled for October, 1982.

PROJECT DOCUMENTS AND REPORTS:

- PID; 8/76.
Project Review Paper; "Land Conservation & Revegetation"; 3/77.
Interim Report; "Senegal Integrated Resource Management"; 12/77.
Project Paper; 2/79.
Gulick, F.; "CADA Forestry and Fuelwood Production Initiatives in Selected African Countries"; Washington, D.C.; 4/20/81.
Peace Corps Country Assessment (see 936-5711; p.14).

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					TOTAL	FUNDING BY YEAR					
			TA	A&S	TR	T&D	DS		FY78	FY79	FY80	FY 81	OYB82	CP83
Senegal 685-0247 (AIP) Village Woodlot Firewood Production	SH	Fuelwood	63	---	---	---	148	211	---	---	211	---	---	---

Length of Project/PACD: 2 years; 12/31/82
Contractor: AFRICARE

Primary Activity: Forestation for fuelwood
Secondary Activity: Community forestry development

PROJECT PURPOSE:

To assist the Government of Senegal and the inhabitants of rural areas in establishing individual woodlots to produce firewood for cooking and poles for housing construction, through forestry activities in the Bambey and Diourbel areas.

PROJECT SUMMARY:

In this project: (1) woodlots and agroforestry systems will be established at the rate of 9 ha./year (5,525 trees) in forty villages; (2) the woodlots will be prepared by and turned over to village quasi-cooperatives which will contribute labor and land on a self-help basis; (3) the members of the cooperatives will be trained by the Senegalese Service of Water and Forests, and Peace Corps volunteers; (4) a land-use plan will be developed for each participating village, and an agreement on the distribution of benefits will be signed between each village cooperative and the Service of Water and Forests prior to all planting; (6) related activities, such as the planting of Acacia albida in millet and peanut fields, the establishment of wind-breaks and the cultivation of fruit trees will be carried out, and (7) mid-term and final evaluations will be carried out, as well as one five years after 1st planting.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOS will contribute the labor of Service of Water and Forests agents, and the participating villagers. The Peace Corps will provide six volunteers, who will work for the project as village extension agents.

OTHER DONOR ACTIVITIES:

See Senegal "Fuelwood Production" (625-0219).

AID-FINANCED INPUTS:

- Funds for AFRICARE to subsidize:
1. land preparation;
 2. seedling production;
 3. woodlot protection;
 4. extension assistance;
 5. transportation of seedlings.

MAJOR OUTPUTS:

1. Forty 9-ha. woodlots (approximately 270,000 trees);
2. 30-45 m³ of wood/village/year;
3. Village quasi-cooperatives organized and members trained in the development and maintenance of woodlots.

PROJECT STATUS:

The project was authorized on August 29, 1980. Three PCVs have been assigned to the project and are on-site. By December, 1981, nurseries had been established in eight villages, and 72 ha. had been planted. Survival rates for the first year's planting were low, between 10 and 30%. Based on this experience, and the conclusions in the mid-term evaluation, the project design has been modified; the project will be expanded to include a wider range of activities (described in #6 of the Project Summary). Between 20 and 28 villages will participate during the second year, each establishing a nursery with a capacity of 2,000 seedlings.

The project was contemporary with an AFRICARE OPG (685-0243) which planted a total of 180 ha. of fuelwood species in five villages before it ended in 1981 (Weber, F.; "End of Project Evaluation; Dakar; 12/81.).

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 6/80.
Weber, F.; Mid-Project Evaluation; 11/81 (English and French).

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					FUNDING BY YEAR						
			TA	ABS	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB 82	CP83
Upper Volta 686-0235 Forestry Education and Development	SH	Fuelwood	2570	40	1999	---	1349	5958	---	525	1350	3458	---	---

Length of Project/PACD: 5 years; 7/30/84
Contractor: PASA (USDA)

Primary Activity: Reforestation for fuelwood (75% of funds)
Secondary Activities: Institution building/training

PROJECT PURPOSE:

To improve the capability of the Government of Upper Volta to implement sound water and land resource use programs; specifically, to train foresters as promoters of multiple-use, sustained-yield forests, involving villagers in forest use and management of fuelwood supplies, as well as improved charcoal production techniques.

PROJECT SUMMARY:

The project consists of two major elements: (1) expansion and improvement of the Dinderesso Training Center for junior-level forestry agents (including new facilities, upgraded and expanded faculty, and revised curriculum), to provide a valuable, first-hand learning environment, and (2) development of a management plan for the 6,000-ha. national forest adjoining the training center (including resource inventory maps, vegetation analysis, etc.), to serve as a model for the management of other forests in Upper Volta.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOV sees this project as a high priority and is contributing a total of \$1,929,000 for salaries of GOV personnel, scholarships for students, the value of wood, land and buildings.

OTHER DONOR ACTIVITIES:

The German, Dutch and French aid agencies, as well as Switzerland and the World Bank, are carrying out forestry projects in the country. The World Bank is providing several scholarships for foresters to acquire specialized training. Upper Volta is one of the five countries selected for activities under the CDA forestry/fuelwood initiative.

AID-FINANCED INPUTS:

1. Long-term technicians, and short-term consulting assistance in education, forestry management, evaluation;
2. Short-term and third country training, and study tours, for forest agents and students;
3. Laboratory, audio-visual and other equipment, supplies and vehicles for the school;
4. Construction of school buildings.

MAJOR OUTPUTS:

1. School infrastructure provided and functioning;
2. School fully staffed with competent faculty and support staff;
3. Operational work-study program, and field trips;
4. Graduates of the school (40/year);
5. Forest management plan to help protect 6,000 ha. of forest.

PROJECT STATUS:

The project was authorized on March 23, 1979. The USDA team leader has been in Upper Volta since 1/81; the forest manager arrived in 10/81. Two other long-term technicians arrived in the fall of 1981, and a sociology/economics instructor is due to arrive in June, 1982. Work has been done on curriculum design; library materials are being collected. Vehicles have arrived and are being used for field trips. Construction of the school buildings and staff housing is under way. The forestry management plan is being prepared.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 10/13/78.
Consultant reports; 11/81, 4/82.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY						FUNDING BY YEAR						
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80		FY 81	OYB 82	CPB3
Upper Volta 625-0937.08 (AIP) Village Forestry	SH	Fuelwood	---	---	5.5	---	44.5	50	---	---	50	---	---	---	

Length of Project/PACD: 2 years; 10/31/82
Contractor: none

Primary Activity: Fuelwood production (+65% of funds)
Secondary Activities: Community forestry

PROJECT PURPOSE:

To facilitate a regionally-oriented system of reforestation in the Kaya area; to increase the production of forest products in the region, through an improved extension service.

PROJECT SUMMARY:

The project will be implemented in four phases: (1) identification and selection of villages interested in reforestation; (2) selection of representatives from each of the 10 village sites to work with forestry agents in the development of an extension program (including workshops and a handbook); (3) establishment of a nursery (3,000-6,000 annual seedling capacity), and a plantation of four ha. at each site, and (4) evaluation of project activities.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The Netherlands is working on large nurseries and the Swiss and Germans are involved in large-scale reforestation projects in the Kaya area.

AID-FINANCED INPUTS:

1. Fencing and tools for nursery and plantation construction;
2. Funds to hold workshops and produce handbooks;
3. Motorcycles, related fuel and maintenance costs for PCVs and counterparts.

MAJOR OUTPUTS:

1. 10 nursery/plantation sites established;
2. Increased supply of fuelwood (80-240 m³/year);
3. Increased supply of fruit trees;
4. Improved soil conditions, slowing of erosion and desertification;
5. Villagers trained in tree-planting;
6. 40 ha. of reforestation;
7. Pilot agro-forestry activities, including live fencing and windbreaks established.

PROJECT STATUS:

The project was authorized on September 4, 1980. Following negotiations with the Ministry of Environment and Tourism, an agreement providing for three PCVs working in 12 villages was signed. Two of the PCVs are currently working with 12 villages to establish 12 ha. of windbreak/plantation sites, and the capacity to produce 10,000-15,000 seedlings/year.

PROJECT DOCUMENTS AND REPORTS:

Winterbottom, R.; "Village and Family Forestry in Upper Volta"; Ouagadougou; 9/79 (non-project; background).
O'Rourke, S.; Project Activity; 5/80.
Project Paper (no date).
Action Memorandum, 9/4/80.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					FUNDING BY YEAR					CP83	
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81		OYB 82
Upper Volta 625-0937.08 (AIP) Yatenga Agri- forestry	SH	Fuelwood	---	---	15.8	---	40.2	56	---	---	---	56	---	---

Length of Project/PACD: 2 years; 6/8/83
Contractor: none

Primary Activity: Fuelwood production (57.5% of funds)
Secondary Activities: Community forestry

PROJECT PURPOSE:

To demonstrate the practicality of alternative approaches to the problem of seedling survival through the direct association of reforestation and agriculture, through development of a model that demonstrates the relationship between trees and crops, and soil and water conservation techniques.

PROJECT SUMMARY:

The project will demonstrate integrated systems of windbreaks and run-off agriculture (including putting over 8,000 m² of land back into production), through: (1) demonstration of the feasibility of windbreaks and live fencing; (2) provision of an increased water supply to planted seedlings through the use of micro-catchments; (3) establishment of small-volume (1,000-tree), decentralized nurseries managed by village women; (4) training of government extension agents and villagers in reforestation, planning, organization and management in sessions conducted by Peace Corps volunteers; (5) introduction of the use of small-scale composting, soil/water conservation techniques and improved wood stoves. The project also includes evaluation activities.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOV will contribute \$29,500 in logistical support, equipment storage, personnel, project management and use of vehicles. The project beneficiaries will contribute an estimated equivalent of \$4,270 in labor. The Peace Corps will provide two volunteers for two years, at a cost of \$72,000.

OTHER DONOR ACTIVITIES:

AFRICARE, OXFAM, and the World Bank are funding reforestation projects in the Yatenga region.

AID-FINANCED INPUTS:

1. Materials for nursery and other construction;
2. Motorcycles for PCVs;
3. Funds for a fence-maker/trainer.

MAJOR OUTPUTS:

1. Village nurseries established;
2. Windbreaks planted, micro-catchments constructed, crops planted;
3. Stoves built and demonstrated;
4. Training sessions held;
5. Live fencing demonstrated;
6. Evaluation criteria established.

PROJECT STATUS:

The project was authorized on February 10, 1981. It is currently being implemented by two Peace Corps volunteers, working in 12 villages. Nurseries are being established, and planting will be started just before the rains, during the summer of 1982.

PROJECT DOCUMENTS AND REPORTS:

Landeck, J., and Lindberg, C.; Project Proposal/PID; 7/80.
Project Paper; 2/81.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY						FUNDING BY YEAR					
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB 82	CP83
Sahel Regional 625-0911 VITA Agreement/ Woodstove Project*	SH	Renewable Fuelwood	184	---	10	---	---	194	---	---	194	---	---	---

Length of Project/PACD: 2 years; 9/30/82
Contractor: VITA

Primary Activity: Appropriate technology, woodstoves
Secondary Activities: Reduction of fuelwood consumption

PROJECT PURPOSE:

To assist the CILSS in the efficient coordination of appropriate technology activities, particularly the development and testing of woodstoves.

PROJECT SUMMARY:

The project, part of the Sahel Coordinating Planning Activity, will fund a VITA specialist to: (1) work with the CILSS to coordinate an improved cookstove program for the Sahel; (2) provide a central Sahelian focus for literature and data-gathering and exchange; (3) identify universities, training institutions and entrepreneurs interested in, and capable of conducting woodstove and other appropriate technology research and testing, and (4) conduct national or regional conferences and seminars to exchange information on training and the results of experiments with various woodstove technologies.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The Netherlands will supply \$40,000, and IBM/Europe will provide \$100,000 for office, rental, furnishings, equipment, VITA office support (vehicle, gas and maintenance), and a half-time secretary.

OTHER DONOR ACTIVITIES:

Improved woodstove projects financed by the US and other donors in the CILSS countries include: Upper Volta (FED, Netherlands, Germany); Mali (USAID, Peace Corps, ENDA); Niger (Church World Service); Senegal (USAID, Peace Corps).

*The precise project title is Sahel Regional Aid Coordination and Planning, of which this is a sub-activity. The project assists key Sahelian and International organizations; the CILSS, the Sahel Institute, the Club du Sahel Secretariat and the FAO are the immediate beneficiaries. The total AID contribution is \$12,724,000, of which approximately \$800,000 is for forestry and natural resources activities (other donor contributions equal \$27,857,000).

AID-FINANCED INPUTS:

- AID will provide funds for VITA to finance:
1. a Regional Appropriate Technology Coordinator;
 2. salary for a half-time secretary.

MAJOR OUTPUTS:

1. An improved cookstove program for the Sahel that can serve as the basis for a plan of widespread dissemination of energy-efficient stoves in the region;
2. An information exchange network on woodstove technology in the Sahel region.

PROJECT STATUS:

The agreement was signed in September, 1980; the VITA specialist arrived in Ouagadougou in the fall of 1980, to work with the Sahel Regional Sociological Coordinator. Laboratory testing of five mudstoves has been completed; one has been field-tested. A standardized methodology for testing stove-building materials has been developed. Peace Corps volunteers have been trained and a series of six national woodstove workshops (Mali, Mauritania, Niger, the Gambia, Senegal, Upper Volta) has been held for artisans, instructors, technicians, extension workers, government personnel and development professionals. A regional workshop was held May 5-12, 1982, bringing together representatives of the six countries, UNICEF/Kenya and the Rwanda Renewable Energy Project (see p. 60). A quarterly newsletter, "La Flamme," was launched in April, 1981. A replacement for the original specialist arrived in May, 1982. An extension has been requested.

PROJECT DOCUMENTS AND REPORTS:

Wood, T.; Technical Reports; Ouagadougou, Upper Volta.
"La Flamme"; CILSS; Ouagadougou, Upper Volta; Nos. 1-3.
Wood, T.; "Woodstove Dissemination in the Sahel: Case Studies and a Few Questions" (prepared for the meeting of the Wood-Burning Stove Group, Eindhoven Technical University (Netherlands), held in Rotterdam 2/82)

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					FUNDING BY YEAR					CP33	
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81		OYB 92
Botswana 633-0209 Renewable Energy	ESF	Renewable Fuelwood	1193	129	457	1132	393	3304	---	---	725	1000	1579	---

Length of Project/PACD: 4 years; 8/31/85
Contractor: Associates in Rural Development (ARD)

Primary Activity: Renewable energy technology R & D
Secondary Activities: Woodlots and fuel conservation (+50% of funds)

PROJECT PURPOSE:

To introduce village renewable energy technologies (RETs) which are inexpensive and easily replicated, and to promote the widespread use of these RETs, which can reduce Botswana's dependence on vulnerable supplies of increasingly expensive fossil fuels.

AID-FINANCED INPUTS:

1. Funding for two long-term technicians (a renewable energy specialist, and a sociologist), and short-term consultants;
2. Training for project personnel, extension agents, villagers;
3. Construction, commodities, equipment and support costs.

PROJECT SUMMARY:

The project consists of: (1) baseline data collection on village and institutional energy use in three pilot districts, focusing on cooking and heating practices; (2) a three-month Village Awareness Campaign on the need for wood conservation, followed by construction of demonstration units (wood-burning mudstoves, solar ovens and water heaters, thatch insulation and evaporative coolers); (3) installation of 1,000 village technology units in three districts and small wind- and hand-operated pumps in eight villages; (4) training of project personnel, extension agents, village entrepreneurs and villagers in the construction and maintenance of RETs; (5) construction of a solar-heated/cooled building for the Botswana Technology Center (partly AID-financed), four buildings at the Rural Industries Innovation Center, a passive solar house and three village training facilities; (6) research and development of seven institutional/commercial and experimental RETs, including solar water heaters, photovoltaic and wind-powered water pumps, pedal-powered sorghum dehullers and grinders, photovoltaic electric systems, woodlots and portable woodstoves, and (7) national or sub-sector energy assessments.

MAJOR OUTPUTS:

1. Information on energy use collected in three districts;
2. Village Awareness Campaign conducted and demonstration units constructed;
3. 1,000 domestic technology units installed;
4. Botswanans at all levels trained in RET construction and maintenance (government and villagers);
5. Nine model project buildings constructed;
6. R&D carried out on seven institutional/commercial RETs;
7. Energy assessments completed.

PROJECT STATUS:

The project was authorized on September 19, 1980, and a contract was signed with ARD in August, 1981. The team has been in-country since January, 1982, setting up research activities and beginning to train Botswanan staff. The rural energy survey has been completed in one village and initiated in another. One pv-powered water pump has been installed and is operational; a pv-powered health clinic is in the process of being installed. Research on metal and earthen stoves began in May, 1982; R&D of windmill pumping for deep wells is beginning in July, 1982.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOB will contribute \$1,178,000 to the project for Ministerial and extension staff time, commodities, land, housing and research and development. The Peace Corps will provide five volunteers at a cost of \$225,000.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 4/80.
Tomple, P., and Norris, D.; "Design of Demonstration Passive Solar Buildings"; ARD; Burlington, VT; 1982.

OTHER DONOR ACTIVITIES:

The FED has granted about \$700,000 to create a technological information clearinghouse at the Botswana Technology Center. Canada is providing technical assistance for windmill and solar technology. Germany is funding a study of gas production.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY						FUNDING BY YEAR					
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY:81	OYD82	CP83
			Cape Verde 625-0937.03 (AIP) Renewable Energy	SH	Renewable	76	85	22	312	---	500	---	---	500

Length of Project/PACD: 2.5 years; 8/31/82
Contractor: None

Primary Activity: Wind and solar energy R & D
Secondary Activity:

PROJECT PURPOSE:

To provide the Government of Cape Verde with research and design experience in non-fossil fuel energy systems which will serve as an input to the formulation of a national energy plan to reduce reliance on fuel imports and make local energy sources accessible to the country's population.

PROJECT SUMMARY:

This pilot project will support the construction and equipping of an alternative energy workshop/demonstration center. The center, a passive solar building lit by wind-generated electricity, will focus on: (1) analysis of energy needs, cataloguing and assessment of resources, and (2) design, testing and manufacture of prototypes. Devices to be tested for performance and acceptability by local populations include: wind-powered water pumps, hand and pedal water pumps, solar cookers/stills/dryers, biogas digesters and wood-burning stoves.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOCV will provide land for the workshop, pay the salaries of local staff and operating costs, totalling approximately \$130,000; it has agreed to finance the construction with National Development Funds. Two Dutch technicians, financed by the UN or the Netherlands, will be assigned to work on wind and other renewable programs for the workshop.

OTHER DONOR ACTIVITIES:

In 1977, the GOCV initiated a small program to install, test and monitor water pumping systems using wind and solar energy. Equipment is being donated by the Church World Service, the Swiss government and a French PVO. The French have also installed one solar pump.

AID-FINANCED INPUTS:

1. Technical assistance from a short-term wind specialist/power systems designer, a solar engineer and a hand-pump expert;
2. Short-term training (study tours, workshops) for Cape Verdean staff;
3. Publications, journals and a small reference library.
4. Equipment, instruments and supplies.

MAJOR OUTPUTS:

1. Operational wind and solar energy R & D facility;
2. Staff of facility trained in prototype development;
3. Data on wind/solar resources collected;
4. Windmills, wind pumps and generators installed;
5. Non-wind technology prototypes constructed and tested.

PROJECT STATUS:

The project was authorized on February 26, 1980. Demonstration wind machines for generation of electricity are being procured and will be installed by the end of 1982. A study of prospects for practical applications of solar technologies likely to encourage economic development is being conducted; recommendations should be available by August, 1982. A new workshop is under construction.

PROJECT DOCUMENTS AND REPORTS:

PID; 6/79.
Project Paper; 12/79.
Blake, S.; "Wind Energy Resources in the Cape Verde Islands"; Oskaloose, KN; 1979. (based on report submitted to Donovan, Hamster and Rattien, Inc., on AID contract).

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					FUNDING BY YEAR						
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB 82	CP83
Djibouti 603-0013 Energy Initiatives	ESF	Renewable	780	942	35	1720	523	4000	---	---	---	---	2000	2000

Length of Project/PACD: 5 years; 7/16/86
Contractor: VITA

Primary Activity: Renewable energy research & development
Secondary Activities: Institution building

PROJECT PURPOSE:

To assist in establishing the institutional capability within the Government of the Republic of Djibouti's Scientific and Technological Research Institute (ISERST) to plan, execute and evaluate alternative energy development and conservation programs.

PROJECT SUMMARY:

The project will support: (1) establishment of a data and analysis base on both general energy needs and alternative energy potential, as the basis for the development of a comprehensive energy program; (2) the ISERST's design, fabrication, installation and testing of prototype windmill water pumps, electrical wind generator and refrigeration equipment for fishing camps, solar stills, photovoltaic water pumps, and solar units for fish-drying and fish-smoking; (3) assessment of the prototypes, on the basis of environmental, socio-cultural and economic suitability for commercialization and widespread use, and dissemination of the research results to potential private and public users, and international research organizations; (4) training of ISERST technicians in the development of specific project-related skills, and GROD decision-makers in energy planning; (5) construction of permanent facilities for the ISERST's Earth Sciences Division; (6) development, testing and evaluation of energy conservation practices for fossil fuels which cannot be substituted with renewable energy sources, and (7) development of policy and planning recommendations to the GROD and its National Energy Commission.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GROD will provide approximately \$1,350,000 for personnel, commodities and land/land preparation/construction of the ISERST building.

OTHER DONOR ACTIVITIES:

France is providing technical assistance to the state electric company; Saudi Arabia and the European Investment Bank will fund fossil fuel and electricity projects (respectively). Geothermal project support is coming from France and Italy. Present or future renewable energy project donors include France (solar energy for agriculture, alternative energy applications), Germany (windmill/wind generating equipment) and UNICEF (solar cookers).

AID-FINANCED INPUTS:

1. Technical assistance from a mechanical/electrical engineer, an assessment specialist and an architect-engineer/conservation specialist;
2. Observation tour and participant training;
3. Construction of ISERST's Earth Sciences Division facility;
4. Commodities, including wind and solar, laboratory and workshop equipment.

MAJOR OUTPUTS:

1. A set of documents on identified needs for, and sources of, renewable energy (energy needs assessment);
2. Pilot interventions/prototypes designed, installed and tested;
3. ISERST's Earth Sciences Division facility completed, including a wind/solar workshop and laboratory;
4. Research results disseminated to potential users and research organizations;
5. Energy conservation practices established, tested and documented (set of reports, model sites, training courses);
6. Final policy and planning recommendations submitted.

PROJECT STATUS:

The project was authorized on June 6, 1981. The contractor was chosen in June, 1982. A field advisor is expected to be in-country within the next several months.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 7/81.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY						FUNDING BY YEAR					
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB 82	CP83
Lesotho 632-0206 Renewable Energy Technology	SD	Renewable	617	---	108	650	223	1600	---	1600	---	---	---	---

Length of Project/PACD: 3 years; 3/31/84
 Contractor: Associates in Rural Development (ARD)

Primary Activity: Village-level renewable technology
 Secondary Activities: Research & development

PROJECT PURPOSE:

To meet expanding energy demands and conserve high-cost, non-renewable energy resources, through the development and dissemination of a set of renewable energy technologies (RETs) in selected rural areas; to establish the institutional basis for nationwide dissemination of technically, socially and economically feasible RETs through local self-help programs.

PROJECT SUMMARY:

This pilot project will: (1) identify energy needs at the village level, and select technologies to meet those needs; (2) promote village-level energy conservation devices such as efficient wood- and dung-burning mudstoves, pedal-powered grain grinders, thatch insulation and weatherization, and passive solar greenhouses; (3) train "village energy technicians" (VETs) to set up demonstration units; (4) foster research and development activities, in a laboratory to be established by the project in Maseru, and introduce R&D technologies, such as a feedlot anaerobic digester and a mini-hydroelectric generation system; (5) develop feedback and evaluation activities.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOL will contribute \$77,000 for project staff, and office, laboratory and warehouse space. The Peace Corps will provide four volunteers over the life of the project. A Danish volunteer is also being provided.

OTHER DONOR ACTIVITIES:

Canada is financing a \$7-million rural development project in Thaba Tseka District, which includes a forestry component and installation of a micro-hydro plant and a windmill; the AID project will use Thaba Tseka as a testing site. OPEC has funded a solar/biogas project. The Swedish government, the British High Commission and the Anglo/American Company are working on woodlot projects.

AID-FINANCED INPUTS:

1. A physical scientist, a social scientist, a laboratory supervisor, an administrative assistant, a stock supply manager (long-term), and 20 months of short-term consulting;
2. Training for project staff, PCVs, Ministry of Rural Development counterparts, village energy technicians;
3. Construction and support costs, vehicles and commodities.

MAJOR OUTPUTS:

1. Trained renewable energy staff at the Ministry and village levels, with an institutional link between levels;
2. A village renewable energy technology implementation process established on a basis of village definition of needs;
3. Introduction and evaluation of village RETs;
4. R&D, evaluation of potentially-feasible technologies;
5. Operational research and development laboratory;
6. Energy-efficient house constructed and evaluated.

PROJECT STATUS:

The project was authorized on August 17, 1979. The contract team arrived in April, 1981; all counterpart staffing was completed in June, 1982. The GOL has provided nearly \$45,000 over the planned contribution, for costs and a new site for the Maseru workshop, scheduled for completion in July, 1982. The district workshop/demonstration solar house is finished. Initial pilot testing and training activities have begun, focusing on retained heat cookers, solar heaters and dryers, and grow-hole greenhouses. Two seminars on solar dryer architecture were held. The survey of 8 villages in one district was completed in June, 1982. R&D of earthen stoves is beginning in July, 1982. The project was evaluated 1/82.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 8/79.
 Project Evaluation; 3/82.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					TOTAL	FUNDING BY YEAR					
			TA	A&S	TR	T&D	DS		FY78	FY79	FY80	FY 81	OYB 82	CP83
Liberia 698-0407.07 (IRT) Mini-Hydroelectric Activity	FN	Renewable	---	4	3	---	63	70	---	50	---	20	---	---

Length of Project/PACD: 2 years; 9/30/82
Contractor: Experience, Inc.

Primary Activity: Hydro-power generation
Secondary Activities:

PROJECT PURPOSE:

To design, install and evaluate an experimental 25-30-Kw. micro-hydroelectric power plant to provide two up-country villages with a low-cost, low-maintenance source of electricity.

PROJECT SUMMARY:

The project consists of four design and construction activities: (1) civil works, including a 5-foot gravity dam, a canal and roads; (2) a generating unit; (3) an electrical distribution system, and (4) a water distribution system. Residents of the area will be trained in maintenance of the systems. Baseline and evaluative data will be collected on the power systems, as well as on the social, physical and economic aspects of village life.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GGI will contribute \$20,000 for technical support, equipment and vehicles. The participating community will contribute \$17,000 in-kind, for labor, tools and end/use equipment (rice mills, coffee mills, etc.) The Peace Corps will contribute one volunteer.

OTHER DONOR ACTIVITIES:

The World Bank has financed four power projects. West Germany is financing a feasibility study of mini-hydro potential.

AID-FINANCED INPUTS:

1. Funds for a water pump and a 30-Kw. hydroelectric plant (turbine and alternator-generator);
2. Commodities and supplies;
3. Short-term consulting in sociology and economics;
4. Technical assistance from an AID engineer.

MAJOR OUTPUTS:

1. Two villages supplied with continuous electricity & water;
2. Improved sanitation and health conditions;
3. Mechanized agricultural processing;
4. Light industries (carpentry, tailoring) developed;
5. Measurement of the impact of project on village life;
6. Evaluation of the hardware and software, and suitability of micro-hydroelectric plants under actual conditions.

PROJECT STATUS:

The project was obligated on September 15, 1980. Technical difficulties caused initial delays now being resolved. The turbine package is on-site, and the villagers are continuing the civic works construction. The bottom of the dam has been constructed; in a recent evaluation, it was recommended that it need not be built to its full height at this stage. Most road work to the dam site and power house has been completed. An evaluation was conducted 2/82.

PROJECT DOCUMENTS AND REPORTS:

Activity Paper; 1/16/80.
Kamara, D.L.B.; "Engineering Plan for a Micro-Hydroelectric Project in Yandohun and Dungalahun, Lofa County, Republic of Liberia"; University of Sierra Leone; 6/80.
"Evaluation of AIP, IRT and WID Projects" (includes this project); Development Associates; Arlington, VA; 3/82.
Inversin, A., and Lawrence, W.; "Evaluation of the Yandohun Micro-Hydro Project"; NRECA; Washington, D.C.; 3/82.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					FUNDING BY YEAR						
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB 82	CP83
Mali 688-0217 Renewable Energy	SH	Renewable	555	604	210.5	2730.5	---	4100	2174	---	---	930	470	700

Length of Project/PACD: 5 years; 9/30/83
 Contractor: Solar Energy Research Institute (SERI)

Primary Activity: Renewable energy R & D
 Secondary Activities: Village energy needs survey

PROJECT PURPOSE:

To develop sources and applications of renewable energy which are economically and socially acceptable in rural Mali, in order to improve the quality of rural life, help reduce dependence on fossil and wood fuels, and help better understand the effects of introducing renewable energy technologies in rural Africa.

PROJECT SUMMARY:

The project will consist of four phases: (1) material, technical and training support for the Malian Solar Energy Laboratory and other national institutions, including installation of four photovoltaic water pumps for demonstration, training and data collection, and development of an R&D program for the Laboratory; (2) socio-economic and meteorological surveys, undertaken by the Institute of Rural Economy, in 25 villages with the potential for experimentation with alternative energy devices; (3) devices and applications (solar water heaters, crop and fish dryers, woodstoves, etc. developed by the Laboratory) tested in 20 of the villages, operated and maintained by a cadre of trained villagers, and (4) analysis and evaluation of the experiments.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GRM will contribute \$1,184,000 for salaries and other support costs. The Peace Corps will provide the equivalent of \$220,000 for volunteers.

OTHER DONOR ACTIVITIES:

The FED and a variety of European church groups have funded approximately 20 solar pumps throughout Mali; some have been funded through Mali Aqua Viva, a private organization run by a French priest. France has funded a large solar generating station at Diré, which supplies water for agricultural and domestic use. The FED, Canada, France and Germany have financed power generation projects. The World Bank is acting as executor for a UNDP project in four countries including Mali, to install and test solar pumps for irrigation.

AID-FINANCED INPUTS:

1. Technical assistance from an energy scientist (two years), a social anthropologist (one year) and short-term consultants in renewable energy, sociology and economics;
2. Training in the US and Mali, and support to Malian educational institutions;
3. Costs of construction of a new laboratory facility;
4. Equipment, instruments, commodities, vehicles, etc.

MAJOR OUTPUTS:

1. Functioning Solar Laboratory;
2. Prototype renewable energy devices constructed and tested;
3. 25 socio-economic and meteorological data reports;
4. Renewable energy devices installed, monitored and evaluated in 20 village sites;
5. A cadre of Malians trained to design and implement renewable energy programs, and a cadre of villagers trained to operate and repair renewable technology devices.

PROJECT STATUS:

The project was authorized on August 16, 1978. The contract engineer has been in Mali since October, 1980. Phase I: all four PVC pumps have been installed and two are functioning; three Malians have received short-term US training and one will begin long-term studies; prototypes of wind machines, biodigesters, solar dryers/water heaters/distillers have been constructed and/or installed and tested; 50 stoves and a PVC refrigerator and lighting system are being field-tested; some facilities have been up-graded; technical reports have been produced. Phase II: the survey phase is nearly complete; raw data has been sent to the US for processing. The project was evaluated during March-April, 1982.

PROJECT DOCUMENTS AND REPORTS:

PID; 5/1/78 (approval).
 Project Paper; 6/78.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	TA	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					FUNDING BY YEAR					
				A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY81	OYB02	CP83
Niger 683-0235* Solar Energy	SH	Renewable	63	---	72	365	---	500	500	---	---	---	---	---

Length of Project/PACD: 3 years; 9/30/81
Contractor: PSCs

Primary Activity: Solar Energy Research
Secondary Activity:

PROJECT PURPOSE:

To assist the Government of Niger's Office of Solar Energy (ONERSOL) to participate in an expanded program to develop, test and apply solar energy technologies, especially those most beneficial to the rural poor.

PROJECT SUMMARY:

Project elements include: (1) architectural design and construction supervision services for the new ONERSOL facility, housing activities in research, training and applications of solar energy technologies; (2) provision of laboratory instruments and equipment; (3) laboratory and field testing of solar water pumping systems, and secondarily, solar refrigerators, solar crop dryers and improved wood-burning stoves; (4) consultations and training courses by American experts, and (5) training in the US for one ONERSOL employee.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GON will contribute \$1,400,000 in addition to in-kind contributions. The Peace Corps is providing a volunteer to train Nigeriens in equipment installation, repair and maintenance. Advances in technologies will be disseminated through a UNESCO-funded ONERSOL training program for solar energy researchers and technicians from neighboring countries.

OTHER DONOR ACTIVITIES:

France has provided technical advice and equipment to ONERSOL, as has Germany; France and Germany have also funded renewable technology activities. The FED has financed solar pumps, generators and a solar heater. France has also financed solar pumps, heliostat generators, and other activities related to solar energy.

AID-FINANCED INPUTS:

1. Architectural and supervisory services for ONERSOL construction;
2. Equipment and instruments for the laboratory;
3. Water pumps;
4. Short-term consultants;
5. Training for two ONERSOL employees, one at the Ph.D. level;

MAJOR OUTPUTS:

1. ONERSOL facility constructed;
2. Operational applied research programs in renewable technologies;
3. ONERSOL staff with advanced degrees.

PROJECT STATUS:

The project was authorized on September 15, 1978. The lat has been constructed and moved into; the facilities were formally inaugurated in January, 1982. Technologies are being developed and tested. The Deputy of ONERSOL received an M.S. in mechanical engineering from the University of New Mexico in 1981, and has begun Ph.D. studies at Howard University. The project was completed on September 30, 1981 (except for participant training); the end-of-project evaluation is scheduled for the summer of 1982.

PROJECT DOCUMENTS AND REPORTS:

PID; 9/15/78.
Project Paper; 9/78.

*Formerly Project #683-0039

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY						FUNDING BY YEAR					
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB82	CP83
Rwanda 698-0410.22 (AIP) Renewable/Improved Traditional Energy	SD	Renewable	120	9	59	240	60	488	---	488	---	---	---	---

Length of Project/PACD: 3.5 years; 12/31/82
Contractor: VITA (Cooperative Agreement)

Primary Activity: Renewable energy Research & Development
Secondary Activity: Institution building

PROJECT PURPOSE:

To assist the Government of Rwanda in its support of institutional mechanisms and activities to improve planning for the country's long-term rural energy needs, and to help the CEAER* conduct research, development, field-testing and analysis of renewable and improved traditional energy technologies to meet those needs.

PROJECT SUMMARY:

Project activities include: (1) in-country and third-country training of CEAER staff; (2) surveys of three communities to determine their energy needs; (3) training of Rural Energy Technicians selected from those communities; (4) research and development, and testing in the lab and in the field, of renewable water supply and irrigation, biogas refrigerators, mini-hydro-electric turbines, solar crop dryers, improved stoves and charcoal or brick kilns, in villages where energy surveys have been completed; (4) strengthening of the CEAER research and testing facilities; (5) establishment of a Rural Energy Self-Help Fund for Rwandan public and private groups working in the energy sector; (6) establishment of project documentation and international information exchange mechanisms; (7) seminars and colloquia, and (8) project evaluation.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The Government of Rwanda will contribute \$177,000 to the project for CEAER staff.

OTHER DONOR ACTIVITIES:

The CEAER has collaborated with UNESCO, CIDA, and French and German voluntary agencies. France and Belgium have financed solar and biomass/ biogas projects; a German company is supporting the installation of 210 household digesters. The FED is co-financing solar generators for health centers with the GOR.

*Centre d'Etudes et d'Applications de l'Energie au Rwanda, in the University of Rwanda.

AID-FINANCED INPUTS:

1. A long-term project advisor and short-term consultants in renewable energy and sociology;
2. In-country and/or third-country training for CEAER staff, university students and Rural Energy Technicians;
3. Operational support for placement of prototypes;
4. Funding to establish the information exchange and library;
5. Initial capital for a rural energy self-help fund;
6. Vehicles, laboratory and workshop equipment.

MAJOR OUTPUTS:

1. Community energy surveys completed;
2. Technologies tested and installed in rural communities;
3. CEAER staff and Rural Energy Technicians trained;
4. Rural Energy Fund established and operating;
5. Evaluation of the potential for meeting rural energy needs with renewable and improved traditional energy technologies.

PROJECT STATUS:

The project was authorized on August 31, 1979. Consultancies by an energy technologist and a survey expert have been completed. VITA will provide a series of short-term consultants in lieu of a long-term advisor. Three CEAER researchers have received US or third-country training. Prototype field-testing has begun on a solar water heater, a solar distiller, a biogas digester and a mini-hydro generator. The project was evaluated in April, 1982.

PROJECT DOCUMENTS AND REPORTS:

PID; Overseas Development Council; Washington, D.C.; 1978.
Project Paper; 8/31/79 (approval).
Graham, T.; "The Efficiency and Impact of Eight Application of Four Energy Conversion Technologies to Meet Five Energy Needs"; 8/80 Project Evaluation; 4/82.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY						FUNDING BY YEAR					
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB82	CP83
			Senegal 625-0937.07 (AIP)* Renewable Energy	SH	Renewable	26	36	70	118	48	300	---	---	---

Length of Project/PACD: 2 years; 12/31/82
 Contractor: None

Primary Activity: Reduced fuelwood consumption measures
 Secondary Activity: Renewable energy R & D

PROJECT PURPOSE:

To relieve the pressure on Senegal's fuelwood supply by promoting improved charcoal production methods, more efficient wood-burning and charcoal cookstoves and simple solar fish dryers and storage tents.

AID-FINANCED INPUTS:

1. Short-term technical assistance from a charcoal production specialist, a stove design specialist, and US and Senegalese consultants for project evaluations;
2. Training in charcoal production, stove and solar dryer construction and testing;
3. Travel funds, tools, wood, and living subsidies for charcoal production trainees;
4. Equipment and materials for prototype development.

PROJECT SUMMARY:

Project activities include: (1) training heads of charcoal-making teams in improved charcoal production methods (use of the "Casamance kiln"), and gathering data on training procedures, rate of adoption, yields, etc.; (2) construction, modification and adaptation of prototype cookstoves, followed by field testing and dissemination, with the cooperation of local women; (3) training extension workers to build and demonstrate cookstoves; (4) development and field testing of several models of a "solar tent" fish drying and storage system, within a village setting, to determine the most acceptable design for widespread dissemination, and (5) on-going monitoring and evaluation.

MAJOR OUTPUTS:

1. Charcoal makers trained;
2. Higher wood-to-charcoal conversion yields;
3. Extension workers trained in stove building;
4. Affordable wood-burning stoves disseminated and in use;
5. Village artisans trained in solar dryer construction.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOS will contribute \$80,000 for personnel, travel and office and laboratory space. The Peace Corps will provide two volunteers to work on the cookstove component.

OTHER DONOR ACTIVITIES:

The charcoal production component of this project will be implemented in close coordination with the UNDP/FAO forestry project in the Casamance region, which has trained up to 100 charcoal makers; some of these will serve as instructors. The FED has financed two solar pumps; France has financed solar pumps, thermodynamic solar irrigation, aerogenerators and other renewable technologies.

PROJECT STATUS:

The project was authorized on October 15, 1979. About 80 charcoal makers have been trained in the construction of the Casamance kiln, which has resulted in production of up to 50% more charcoal. Over 2,000 cookstoves have been built and are in use in the country; more than 900 people have been trained in construction techniques. Fuel savings are estimated at 30-40%. Six different prototype solar fish dryers have been constructed and lab-tested; 12 are presently being field-tested in two fishing villages.

PROJECT DOCUMENTS AND REPORTS:

- PID (Overseas Development Council); 3/78.
- Project Paper; 10/79.
- Evans, I. et al; "Improved Cookstoves for Rural Senegal": Aprovecho Institute; Eugene, OR; 4/80.
- _____; "Ban Ak Suuf Cookstoves in Senegal; First Year Evaluation and Second Year Strategy"; Aprovecho Institute; 3/81.
- Ulinski, C.; "Senegal's Ban Ak Suuf Cookstoves; AID/Dakar; 1981.
- _____; "Evaluation of ITA Solar Fish Dryers"; 1981.

* Formerly number 685-0238.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY						FUNDING BY YEAR					CP83
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB 82	
Sudan 655-0041 Renewable Energy	SD	Renewable	1476	67	564	61	2430	4600	---	---	---	1000	2055	1245

Length of Project/PACD: 5 years; 9/30/86
Contractor: to be chosen

Primary Activity: Renewable energy R&D
Secondary Activities: Institution building/community forestry

PROJECT PURPOSE:

To assist the Government of the Sudan in developing applied research capability in rural renewable energy technology, with verification through application of research results in rural areas, and dissemination principally through the private sector.

PROJECT SUMMARY:

The project will strengthen the Energy Research Institute through the creation of a Sudan Renewable Energy Center (SREC), which will work to: (1) conduct village energy studies to identify useful and desired technologies; (2) develop and field-test prototypes, especially wood and charcoal cookstoves, water-pumping and -lifting technologies, improved charcoal production, biomass waste converters, solar cookers, pedal-powered grain grinders and de-hullers (as well as village woodlots); (3) evaluate the economic, social and environmental soundness of such technologies; (4) sensitize, support and/or train the private sector in rural technology dissemination, and (5) participate in the proposal review and award process of grants to PVOs, NGOs, and other private organizations, from a Renewable Energy Development Grant Fund.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOS will contribute the equivalent of \$3,000,000 for salaries, commodities, training, grants and construction. West Germany will contribute \$1,400,000 in funding and personnel for a Research and Development Division of the SREC.

OTHER DONOR ACTIVITIES:

The AID project will complement the West German Renewable Energy Project, a \$5.8-million effort which, in addition to the above-described activities, will fund costs of construction and equipment of a laboratory and workshop, and provide funds for projects including solar-powered water heaters, television, solar cookers, mini-hydro and wood conservation. The Dutch are interested in creating a wind energy center to develop and test water-pumping windmills. They are also supporting reforestation efforts.

AID-FINANCED INPUTS:

1. Long-term technical assistance in management and renewable energy field-testing/dissemination;
2. 45 person-months of short-term consulting;
3. Long- and short-term US and third-country training, and study tours;
4. Funds for renewable energy development grants;
5. Funding for an information center;
6. Commodities, equipment, vehicles, field-testing/training/information center materials.

MAJOR OUTPUTS:

1. Rural energy use studies completed;
2. RETs developed, field-tested and disseminated;
3. SREC manpower needs assessed;
4. Sudanese counterparts trained, capacity for implementing RET programs strengthened;
5. RETs installed and evaluated, and being locally produced;
6. Private sector institutions supported through grant fund;
7. Channels for RET dissemination tested and in use;
8. Training and information materials developed and distributed.

PROJECT STATUS:

A first PID was submitted in 1980; a revised PID was approved in March, 1981. The project was authorized on August 31, 1981. A request for proposals was issued; proposals were received and reviewed in the spring of 1982. Contract negotiations are under way in Sudan with a potential contractor.

PROJECT DOCUMENTS AND REPORTS:

Lillywhite, M. and L.; "Sudan Village Renewable Energy" (pre-PID report); Domestic Technology Institute; Evergreen, CO; 2/80. PID (revised); 2/24/81. Project Paper; 8/31/81 (approval date).

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY						FUNDING BY YEAR					
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB 82	CP83
Swaziland 698-0407.16 (IRT) RDA* Outreach	SD	Renewable	---	---	20	15	15	50	---	---	50	---	---	---

Length of Project/PACD: 2.5 years; 2/27/83
Contractor: Experience, Inc.

Primary Activity: Renewable energy technology dissemination
Secondary Activities:

PROJECT PURPOSE:

To develop and extend the outreach capabilities of the existing Village Technology Program in the Northern Rural Development Area, and implement a complementary program in the Mahamba-Zombodze RDA, supporting installation of renewable energy and labor-saving devices in rural homes and farms.

PROJECT SUMMARY:

The project will: (1) carry out, in the two RDAs, demonstration and training activities relevant to water pumping, grain storage and food processing devices, including solar dryers, water heaters and growholes, sawdust and brick stoves, drum- and Indian pit-type biogas distillers, and hydram pumps; (2) establish a demonstration and training site in Mahamba-Zombodze for the production of technical devices; (3) train artisan/entrepreneurs to produce such devices, and (4) establish a loan fund for tool kits.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOS will contribute the equivalent of \$20,100 for salaries, vehicle maintenance, buildings and sites. The UN will contribute \$13,400 in salaries for the project supervisor and resource officer.

OTHER DONOR ACTIVITIES:

The project is being implemented in cooperation with the UNICEF-funded Village Technology Unit in Nairobi; all the devices are included in the VTU Catalogue, "Appropriate Village Technology for Basic Services."

AID-FINANCED INPUTS:

1. Funds for training artisan/entrepreneurs in production;
2. Materials, tools and vehicles;
3. Demonstration and training facilities.

MAJOR OUTPUTS:

1. 150-200 labor-saving devices purchased or self-manufactured and installed;
2. 15 artisan/entrepreneurs trained in production;
3. 10 case studies developed.

PROJECT STATUS:

The project was obligated on August 29, 1980. Construction of rondavels and a workshop has begun in the Mahamba-Zombodze RDA. As of June, 1982, the following kinds and numbers of devices were in use in the field: brick stoves (12); solar dryers (10); sawdust stove (4). Hydrams and biogas devices are under experimentation. The devices are demonstrated to rural communities through seminars, trade fairs, workshops, etc. Field extension is being carried on through training courses, for a total of 42 trainees. The project has been extended.

PROJECT DOCUMENTS AND REPORTS:

Activity Paper (no date).

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	TA	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					FUNDING BY YEAR					
				A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB 82	CP83
Tanzania 698-0407.22 (IRT) Photovoltaic Energy (IRT)	SD	Renewable	---	---	5	---	27	32	---	---	---	32	---	---

Length of Project/PACD: 1 year; 8/31/82
Contractor: Experience, Inc.

Primary Activity: Solar Energy
Secondary Activities:

PROJECT PURPOSE:

To install a photovoltaic generation system, lighting and a refrigerator in a rural village dispensary in Tanzania, to collect and evaluate data for future applications and to familiarize University of Dar Es Salaam staff and students with solar generator applications.

PROJECT SUMMARY:

The project will: (1) laboratory-test and install a photovoltaic system to drive fluorescent lights and a refrigerator for storing vaccines and medicines in a dispensary that serves 10,000 people; (2) train University staff and students to collect data for project evaluation and train a local carpenter to maintain the system, and (3) utilize data collected to evaluate locally-produced subcomponents (batteries, regulators, booster mirrors).

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOT will contribute \$14,000 in-kind, covering salaries, transport, use of workshops and laboratories, and report preparation.

OTHER DONOR ACTIVITIES:

West Germany has provided buildings, equipment and academic staff for the University of Dar Es Salaam; they have also funded biogas and electric transmission projects. Denmark, Switzerland, UNIDO and UNDP have funded various activities related to solar energy.

AID-FINANCED INPUTS:

1. Funds for equipment, including solar modules, refrigerator, and lighting;
2. Funds for one Tanzanian university staff member to make a study and commodities procurement tour of the US.

MAJOR OUTPUTS:

1. Photovoltaic system powering lighting and refrigeration facilities in a rural dispensary;
2. Tanzanian university staff and students trained, and collecting data;
3. One local carpenter trained in maintenance;
4. Data collected on performance of the equipment.

PROJECT STATUS:

The project was obligated on May 21, 1981; project implementation began in February, 1982. Two Tanzanians travelled to the US to make contact with suppliers and visit institutions involved in photovoltaic research activities; they returned to Tanzania in March, 1982.

PROJECT DOCUMENTS AND REPORTS:

Activity Paper; 5/21/81.
Howe, J.W., Bever, J.A., et al; "Background Paper: Solar Energy for Villages Pilot Project"; Overseas Development Council; Washington, D.C.; 1980 (prepared for Dodoma Rural Energy Development Project, 698-0410).

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					FUNDING BY YEAR						
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB 82	CP83
Togo 698-0407.09 (IRT) Rural Solar Tech- nology Activity	FN	Renewable	---	---	---	50	---	50	---	---	50	---	25	---

Length of Project/PACD: 2 years; 6/30/82.
Contractor: Experience, Inc.

Primary Activity: Solar energy R&D
Secondary Activities:

PROJECT PURPOSE:

To introduce the appropriate solar technologies into the rural environment, and contribute to the Government of Togo's broader goal of improving the standard of living of its rural poor.

AID-FINANCED INPUTS:

Funding for the materials and equipment to construct, test and install the renewable energy apparatus.

PROJECT SUMMARY:

The Solar Energy Laboratory, within the Scientific Studies Institute of Togo's University of Benin, is responsible for applied research in renewable energy. Under this project, the Laboratory will: (1) develop prototypes of solar devices, including crop dryers, water heaters, and smaller technologies such as distillers and cookers, which will also serve as instructional devices for University students; (2) install four water heaters in four maternity centers (urban and rural), and four crop dryers in four village market centers, to serve as demonstrations for rural populations, and (3) train villagers to assist in the construction and maintenance of the devices installed.

MAJOR OUTPUTS:

1. R&D capabilities at the University of Benin strengthened;
2. Four solar hot water heaters, four solar food dryers, and smaller solar devices installed in rural areas;
3. Villagers trained in the construction and maintenance of solar devices.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOT will contribute the equivalent of \$5,000 for salaries, lab use, materials and training support costs; local residents will contribute a similar amount in labor and materials. The Togo Ministry of Mines, Energy and Hydrology will contribute the services of a consulting engineer.

PROJECT STATUS:

The project was obligated on June 10, 1980. A study tour was made to Niger's solar lab (ONERSOL) by the Benin Laboratory staff. The Laboratory has developed and tested prototypes of a water heater and a crop dryer. Four solar water heaters, with an individual capacity of 1,000 m³, are installed and functioning in three rural and one urban dispensary/maternity. The crop dryer design has undergone considerable modification; a decision has been made to construct two instead of four solar dryers. A proposal has been developed for a solar energy-driven biomass digester. The project was evaluated in May, 1982.

OTHER DONOR ACTIVITIES:

The FED has financed the installation of two solar pumps.

PROJECT DOCUMENTS AND REPORTS:

Activity Paper; 1/11/80.
"Overview of the Togo Energy Situation"; Associates in Rural Development; Burlington, VT; 11/81 (not project-funded).
Reports; 12/80, 2/82.
"Evaluation of AIP, IRT and WID Projects"; Development Associates; Arlington, VA; 3/82.
Technical Evaluation; Experience, Inc.; Washington, D.C.; 5/82.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					TOTAL	FUNDING BY YEAR					
			TA	A&S	TR	T&D	DS		FY78	FY79	FY80	FY:81	OYB82	CP83
Upper Volta 698-0410.03 (AIP) Solar Energy Demon- stration	SD*	Renewable	24	17.5	---	38.5	---	80	80	---	---	---	---	---

Length of Project/PACD: 5 years; 3/31/83

Contractor: NASA Lewis Research Center (PASA; limited scope grant agreement) Primary Activity: Solar energy demonstration
Secondary Activity: Baseline data collection

PROJECT PURPOSE:

To demonstrate, study and evaluate the potential of solar energy as a power source for common village tasks such as grain milling and water pumping; to study the social and economic impact of this innovation.

PROJECT SUMMARY:

The project supported supplementary activities and funding for a study of energy constraints to increased food production through: (1) installation and demonstration of a photovoltaic-powered grain mill and water pumping system in the village of Tangaye, and (2) a sociological study to gather baseline data. This AIP is a further amendment to the project for: (1) additional data collection; (2) additional solar cells; (3) a more powerful motor for the mill and materials for the milling building; (4) a 5,000-liter water reservoir; (5) supplemental technical monitoring and (6) mid-term and final social impact evaluations. This AIP has been followed by a limited scope grant agreement for NASA to provide: (1) technical assistance and (2) further studies and evaluations.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The Government of Upper Volta will contribute \$15,000 to the project for extension assistance, site preparation, etc. The Tangaye villagers will contribute labor for mill building construction, site preparation and installation of the solar equipment. NASA has contributed approximately \$100,000. The Peace Corps provided one volunteer.

OTHER DONOR ACTIVITIES:

Austria, France and the FED have supported solar energy activities in Upper Volta. The French have funded the installation of approximately 20 solar pumps.

*The funding category and fiscal data apply to this AIP only. The Project was formerly part of a DSB "Studies of Energy Needs in Food Systems" project, and is currently funded through ST/EY (936-5710).

AID-FINANCED INPUTS:

1. Technical assistance from NASA personnel, anthropologist, etc.
2. Commodities (solar modules and batteries, spare parts, milling facility, etc.);
3. Construction of a mill building.

MAJOR OUTPUTS:

1. Solar-powered grain grinding and water pumping systems installed and operating;
2. Villagers managing and maintaining the system;
3. System for monitoring and repair developed;
4. Data collection system functioning;
5. Studies of the impact of labor-saving devices, and the adaptability of solar power to rural Upper Volta completed.

PROJECT STATUS:

The AIP was authorized on September 21, 1978. The 1.8-Kw (peak) photovoltaic system was designed, fabricated and tested by the Lewis Research center, and installed with village participation. It has been operational since March 1979, and in the first two years produced about 80 metric tons of ground grain and pumped over 1.5 million gallons of water. New solar modules were installed in May, 1981, to replace originals with a design defect. The system was doubled in size, and a hammermill, a refrigerator, fluorescent lights, a guest house and a sodium vapor lights were added. Mid-term and final social impact evaluations were conducted. In October, 1980, the limited scope grant agreement was signed with NASA Lewis to provide continued technical cooperation. A follow-up social impact study is under way (June-July, 1982).

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 9/78.
Hemings, G.; "Baseline Study for Socioeconomic Evaluation of the Tangaye Solar Installation"; AID; Washington, D.C.; 1978.

Roberts, A.F.; "Social Impact of the Tangaye (Upper Volta) Solar Energy Demonstration"; Ann Arbor, MI; 10/79 (mid-term evaluation); 9/80 (final evaluation); 7/81 (summary report).

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY						FUNDING BY YEAR					
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB82	CP83
Burundi 695-0103 Alternative Energy Peat II	SD	Fossil Fuel	5408	---	277	---	2315	8000	---	---	2000	2000	1106	2262

Length of Project/PACD: 5 years; 12/31/85
 Contractor: Irish Peat Board (Bord na Mona)

Primary Activity: Development of peat production
 Secondary Activity: Fuelwood conservation

PROJECT PURPOSE:

To conserve the country's forestry reserves by increasing the availability and acceptability of peat as an alternative energy source; and to strengthen the institutional capacity of ONATOUR* to carry out present and planned operations on an efficient basis, with minimal need for outside financial or technical support.

PROJECT SUMMARY:

The project will: (1) strengthen ONATOUR through staff training and the development of financial and operational guidelines (to enable the agency to become financially self-sufficient); (2) help ONATOUR develop a marketing strategy (including demonstrations, test-marketing and promotional efforts), aimed at urban charcoal consumers, as well as artisanal, commercial, institutional and industrial consumers; (3) further the expansion of peat production through the field-testing and introduction of appropriate peat macerating machinery, and the development of commercial peat bogs, and (4) introduce peat stoves.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GRB will contribute \$1,089,000 to the project for land, operating costs, bog sites, etc. The Government of Ireland will contribute \$1,460,000 for training, survey work and technical assistance.

OTHER DONOR ACTIVITIES:

As part of a low-cost housing project, the World Bank will spend \$35,000 to develop and test wood- and peat-burning stoves; this effort will be coordinated with AID activities. Other donors, including the EEC and Finland, will assist in sampling, testing and development of peat processing (briquetting) facilities in the Grand Marais riverine basin.

AID-FINANCED INPUTS:

1. A long-term, headquarters-based technical assistance team, a field production and maintenance staff, and short-term consultants in engineering, marketing, sociology, etc.;
2. On-the-job and third-country training for counterparts;
3. Demonstration and publicity for stoves and other activities;
4. Equipment, vehicles, construction of new ONATOUR offices.

MAJOR OUTPUTS:

1. Trained ONATOUR staff;
2. Improved ONATOUR management capability;
3. Resolution of technical questions on peat production and utilization;
4. Development of commercial bogs.

PROJECT STATUS:

The project was authorized on August 28, 1980. Contracts have been signed with a project manager/marketing advisor, and between the Irish Peat Board and the GOB; negotiations are under way with an administrative officer. Three macerating machines arrived and were tested in September, 1981. During the 1981 season, 6,000 tons of peat were produced. Improved peat stoves have been designed.

Peat I (#698-0410.09) was authorized in March, 1978, and became operational in March, 1979. Staff was recruited, work with ONATOUR was carried out, studies on peat marketing and ONATOUR operations were completed, and development of a peat-burning stove was begun. The project was evaluated in late 1979, and it was decided to terminate activities and progress to Phase II.

PROJECT DOCUMENTS AND REPORTS:

PID;3/80.
 Project Paper; 7/23/80.
 Project Paper (3/78); Project Evaluation (1/80); Consultant Reports (5/80; 6/80); Peat I (698-0410.09).

*Office Nationale de Tourbe, the Burundian peat parastatal agency.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					TOTAL	FUNDING BY YEAR					
			TA	A&S	TR	T&D	DS		FY78	FY79	FY80	FY 81	OYB82	CP83
Cape Verde 655-0005 Desalination and Power (Sal)	PH SD	Fossil Fuel	866	---	180	---	6744	7790	3145	---	---	900	600	---
Length of Project/PACD:		6 years; 12/31/84												
Contractor:		Ruhlin/ Wallace (joint venture)		Primary Activity: Power Generation(+ 50% of funds)					Secondary Activity: Desalination					

PROJECT PURPOSE:

To establish a basis for economic growth and acceptable standards of public health on Sal Island, by increasing the availability of potable water and electrical energy.

PROJECT SUMMARY:

The project provides for the design and construction of: (1) a seawater desalination plant (comprised of diesel engines driving electric generators, together with electrically-powered vapor compression desalination units), as well as support buildings, storage tanks and access roads; (2) a freshwater delivery system to three communities on the island; (3) a potable water distribution system to households, businesses and government consumers in the three communities; (4) a high-tension power delivery system connecting the water/power plant to the three communities; (5) an electrification system providing power to individual households, commercial and governmental facilities in the three communities; (6)*a sewage collection system and water treatment plants, and (7) an operation and maintenance program, including staff training and a system for measuring consumption, billing, payments, etc.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOVCV contribution includes all local costs for labor and materials, land for plant and irrigation sites and existing capital assets to be incorporated into the power distribution network, representing a total of \$2,498,000.

OTHER DONOR ACTIVITIES:

The FED, Holland and France have funded electricity production or distribution projects in the Cape Verde Islands.

*Deleted in project scale-down.

AID-FINANCED INPUTS:

1. Funding for design and construction of the power/water plant; the water and power delivery/distribution systems;
2. Technical assistance and training for Cape Verdean staff.

MAJOR OUTPUTS:

1. Up to 750 m³/day of potable water, and 50,400 kWh of electricity from a combined desalination/power plant;
2. A water delivery system for three communities;
3. Water distribution to households, businesses, etc.;
4. A power delivery system for three communities;
5. Electricity distribution to households, businesses, etc.;
6. Trained Cape Verdean staff;
7. An operation and maintenance program in place.

PROJECT STATUS:

The project was authorized on March 24, 1978. Phase I of the design, completed by Burns and Roe in November, 1979, projected costs at nearly \$9 million over the amount authorized; in December, 1980, an additional \$900,000 was authorized, and the PACD was extended for a scaled-down version of the project. In January, 1982, another amendment, for \$600,000 was authorized, and the PACD was extended until 1984. The final plant design has been completed, and contractors have been selected. All major equipment for the plant has been procured, and construction of the facility began in May, 1982.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 3/24/78 (approval date).
 Conceptual Design Documents; Burns and Roe; Paramus, NJ; 1979.
 Rubin, D.; "SHD Program/Assessment of Small Hydroelectric Potential in Cape Verde"; NRECA; Washington, D.C.; 1981 (not project-related).
 Engineering Study of Desalination Using Salt Gradient Solar Ponds; Burns and Roe; 1982.

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COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	TA	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					TOTAL	FUNDING BY YEAR				
				A&S	TR	T&D	DS	FY78		FY79	FY80	FY 81	OYB02	CP83
Sudan 650-0049 (K-603) Commodity Import Program FY 82	ESF	Fossil Fuel Renewable	275	---	---	---	19000	20000*	---	---	---	---	20000	---

Length of Project/PACD: 1 year; 11/83
Contractor: None

Primary Activity: Improved electricity generation
Secondary Activity:

PROJECT PURPOSE:

To provide foreign exchange for essential public and private sector imports and technical services, in order to help ease the Sudan's current foreign exchange crisis.

AID-FINANCED INPUTS:

1. Funds for commodities, equipment, spare parts, etc.;
2. Technical assistance.

PROJECT SUMMARY:

The project will provide balance-of-payments support; in the energy sector, this will be provided in the form of: (1) circuit breakers, transformers, reactive power compensation equipment, standby generators, computer software and other equipment, instruments and commodities for the Blue Nile Power Grid (\$19 million); (2) technical assistance for the improvement of the short-term reliability of the Blue Nile Power Grid (for the installation and establishment of operations and maintenance procedures/capability of transmission, mobile line construction and telecommunication equipment); (3) three person-months of technical assistance for work on specifications, installation and use of solar refrigeration units for Ministry of Health posts (\$45,000), and (4) two person-months of technical assistance to assist in the installation and proper use of petroleum-saving equipment for Sudan Airways.

MAJOR OUTPUTS:

1. Short-term reliability of the Blue Nile Electric Power Grid strengthened through installation of equipment and establishment of operations and maintenance procedures;
2. Solar refrigeration units installed in Ministry of Health posts;
3. Petroleum-saving equipment installed for Sudan Airways.

PROJECT STATUS:

This is a continuation of previous grants in FY80 and FY81; the program already has provided \$642,000 in assistance to the energy sector, for debris removal at the Rosieres dam. The FY82 grant was authorized on April 26, 1982, and the grant agreement was signed on May 14, 1982.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

Sudanese local currency generated as counterpart by public and private imports will accrue to the GRS for use in agreed priority development areas. This program is being coordinated with the activities of other donors (see below).

PROJECT DOCUMENTS AND REPORTS:

Program Assistance Approval Document; 2/23/82.

OTHER DONOR ACTIVITIES:

There is a GOS/IMF standby program; maximum net support from the IMF will total \$193 million. According to IMF/Bank of Sudan data, total official receipts of the GOS in 1980-81 from foreign sources (excluding IMF drawings) came to \$636 million; principal contributors were Saudi Arabia, Abu Dhabi, the Islamic Bank, France and the EEC. In January, 1982, at a meeting in Paris, donors pledged an additional \$250 million.

*Reflects energy-related expenditures only; total grant is \$100,000,000.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY						FUNDING BY YEAR						
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY81	OY82	CP83	
Mali 688-0202 Operation Mills (Solar Pump Component)	SH	Renewable	---	---	---	---	220	220	220	---	---	---	---	---	---
Length of Project/PACD:	5 years; 1981*														
Contractor:	None								Primary Activity:		Agricultural Production				
									Secondary Activity:		Installation of solar pumps				

PROJECT PURPOSE:

To increase agricultural productivity and to improve rural infrastructure; in this component specifically, to install two photo-voltaic pumps to provide water for village use.

PROJECT SUMMARY:

Operation Mills is an integrated rural development project designed to increase agricultural production and improve the quality of rural life in the region of Mopti, through use of improved grain varieties and technical inputs, and related activities such as functional literacy, health, road construction/maintenance and improvement of village water supplies. The original well construction program was revised in 1979, to provide: (1) construction of 30 wells driven by foot pumps, and (2) installation of two solar energy-driven pumps in villages where wells were equipped with non-functioning gasoline engine-generators.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The village of Bankass is paying a guard to watch the pump site.

OTHER DONOR ACTIVITIES:

There is another solar pump outside of Mopti, furnished by AID. Other donors active in solar pump projects in Mali include France, the FED, UNIDO and UNESCO (see Mali Renewable Energy, 688-0217; page 58).

*The solar pumps were funded under the original Operation Mills project, authorized in 1976, for \$5,989,000. Instead of requesting funding for the last two years, a project paper for a second phase was written, and is the basis for Operation Mills II (same project number), due to end in September, 1983.

AID-FINANCED INPUTS:

Funds for two sets of solar panels and pumps.

MAJOR OUTPUTS:

1. Two solar pumps installed and working;
2. Water for domestic and pastoral use.

PROJECT STATUS:

A source/origin waiver was approved on July 3, 1979, for two Guinard pumps. One pump has been installed in the village of Bankass, and is pumping approximately 100 m³/day. A small (2 m³) tank has been constructed to hold water, but is not sufficient; run-off is being used to make bricks. Operation of the solar panels has posed no problem, but there have been difficulties with the pump; these have been overcome by (1) ordering a supply of spare parts from the manufacturer, and (2) training a local mechanic to make repairs. Villagers are watering animals and carrying water to their homes for domestic use. Another pump will not be installed, as it was decided to purchase one large pump instead of the two smaller ones originally planned.

PROJECT DOCUMENTS AND REPORTS:

Project Paper (Phase I); 12/29/75; (Phase II: 7/12/79).
Action Memorandum; 6/28/79.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					FUNDING BY YEAR					CP83		
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81		OYB 82	
Mali 688-0213 Action Blé (Solar Pump Component)	SH	Renewable	---	---	---	---	220	220	220	---	---	---	---	---	---

Length of Project/PACD: 4 years; 6/30/82 (suspended)
Contractor: none

Primary Activity: Agricultural production
Secondary Activities: Installation of solar pumps

PROJECT PURPOSE:

To increase grain production through irrigation; in this component, to install two photovoltaic-powered pumps, to hasten the acceptability of solar pumps and demonstrate the economics of small solar pump irrigation.

PROJECT SUMMARY:

The Action Blé project is designed to increase grain production through the introduction of small farmer-owned and -operated irrigation systems in villages along a portion of the Niger River (in Mali's Sixth Region). One of the major project inputs is the installation of pumps--500 diesel-powered, 100 animal-driven flow pumps and five manually-operated pumps along the river perimeters. A solar pump for demonstration purposes was recommended in the Project Paper, to be located at the research station in Diré for irrigation of a 4-ha. plot and power for a small grain grinder and thresher; in 1979, this was revised to provide: (1) the pump at Diré, and (2) a second pump, in the pilot village of Bourem, to supply potable water.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

None of the GRM or French contribution to Action Blé is designated for this activity.

OTHER DONOR ACTIVITIES:

France has funded the solar energy-powered SOFRETES heat exchange irrigation pump, which became operational in July, 1979, pumping water to irrigate 150 ha. of wheat and supply drinking water in the Diré area.

AID-FINANCED INPUTS:

Funds for two sets of photovoltaic panels and pumps.

MAJOR OUTPUTS:

1. Two photovoltaic pumps installed and operating;
2. Water for agricultural and domestic use.

PROJECT STATUS:

A source/origin waiver for two Guinard pumps was approved on November 15, 1979.* As of July, 1982, a solar pump has been delivered to Diré, but not yet installed. In January, 1982, the AID/Mali Mission suspended funding of the project. An evaluation has been completed; the Mission has requested permission to redesign the project, including the solar pump component.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 4/78 (Annex VI: "Economics of Solar Pumps")
Action Memorandum; 11/13/79.
DeRafols, W.; "Project Action Blé-Diré, Economic Analysis";
4/82.

*The overall project was authorized on June 30, 1978.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					TOTAL	FUNDING BY YEAR					
			TA	A&S	TR	T&D	DS		FY78	FY79	FY80	FY 81	OYB 82	CP83
Senegal 695-0208 Bakel Crop Production (Solar Pump Component)	FN	Renewable	---	75	---	625	---	700	700	---	---	---	---	---

Length of Project/PACD: 5 years; 12/31/82
 Contractor: Thermo-Electron (USA); SOFRETES (France); SINAES (Senegal)

Primary Activity: Agricultural production
 Secondary Activities: Solar pump installation/monitoring

PROJECT PURPOSE:

To develop village-level irrigated perimeters; in this component specifically, to install an experimental solar energy pump to supply water for irrigated agriculture.

PROJECT SUMMARY:

The overall project will develop irrigated agriculture in the Bakel area, pumping water from the Senegal River and swamplands. In this component: (1) a 30-Kw solar pumping system will replace diesel units of equivalent pumping capacity, in order to supply water to a 200-ha. area already surveyed as part of the irrigated perimeters project. It will be installed near perimeters irrigated by diesel pumps for comparative study, and (2) in addition to on-going monitoring and evaluation, analyses will be undertaken of the sociological, environmental, institutional and economic impacts of the system, to provide information on the social and environmental aspects of the project.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

Part of the overall GOS project contribution will fund support services. The Government of France is contributing \$625,000 to the project for the pump, part of the turbine system, site construction, system assembly and technical assistance. The Thermo-Electron Company is contributing \$170,000 for the solar collectors.

OTHER DONOR ACTIVITIES:

France, Germany and the FED have funded solar energy projects in Senegal; French activities have included pastureland irrigation pumps and thermodynamic solar irrigation, as well as pumps to provide village water supplies.

AID-FINANCED INPUTS:

1. Technical assistance;
2. Hardware;
3. Studies and evaluation.

MAJOR OUTPUTS:

1. Operational solar pump providing water for irrigation;
2. Technical, economic and sociological evaluations.

PROJECT STATUS:

The project* was authorized on March 24, 1978, and implementation planning began in July, 1978. In March, 1981, a US contractor set up a monitoring and evaluation plan for the project; a sociologist has collected baseline data. Construction began in late 1980; the collector-mounting structures and installation of the collectors are completed; designs for the other components are finished. The system is expected to become operational by late 1982.

PROJECT DOCUMENTS AND REPORTS:

- PID, Project Review Paper; 1975.
- Project Paper; 5/15/77.
- Project Paper Amendment; 3/9/78: "Bakel Solar Pump."
- French, D.; "Social Monitoring of the Bakel Solar Pump"; AID/AFR/DR/SDP; Washington, D.C.; 1978.
- "Design for a Comparative Assessment of the Solar and Diesel Perimeters near Bakel, Senegal"; PCI; Washington, D.C. 1979.
- "Evaluation of Bakel Small Irrigated Perimeters Project"; Water Management Synthesis Team (AID); 1/82.
- Burrill, G.; "Bakel Solar Pump Evaluation"; 5/81.

*Refers to solar pump component only; the full project was authorized on 8/19/77, and the LOP funding is \$6,559,000.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY						FUNDING BY YEAR					CP83
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB 82	
Africa Regional 698-0414 Remote Sensing/ East Africa	FN	Natural Resources	1245	---	369	---	750	2364	---	750	540	550	750	400

Length of Project/PACD: 5 years; 2/28/83
Contractor: Spectral Data Corp.

Primary Activity: Training
Secondary Activities: Surveying/mapping/resources management

PROJECT PURPOSE:

To develop an operational Regional Remote Sensing Facility, to make satellite data and related resource technologies available to the countries of East and Southern Africa, and to train African resource managers and development planners in the utilization of these technologies.

PROJECT SUMMARY:

This project will establish a semi-autonomous branch of the Regional Centre for Services in Surveying and Mapping in Nairobi, which will provide the nine African member countries: (1) services in surveying and mapping, including aerial photography, photogrammetry, photo-interpretation and remote sensing; (2) training and assistance in the application of resource assessment technology (the project team includes a forester versed in forestry applications of remote sensing), and (3) information dissemination, keeping users in Eastern, Central and Southern Africa abreast of remote sensing developments and linking them with primary data sources.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The host organization, the Regional Mapping Center, will provide office, classroom, library and laboratory space, technical equipment and administrative support, valued at \$320,000, and provided by Kenya, Tanzania and Uganda. The UNDP is contributing \$1 million over a five-year period for a geodesy program, the Indian government is supporting a study of member country needs, and France is providing a remote sensing expert. The Canadian International Development Research Center (IDRC) is providing \$295,000. Pledges of nearly \$5 million in equipment have come from Switzerland, West Germany, Holland, Finland and Sweden.

OTHER DONOR ACTIVITIES:

The World Bank recently signed a \$130,000 contract with the facility for image processing in connection with a project in Zambia.

AID-FINANCED INPUTS:

1. Technical assistance from remote sensing specialists;
2. Training for counterpart lab technicians, in long-term US and short-term programs;
3. Funds for secretarial and administrative support staff;
4. Costs related to image processing;
5. Commodities; photographic, photo lab, image analysis, field and office equipment.

MAJOR OUTPUTS:

1. 500 Africans trained in the use of remote sensing technology;
2. A complete file of Landsat imagery of the region;
3. A functioning user assistance facility containing photo lab, reference materials, staffed by trained personnel;
4. 12-15 African countries assisted in the acquisition and use of Landsat imagery.

PROJECT STATUS:

The project was authorized on March 19, 1979; it is a continuation of an earlier project (931-1166), authorized in 1977. Two training courses have been completed. Photographs are being produced, and NASA imagery has been received. African contributions have equalled approximately \$800,000. About 45 organizations, 100 projects and 14 countries have used the facility, and over 270 Africans have been trained. Plans for construction of a headquarters building are being submitted. REDSO/EA is requesting a 16-month extension.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 3/19/79 (authorization date).
Evaluations: 6/80; 10/81 (AID/REDSO/EA, ST/FNR).

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					TOTAL	FUNDING BY YEAR					CP83
			TA	A&S	TR	T&D	DS		FY78	FY79	FY80	FY 81	OYB 82	
Africa Regional 698-0420 Remote Sensing/ West Africa	FN	Natural Resources	2242	---	257	---	---	2525*	770	100	500	235	1000	400
Length of Project/PACD:		5 years; 6/30/83		Primary Activity:		Training								
Contractor:		Spectral Data Corp.		Secondary Activities:		Surveying/mapping/resources management								

PROJECT PURPOSE:

To enable African development planners and resource managers to utilize Landsat and other satellite imagery in planning, implementing and monitoring a broad spectrum of agricultural, forestry, rangeland, ground water and other resource development projects.

PROJECT SUMMARY:

The project involves the establishment of a Remote Sensing Center, with headquarters in Ouagadougou, Upper Volta, in two phases: (1) establishment of a regional center with facilities for bi-lingual training, data handling, reproduction, and user assistance services, and (2) addition of a satellite reception station with the capability to receive and record data from Landsat and other satellites. (Technical experts include a forestry specialist.)

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The Government of Upper Volta has provided buildings and land valued at \$811,000, and is contributing toward local salary costs at the rate of approximately \$110,000 annually. Other African donors are expected to contribute \$78,000 toward salaries and operating costs. Experts from Canada, France, Upper Volta and the ECA served on the technical committee that designed the project. The AID contribution represents about 44% of first-phase costs, and approximately 30% of total project costs. Canada, the major external investor (+37% of total project costs), is helping to coordinate donor inputs. The US, France and Canada will coordinate contributions during Phase I; France is contributing short-term experts, expatriate salaries, capital and operating costs, amounting to \$811,000 and Canada is financing expatriate salaries, operating costs and capital costs, totalling \$504,000. Canada, France and Germany plan to finance the receiving station during Phase II.

OTHER DONOR ACTIVITIES:

There is a multi-donor remote sensing project in Senegal (see page 88).

*\$2,525,000 authorized to date; \$4,324,000 planned for full implementation.

AID-FINANCED INPUTS:

1. US consultant services;
2. Limited architectural design and construction (of a photo laboratory);
3. A portion of local staff salaries.

MAJOR OUTPUTS:

1. Photo lab and information center constructed and equipped;
2. User assistance services (21 geological, 11 monitoring and 6 agro-pastoral projects);
3. Students receiving training (107, introductory level; 40, advanced-level; 10, on-the-job);
4. Photo-lab products (340 work orders completed);
5. 20 user assistance resource studies completed.

PROJECT STATUS:

The project was authorized on September 14, 1977; the Center began operations in early 1978. Phase I goals are mostly completed. A photo laboratory, map file and library have been established. As of 1/1/82, 107 students had been trained. The forestry specialist is developing remote sensing techniques appropriate to West Africa forestry conditions, mostly in the savannah zone. Canada has required a programmed and positive African contribution prior to committing funds to Phase II; a US decision on Phase II participation will be made in the next year.

PROJECT DOCUMENTS AND REPORTS:

"Review of Landsat Remote Sensing Plans for Africa"; AID; 10/75.
 "Report of the Technical Committee to Define a Regional Remote Sensing Center at Ouagadougou, Upper Volta"; 12/75.
 PID; FY77 ABS; AID; Washington, D.C.; 7/75.
 Project Paper; 1977.
 21 reports written by students on hydrogeology, soils and other topics.
 Non-AID evaluations: 6/79 (ECA); 6/80 (CIDA).

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					FUNDING BY YEAR						
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB 82	CP83
Africa Regional 698-0247 Environmental Training and Resource Management	SD FN SH	Natural Resources	4366	240	3865	---	---	8500	---	---	408	2524	1250	500
Length of Project/PACD:		5 years; 9/30/85		Primary Activity: Training										
Contractor:		SECID, University of North Carolina, Clark University		Secondary Activities: Natural Resources Management										

PROJECT PURPOSE:

To establish training programs in Africa in environmental planning and resource management; to strengthen African institutional capabilities to improve the environmental information base, to identify priority environmental problems and to monitor environmental trends.

PROJECT SUMMARY:

In two broad areas, the project will provide: (1) training in 13 countries, through one-week national or regional seminars for policy-level government officials on major environmental problems and issues, medium-term training programs for working-level technicians to improve their capability to plan, manage and monitor programs, and long-term academic training for government and university personnel, and (2) resource management, through four country-specific environmental programs (Kenya, local environmental planning; Tanzania, environmental health; Botswana, drought monitoring and response systems; Sudan, desertification).

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The participating host countries will provide \$2.8 million, or the equivalent value of services for local-cost financing (salaries, per diems, etc.). Exploratory discussions have been held with other donors, including the UNDP, UNEP, UNESCO, World Bank and African Development Bank.

OTHER DONOR ACTIVITIES:

UNESCO has financed a study team to examine government structures dealing with the environment in Kenya.

AID-FINANCED INPUTS:

1. Funds for training and resource management programs;
2. Project development and support;
3. Technical assistance;
4. Evaluation.

MAJOR OUTPUTS:

1. A cadre of government officials Africa-wide, trained via short-term seminars, medium-length courses, topic reviews;
2. 15 individuals trained at African universities or other institutions;
3. Resource management programs in at least four countries:
 - (a) Sudan-environmental analysis of two provinces, environmental units at three universities, monitoring;
 - (b) Tanzania-environmental policy workshop, maps, field guides, environmental health monitoring system;
 - (c) Kenya-district monitoring program, district resource profiles, natural resource planning;
 - (d) Botswana-district data system and profiles, drought monitoring system, natural resource profiles.

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PROJECT STATUS:

The project was authorized in August, 1980. The East Africa regional coordinator arrived in Nairobi in January, 1981; the West Africa coordinator went to Abidjan in November, 1981. Four district profiles have been completed in Kenya, and a district seminar was held. Trend analysis and field data collection are under way in Sudan. Establishment of a documentation center and resource potential mapping are on-going in Tanzania. There is no activity in Botswana as yet. Six seminars have been held: "Heavy Metals and Pesticides" (Tanzania, 3/81); "Water Supply and Water Pollution in Kenya" (Kenya, 7-8/81); "Environmental Considerations for Regional Planning" (Tanzania, 11/81); "Environmental Impact on Development (Sudan, 11-12/81); "Energy and Environmental Management (Somalia, 1982); "Environmental Enhancement and Resource Management" (Kenya, 3/82)

PROJECT DOCUMENTS AND REPORTS:

PID; 7/79.
Project Paper; 3/80 (revised 7/80);
training manuals for each of the seminars listed above.
"ETMA Annual Report"; SECID; 12/31/81.
Evaluation; 6/82.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					FUNDING BY YEAR					CP83	
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81		OYB 82
Sahel Regional 625-0012 Gambia River Basin Development	SH	Natural Resources	2200	11,342	150	---	---	13,394	---	---	---	4000	4611	---

Length of Project/PACD: 4 years; 9/30/86

Contractor: Development Assistance Corp. (TA); Mark Hurd Co. (photography, mapping); to be chosen (environmental, socio-economic studies)

Primary Activity: Institution building
Secondary Activities: Environmental study

PROJECT PURPOSE:

To help the OMVG* become an effective coordinating agency for the development of the Gambia River Basin, through the creation of an effective planning division.

PROJECT SUMMARY:

This project represents the AID contribution to the pre-investment phase of an estimated \$511-million program which includes infrastructure (construction of two dams), production research and implementation. AID activity in this phase consists of: (1) the complete aerial photography, mapping and ground surveys of the basin, to provide land utilization and inventory data; (2) an environmental and socio-economic study to collect data for planning, predicting impacts of dam construction and evaluating the economic feasibility of proposed activities for donor investment (this component includes wildlife and vegetation studies); (3) provision of long-term technical assistance, and (4) provision of on-the-job and long-term US academic training for OMVG personnel.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The OMVG will provide four counterpart technicians to the AID team, office space, secretarial assistance, access to office equipment and translation services. The UNDP has committed about \$4 million for pre-investment assistance.

OTHER DONOR ACTIVITIES:

A UNDP multi-donor mission, including French, British and US experts, with the participation of Senegalese and Gambian technical office representatives, produced an Action Plan for the basin (AID funded all of the printing and a portion of the technical assistance). The EEC, Islamic Development Bank, African Development Fund and West Germany have pledged a total of \$64 million for construction of the Yelitenda Barrage; West Germany has indicated its intention to fund a feasibility study of the Kekreti Dam. Saudi Arabia, Kuwait, Abu Dhabi, France and Canada have expressed interest in the agricultural research and production projects.

AID-FINANCED INPUTS:

1. Technical assistance (an environmentalist, a sociologist, a natural resource economist and a river basin planner);
2. Short-term consulting;
3. Funding for evaluations and studies;
4. Training;
5. Commodities and supplies.

MAJOR OUTPUTS:

1. Ground surveys, aerial photographs, planimetric photomaps;
2. Environmental study (including river resources, public health and wildlife/vegetation components);
3. Socio-economic study;
4. Cadre of trained OMVG staff.

PROJECT STATUS:

The project was authorized on May 27, 1981. The aerial photography and mapping contract has been signed and work has begun. Proposals for the socio-economic and environmental studies are being reviewed. Three of the long-term technicians are due to go into the field shortly. OMVG headquarters moved to Dakar as of July, 1982. Since the project was designed, Guinea has joined the OMVG, and studies are being undertaken to add it to the basin development program.

PROJECT DOCUMENTS AND REPORTS:

- Project Paper; 5/81.
UNDP Multi-Disciplinary Multi-Donor Reports; New York:
-Draft Action Plan, 12/79;
-"Development of the Gambia River Basin" (2 vols), 5/80;
-Preliminary Pre-Investment Action Plan for Senegal and the Gambia, 11/80;
-Preliminary Pre-Investment Action Plan for Guinea, 2/82.

*Organisation pour la Mise en Valeur du Fleuve Gambie, composed of the Gambia, Senegal, and most recently, Guinea.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY						FUNDING BY YEAR					
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB 82	CP83
Sahel Regional 625-0911 CILSS Ecologist*	SH	Natural Resources	224	---	---	---	---	224	---	---	---	---	224	---

Length of Project/PACD: 2 years; 1983
Contractor: PSC

Primary Activity: Natural resource management
Secondary Activities: Institution building

PROJECT PURPOSE:

To fund an ecologist who will assist the CILSS Secretariat in planning and implementing their program, especially in anti-desertification and environmental restoration.

PROJECT SUMMARY:

AID will provide a contractor to assist the CILSS through: (1) participation in multi-disciplinary project/program design teams, to provide an ecology input; (2) provision of advice to national services of member states, in the development and management of natural resources; (3) participation in CILSS-supported working groups, to assure that consideration is given to ecological issues, and (4) performance of environmental impact studies.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

There are no other contributions, except those to the CILSS ecology/forestry working group (see below).

OTHER DONOR ACTIVITIES:

Other donors supporting the CILSS ecology/forestry working group include France, West Germany, Switzerland and Holland.

*The correct title of this project is Sahel Regional Aid Coordination and Planning, of which this is a sub-activity. The project is designed to assist key Sahelian and international organizations; direct beneficiaries are the CILSS, the Sahel Institute, the Club du Sahel Secretariat and the FAO. Total project funding is \$12,274,000, of which an estimated \$800,000 goes to forestry and ecology activities.

AID-FINANCED INPUTS:

Salary, transport and support for one ecology advisor.

MAJOR OUTPUTS:

1. CILSS projects planned with consideration for environmental concerns;
2. Environmental impact studies for projects;
3. Quarterly and final reports.

PROJECT STATUS:

A forester served in this position from 1978 to 1980. A contract to replace him with an ecologist was signed by AID/W on December 30, 1981; the contractor arrived in Upper Volta the following month.

PROJECT DOCUMENTS AND REPORTS:

Contract; 10/81.

COUNTRY PROJECT # TITLE	A.P. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					TOTAL	FUNDING BY YEAR					
			TA	A&S	TR	T&D	DS		FY78	FY79	FY80	FY 81	OYB82	CP83
Sahel Regional 625-0915 Niger River Basin Development Planning	SH	Natural Resources	360	705	155	---	130	1850	1350	---	---	500	---	---

Length of Project/PACP: 7 years*; 12/31/85
Contractor: None

Primary Activity: River Basin planning
Secondary Activity: Forestry/natural resources management

PROJECT PURPOSE:

To establish the analytical base and planning framework for the preparation of the indicative basin plan and investment program; to commence the process of strengthening the institutional capability of the Niger River Basin Commission (RNC**), to carry out an effective program of planning and development.

PROJECT SUMMARY:

The project will: (1) gather and analyze available information on all aspects of the Niger River Basin, through a comprehensive Diagnostic Study; (2) provide the initial expatriate technical advisory assistance required for the RNC Executive Secretariat to prepare an Indicative Plan for the use of land, water and human resources, and a five-year Action Program to provide the basis for long-term, multi-national support to the RNC; (3) provide advice, guidance and on-the-job training to the indigenous staff of the RNC; (4) initiate short- and long-term academic training for member state nationals serving as permanent RNC staff; (5) provide technical equipment, logistic support and architectural designs for the physical plant of the RNC, necessary for efficient execution of the action program.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The RNC will contribute \$484,000. The US, Canada, France and the UNDP are the major donors for the start-up phase, and will provide all expatriate staff. Canada will contribute the equivalent of \$1.5 million, to finance activities in agriculture, water resources, engineering, environmental/health studies, and training. France will contribute \$1.16 million, to fund the development of a mathematical model, mapping and a study of the anomalies of inland deltas. The FED, UNDP and OPEC will share the preparation of hydrological forecasting reports; the UNDP will fund the preparation of the diagnostic study, atlas and action program.

OTHER DONOR ACTIVITIES:

Canada and the World Bank carried out early project planning.

*The active LOP in the 1977-82 period has been approximately two years.

**Composed of Guinea, Mali, Upper Volta, Ivory Coast, Niger, Chad, Cameroon, Benin, Nigeria. In 1980, the name was changed to the Niger Basin Authority (NBA).

AID-FINANCED INPUTS:

1. Funds for studies (agriculture, topography, mapping, remote sensing, education/training, social survey research);
2. Staff for the RNC;
3. Long-term academic training for RNC Executive Secretariat staff, short-term observational tours, third-country training;
4. Contract services for the Executive Secretariat facility;
5. Consulting services to do feasibility studies on the establishment of an economic survey research unit at RNC.

MAJOR OUTPUTS:

1. A Diagnostic Study, Indicative Plan and Action Program;
2. Commission functioning with trained, high-level personnel and technical staff;
3. Physical facilities constructed and equipped.

PROJECT STATUS:

The project was approved in May, 1977; progress was minimal until 1980. The original goal of a diagnostic study has been changed to a two-year development plan. A \$500,000 amendment was authorized on September 4, 1981, to permit the Army Corps of Engineers to do a River Systems Analysis; a contractor is being chosen. Teams have made study trips to the US to visit irrigation, dam and navigation projects. Three hydrological engineers and one water resources administration specialist have completed US training.

PROJECT DOCUMENTS AND REPORTS:

Project Review Paper; 11/75.
Project Paper; 5/77.
Amendment; 8/81.
non- "Development of the Niger River Basin"; World Bank; 6/75.
AID: "Two-Year Development Plan, 1981-83"; RNC; Niamey.
"Prospective Indicative Development Plan; RNC; Niamey.
"Modele Mathematique du Fleuve Niger, Cartographie"; Institut Geographique National; Paris; 1980.
"Les Grands Bassins Fluviaux et Lacustres du Sahel"; CIDA; Ottawa, Canada; 12/80.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY						FUNDING BY YEAR					
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OY802	CP83
Sahel Regional 625-0917 Sahel Water Data Net- work Management I	SH	Natural Resources	1300	---	267	---	2693	6268*	1711	954	1313	---	---	---
Length of Project/PACD:		5 years; 9/30/82						Primary Activity:		Natural resources management				
Contractor:		PASA (National Oceanic and Atmospheric Administration, NOAA)						Secondary Activity:		Institution building/training				

PROJECT PURPOSE:

To provide the CILSS countries with a capacity for gathering, processing and disseminating hydrological and agrometeorological data, at both the national and regional levels, to help increase agricultural productivity and provide an early warning system against future floods and droughts.

PROJECT SUMMARY:

The project consists of: (1) eight "national projects," to establish and/or rehabilitate and expand existing national hydrological and meteorological data measuring and communications networks (to permit timely reporting and interpretation of data); to train technicians staffing national headquarters to process and interpret data; to involve user agencies in data processing, interpretation and dissemination, so that it can directly benefit agricultural planners, herders and farmers, and (2) a "regional project" to establish a Regional Training and Applications Center in Niamey, Niger (with links to the national centers), which will provide training of engineers, technicians and personnel specializing in radiometry, data processing, etc., with an agricultural orientation to expand and strengthen technical capabilities; and provide data interpretation, forecasting and "early warning" services for the region. AID assistance will be focused on technical assistance, equipment procurement and training for high technology telecommunications and data processing systems for the regional and national facilities.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The CILSS countries were slated to contribute nearly \$14,000,000, primarily for the expansion of national services. Other donors include: UNDP (\$11,725,000 for technical assistance, training, equipment and operational support); The Netherlands (\$3,283,000 for similar inputs); Belgium (\$912,000 for data bank equipment and technical assistance); Switzerland (\$265,000), France (\$155,000), and West Germany (\$100,000).** The World Meteorological Organization of the UN is the executing agent for the project.

OTHER DONOR ACTIVITIES:

The WHO and UNDP have funded meteorological and hydrological studies of the Sahel prior to the project.

*The figures for the components are based on those in the Project Paper, and will not add up to the amended LOP authorization.

**Figures for other donor contributions are taken from the Project Paper for Phase II (625-0940), and represent actual contributions up to the time of its preparation (1981).

AID-FINANCED INPUTS:

1. Technical advisor for installation and maintenance of equipment and instruments, data processing specialist;
2. US training in data processing, equipment, maintenance etc. (15 person-years);
3. Weather-measuring, data processing and telecommunications equipment and instruments for national stations and regional centers;
4. Limited construction costs.

MAJOR OUTPUTS:

1. Eight fully-staffed and -equipped national water and weather data information networks;
2. National and regional weather forecasts and information;
3. Regional Center constructed and equipped to house 50-100 trainees;
4. Data processing, interpretation and research facilities;
5. Staff trained to carry out data-related functions;
6. Two satellite training/experimentation farms;
7. Research on agroclimatology for Sahelian West Africa.

PROJECT STATUS:

The project was authorized on May 23, 1976. The AGRHYMET Regional Center main building is completed and became operational in the spring of 1981; the Center is training about 50 Sahelians/year in data processing, agricultural applications, etc. The generator building is planned for completion this summer. Five or six Sahelians have finished US training and are on-site in Niamey and other locations; 14 are currently studying. One US technical expert is on-site. Data processing and telecommunications equipment is fully operational in Senegal, the Gambia, Mali and Niger, transmitting data to each other and the regional center. Some installation has been completed in Upper Volta; equipment has arrived in the Cape Verde Islands, and installation is expected to begin shortly.

PROJECT DOCUMENTS AND REPORTS:

"Programme for the Strengthening of the Agrometeorological and Hydrological Service in the Sudano-Sahelian Zone"; WHO/UNDP/CILSS; 1975.

Project Paper; 4/24/76.
Evaluations; 3/78, 3/80.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY						FUNDING BY YEAR					
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB 82	CP83
Sahel Regional 26-0949 Sahel Water Data Net- work and Management II	SH	Natural Resources	1710	---	1075	---	4215	7000	---	---	---	---	1300	1250
Length of Project/PACD:		5 years; 9/30/87												
Contractor:		PASA (NOAA)												

Primary Activity: Natural resources data collection
 Secondary Activities: Institution building/training

PROJECT PURPOSE:

To complete the development of a regional Sahel agrometeorological and hydrological data system to record, process, interpret, transmit, disseminate and document complete, timely and accurate weather and climatic information for farmers, herders, planners and other users.

PROJECT SUMMARY:

During Phase I, the establishment of an AGRHYMET training and data processing center in Niamey, Niger, AID assistance was focused primarily on high technology telecommunications and data processing and analysis. Phase II will complete and consolidate the national and regional components into an operational network; this will include field observation stations continuously recording and reporting data through modern transmission and receiving systems, data verification and analysis at the national and the Niamey regional centers, and dissemination of the data to primary producers and planners. AID assistance will continue to be directed towards: (1) technical assistance, for the installation and maintenance of equipment and instruments that AID is contributing to the regional and national facilities, and for data processing; (2) equipment procurement, for installations in participating countries, of instruments, telecommunications and data processing systems (focuses on a VHF-FM system for continuous weather broadcast); (3) training, of instrument/computer maintenance technicians and programmers, systems analysts and computer scientists, and (4) operational support, specifically for the prototype user trial and demonstration facility, and a series of seminars and workshops.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The CILSS countries will provide approximately \$21,239,000, primarily for equipment, training and construction; other donors will provide about \$38,321,000. The World Meteorological Organization of the UN is the executing agent of the project. In addition to Phase I donors--UNDP, The Netherlands, Belgium, Switzerland, France and West Germany--new donors are being sought.

OTHER DONOR ACTIVITIES:

The University of Reading, England, has begun a three-year study of the use of digital satellite data for interpolation between sparse rainfall-measuring stations, and for the operational mapping of soil moisture conditions; the project was designed in collaboration with AGRHYMET.

AID-FINANCED INPUTS:

1. Technical assistance;
2. 40 person-years of US training in instrument/computer maintenance and all aspects of computer sciences;
3. Data processing and telecommunications equipment, instruments, spare parts (possibly solar cells to replace small diesel generators);
4. Construction of support structures for a data-processing facility;
5. Operational support.

MAJOR OUTPUTS:

1. Regional Center training capacity enlarged (to total of
2. Personnel trained and replacing expatriate technical experts at Regional Center;
3. Observation stations in six CILSS countries outfitted and/or rehabilitated;
4. Telecommunications network within six member countries operational and linked with Regional Center;
5. Data processing and dissemination equipment in place in Regional and country facilities;
6. Development and experimentation of practical applications expanded from Phase I.

PROJECT SUMMARY:

In April, 1981, a multidisciplinary mission was organized to prepare the 1982-86 integrated Programme. The AID project was authorized on February 16, 1982, and will begin operations as Phase I funding is exhausted in the coming months. For results to date, see the preceding page (625-0917).

PROJECT DOCUMENTS AND REPORTS:

"Programme for strengthening the Agrometeorological and Hydrological Services of the Sahelian Countries; CILSS/WMO; 1981. PID; 3/81. Project Paper; 8/13/81.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY						FUNDING BY YEAR					
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB82	CP83
Sahel Regional 625-0929 NAS Advisory Committee on the Sahel	SH	Natural Resources	250.4	34.6	---	---	---	285	---	---	---	285	---	---

Length of Project/PACD: 1.5 years; 3/15/83
 Contractor: National Academy of Sciences (NAS)

Primary Activity: Species trials
 Secondary Activity: Institution building

PROJECT PURPOSE:

To conduct a comprehensive baseline study and develop a strategy for the rehabilitation of the Sahel's ecosystems; to broaden the range of resources which can be employed to increase the stability and productivity of Sahelian agro-sylvo-pastoral systems.

PROJECT SUMMARY:

The contract will support: (1) formal trials of 20 species (tree legumes, including acacia albida, senegal, etc.) in 10 low-precipitation sites, to assess growth and survival, and to compare species groupings in the various ecological provinces (to determine the relationship between site variables and species). The trials will be carried out in conjunction with AID projects primarily; (2) informal species trials for trees, shrubs and new crops (includes South African camphor, native and other species); (3) preparation of two reports--one on "Environmental Change and Recommendations for Rehabilitation" (covering a long-term overview, a study of short-term human impact on the environment, interpretation of documented environmental change in relation to the current status of the Sahelian environment and identification of projects that would restore critical ecological processes), and the other on Agroforestry (social and institutional aspects, technical arguments for and against, project identification approaches, appropriate bio-resources for dry-region agroforestry systems, list of appropriate species); (4) creation of a West African Microbiological Resources Center (MIRCEN) to provide Rhizobium and other inocula for legumes, and (5) strengthening of the capability of the Sahel Institute's environmental unit, through participation in project activities.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

There are no other monetary contributions. Sahelian, Canadian, French and Ghanaian scientists will serve on panels and committees for the project. Collaboration will be undertaken with West German seed trials projects, the Canadian International Development Research Center (IDRC), and the Swiss-based International Union for Conservation of Nature (IUCN).

OTHER DONOR ACTIVITIES:

Two Swiss and one Lutheran World Service project will implement project-related seed trials. The FAO is conducting seed trials at two sites in the Cape Verde Islands. France, Canada and Germany are funding trials in Senegal; France is supporting similar activities in Upper Volta.

AID-FINANCED INPUTS:

1. Salaries, overhead and travel for Washington-based NAS staff;
2. Seed procurement and shipment;
3. Studies.

MAJOR OUTPUTS:

1. Seed dissemination and species trials conducted;
2. Data on germination and plant percentages, initial growth and survival collected;
3. Studies on environmental change in the Sahel and agro-forestry.

PROJECT STATUS:

The original contract was signed in 1977, and received non-funded extensions until July, 1981; this funded extension was signed on July 24, 1981. Species have been selected, and will be tested at the following project sites: Cape Verde (Flamengos or Saltos Valley); Mali (Bandiagara, Fatama); Mauritania (Boutilimit, Nouakchott, Selibaby); Niger (Guesselbodi, Tanout District); Senegal (Bandia, St. Louis). Seeds were sent out in May, 1982. Draft studies of "The Human Impact on Sahelian Eco-Systems" and "Long-term Bio-climatic Change in the Sahel" are being prepared for a synthesis meeting scheduled for August, 1982.

PROJECT DOCUMENTS AND REPORTS:

Action Memorandum; 7/24/81.
 NAS Memoranda; 4/12/82; 5/3/82.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					FUNDING BY YEAR					CP83	
			TA	AAS	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81		OYB 82
Cape Verde 655-0006 Watershed Management	SH	Natural Resources	214	50	38	---	4698	6275	---	1000	1457	2057	1761	---

Length of Project/PACD: 3.5 years; 3/31/83
Contractor: PASA

Primary Activity: Soil conservation
Secondary Activities: Conservation tree planting (+5% of total)

PROJECT PURPOSE:

To assist the Government of Cape Verde to establish an initial short-term, and continuing long-term watershed management plan, as well as a pilot agricultural extension service for small-scale farmers.

PROJECT SUMMARY:

Implemented on Santiago Island, the project will: (1) fund works which prevent hillside and valley erosion and ultimate loss of topsoil to the sea; (2) provide employment for Cape Verdeans for the construction of such labor-intensive soil and water conservation works; (3) strengthen the Directorate of Conservation and Natural Resources (DCNR), so it can plan, design and construct soil and water management projects, and inventory water resources; (4) with the cooperation of the DCNR, support preparation of watershed management plans for four drainage basins where the project will be implemented, and (5) initiate an agricultural extension service on a pilot basis, including the training of extension agents.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOCV will contribute land, personnel, logistics support, equipment maintenance and nursery stocks estimated at \$1,621,000.

OTHER DONOR ACTIVITIES:

A Belgian Government project concerned with forestry development includes plans to plant 1,350 ha. of trees, and establish test plots of several species. The Swiss Government, UNDP and FAO have projects complementary to this AID effort. AID will provide equipment to a soils mechanics laboratory, which the FED is funding.

AID-FINANCED INPUTS:

1. Technical assistance in soil and water conservation, and for the establishment of the pilot extension service;
2. Training in soil conservation and agricultural extension;
3. Equipment and commodities for field, office, extension svces.;
4. Labor costs for 3,000 workers building conservation structures.

MAJOR OUTPUTS:

1. Watershed Management Plans for four stream basins;
2. Over 2,000 ha. of improved rainfed farmland, 90 ha. of irrigated land, and 225 ha. of newly-formed alluvial land made available;
3. Low retaining walls, check dams, catchment dams and groins constructed;
4. Small (+10,000-seedling) nursery;
5. Extension program established.

PROJECT STATUS:

The project was authorized on July 30, 1979; delays caused by difficulties in contractor recruitment were remedied through a PASA with the USDA; an agricultural extension expert and a soils/water conservation specialist arrived in Cape Verde in mid-1981. The conservationist has begun work on topographical surveys of the four watershed areas. Aerial photographs are being developed. The extensionist has established working contacts with approximately 100 farmers. An evaluation is planned for the fall of 1982.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 1979;
Dimanche, P.; "Watershed Management Report"; 5/78.
Sparrow, G.B. and Stroehlein, J.L.; "Draft Report for Cape Verde Watershed Management" Utah State University; 6/79.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY						FUNDING BY YEAR					CP83
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB 82	
The Gambia 635-0202 Soil and Water Management Unit	SH	Natural Resources	2099	---	146	---	92	2337	---	251	---	834	---	1230

Length of Project/PACD: 5 years; 12/31/82.*
Contractor: PASA

Primary Activity: Natural resources planning
Secondary Activities: Institution building

PROJECT PURPOSE:

To assist the Government of The Gambia in addressing the problems of soil depletion, environmental damage and loss of productivity inherent in the current agricultural system; to institutionalize soil and water management capability within the Ministry of Agriculture and Natural Resources (MANR).

PROJECT SUMMARY:

In three phases marked by an increasing transfer of responsibility from American to Gambian technicians, the project will assist the GOTG in the establishment of a Soil and Water Management Unit (SWMU), which will: (1) assist the MANR in the development of national policies and programs for improved soil and water management practices; (2) provide basic soil and water management expertise and support to all departments of the MANR; (3) develop an operating procedure that is effective in providing on-the-land technical service to Gambian farmers; (4) develop a technical guide for soil conservation; (5) train agricultural assistants, and selected employees in problem identification, planning, implementation and evaluation, to apply solutions to soil and water problems at the national and local levels. The project also provides for the development of technologies for improved agricultural/pastoral methods consistent with Gambian abilities and resources (village-level actions include resource inventories, soil surveys, wood resource utilization planning, such as location of woodlots on the basis of soil suitability).

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOTG will pay 20% of total costs over 10 years, and up to 25% during the first phase, for personnel, transportation, land, construction, supervision, maintenance and utilities. British soil and water seminars will be held in conjunction with the project.

OTHER DONOR ACTIVITIES:

Efforts under this project will be coordinated with the Gambia River Basin Project (see page 76).

*A request for a five-year extension of the project is awaiting approval.

AID-FINANCED INPUTS:

1. Technical assistance from a conservation planner, a plant ecologist with range management/forestry experience, and a soils scientist;
2. Short-term consultants;
3. On-the-job and US academic training (includes one forestry slot), courses and field seminars in the Gambia;
4. Equipment and commodities;
5. Construction of staff housing.

MAJOR OUTPUTS:

1. Soil and Water Management Unit established;
2. Soil and water management policy statements & guidelines;
3. Technical soil and water management manual;
4. Staff trained to conduct village planning and programs;
5. Village planning and action programs operational;
6. Soil and water management problems in 10-15 villages solved through applied activities;
7. Training curriculum for staff.

PROJECT STATUS:

The project was authorized on February 28, 1978. The SWMU has been established and is functioning. A director and professional and support staff have been selected. Short- and long-term US and in-country training has been held for staff. Conservation plans have been developed for three villages; testing of conservation practices has been carried out. The project was evaluated in January, 1982.

PROJECT DOCUMENTS AND REPORTS:

PID, Project Review Paper; 1976.
Project Paper; 2/28/78 (approval date).
Evaluation; AID/W; 2/82.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					TOTAL	FUNDING BY YEAR					CP83
			TA	A&S	TR	T&D	DS		FY78	FY79	FY80	FY 81	OYB 82	
Kenya 615-0172 Arid and Semi-Arid Lands Development (Kitui)	FN	Natural Resources	7409	600	1000	---	2837	13,000	---	4179	2000	---	---	682

Length of Project/PACD: 5 years; 12/31/84
 Contractor: Louis Berger International

Primary Activity: Natural resources planning
 Secondary Activities: Institution building

PROJECT PURPOSE:

To increase the ability of the Government of Kenya to plan and implement programs that address the problems of Kenya's Arid and Semi-Arid Lands (ASAL) at the national and district levels, with a focus on the Kitui District.

PROJECT SUMMARY:

The project has three components: (1) planning for ASAL development, by strengthening the capacity of Kenya's ASAL planning organization to carry out sound planning; (2) data collection and analysis for ASAL development, to help the GOK gather and analyze basic data for carrying out ASAL development programs, and establish procedures for interpretation, evaluation and storage (includes production of aerial photographs and ortho-photo maps, pre-investment resource inventories and six feasibility and design studies, including afforestation and tree nurseries in the Kitui District); (3) soil and water conservation, covering manpower development, implementation and work procedures for the delivery of technical services, land development through protection against erosion, improvement of applied technology through development of standards of technology for soil and water conservation. The latter will be developed through a pilot soil and water conservation program in the Kitui District (components include a 350-acre soil and water conservation demonstration farm and training program, and a forestry program).

HOST COUNTRY AND OTHER DONOR ACTIVITIES:

The GOK will provide \$5,645,000 for personnel, office space, part of construction costs, etc.

OTHER DONOR ACTIVITIES:

The EEC will provide \$29,000,000 for a 10-component project in the Baringo District, similar to this project. The World Bank is funding a similar project in the Machakos District adjacent to Kitui; 70% of the funds are for forestry development. Great Britain is supporting activities in three districts, and the Norwegian development agency is working in two arid districts. The project is being coordinated with activities of the Kenya Renewable Energy Project (615-0205) in the Kitui region, especially in reforestation and nursery maintenance.

AID-FINANCED INPUTS:

1. Advisors for planning pre-investment resource inventories, aerial photography and remote sensing imagery;
2. Short training courses;
3. Construction of staff housing;
4. Labor and transport for nurseries;
5. Aerial photography;
6. Vehicles and equipment.

MAJOR OUTPUTS:

1. Increased GOK capacity and capability for planning for ASAL use (represents 82% of the country);
2. Increased capacity to store, interpret, evaluate data;
3. Data base established;
4. Aerial and orthophoto maps, resource inventories;
5. Proven conservation practices applied in Kitui District;
6. 8 nurseries improved, reforestation increased in Kitui.

PROJECT STATUS:

The project was authorized on August 27, 1979. The team arrived in the fall of 1981. One group is working with the ASAL unit in Nairobi, and is currently involved in preparation of an inventory for the Laikipia District. The other group is in Kitui, where they are training staff in soil and water conservation techniques, and have completed a rural roads development study and the first phase of a water resource master plan. Participants have been identified and interviewed for US study through Texas A&M University (sub-contractor). A Peace Corps Volunteer has been recruited for nursery maintenance.

PROJECT DOCUMENTS AND REPORTS:

- Project Paper; 1978.
- Caton, D. et. al.; "ASAL Systems Study and Strategy Development"; 3/78.
- Thung, H.L.; "Aerial Survey Sub-Component of the ASAL Project"; 4/80.
- "ASAL Development Project Inception Plan"; Louis Berger, Intl.; Nairobi, Kenya; 1/82.
- "ASAL Roads Network, Kitui District Feasibility Study"; Berger/Wanjohi Consulting Engineers; Nairobi, Kenya; 5/82.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY						FUNDING BY YEAR					CP83
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB 82	
Mali 688-0202 Land Use Inventory	SH	Natural Resources	2866	544	214	---	1370	4994	2200	669	400	1725	290	---

Length of Project/PACD: 4 years; 12/31/83
 Contractor: Tippet-Abbet-McCarthy-Stratton (TAMS)

Primary Activity: Natural resources management
 Secondary Activities: Institution building

PROJECT PURPOSE:

To provide the Government of the Republic of Mali with the technological basis for the rational allocation of natural resources, through the performance of a land and water resources inventory, and the development of Malian capability in natural resources inventorying and planning.

PROJECT SUMMARY:

The project will provide the GRM with: (1) a reconnaissance-level (1:200,000) resource inventory and evaluation incorporating information about soils, vegetation, water resources and present land use. In addition to the assembly of existing data, fieldwork and mapping activities, this component includes research and development (ground associations, projections, etc.); (2) training to develop Malian capability to undertake resource inventory and evaluation on an institutional basis, through counterpart training in vegetation/soil conservation, followed by US training for some counterparts.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GRM is providing \$100,000 and counterpart personnel to staff the GRM Office of Resource Evaluation. France is contributing technical assistance (two technicians; one in geohydrological mapping, and another in tropical agronomy), valued at approximately \$313,000).

OTHER DONOR ACTIVITIES:

In the past, France has funded land use planning projects. In January, 1980 an international Workshop on Ecology and Environmental Programs in the Sahel was held in Bamako, sponsored by AID and the Sahel Institute. Participants, including representatives of the CILSS Ecology/Forestry team and UNSO, worked on the development of a project to collect and analyze information to monitor ecology and environment research activities in the region (Canada has offered support for this project); the activities are complementary to the actions undertaken by this project. AID also sponsored a staff workshop on "Sahel Resources Inventory and Mapping Coordination" in May, 1982.

AID-FINANCED INPUTS:

1. Technical assistance from soil scientists, range ecologists and a resource planner;
2. On-the-job and long-term training in soil science, range ecology, tropical agronomy, etc.;
3. Equipment and vehicles.

MAJOR OUTPUTS:

1. Land use maps for different agro-ecological zones in Mali;
2. Detailed descriptions of soil and vegetation characteristics to accompany each map;
3. Estimates of crop and range potential (tabular data);
4. Institutional capability for land use data collection and project planning;
5. Malians trained on the job (13) and at the masters' level (4).

PROJECT STATUS:

The project was approved on August 15, 1977; a contract with TAMS was signed in November, 1979, and the TAMS team arrived in January, 1980. In January, 1981, a \$1.111-million project paper supplement was authorized; in June, 1981, an amendment to increase the funding by \$600,000 and extend the PACD was approved. To date, final population and soils/vegetation maps have been completed, as has an agroclimatic analysis. Fieldwork is due to be completed by June 30, 1982; preparation of the final report and atlas is under way. Training activities are on-going. The Mission has requested a 2-year continuation of the project, to help the GRM apply project outputs to the planning of other development projects.

PROJECT DOCUMENTS AND REPORTS:

Project Review Paper; 7/75.
 Project Paper; 1976.
 Amendments; 9/5/78, 1/26/81, 6/1/81.
 Evaluation; 12/80.
 TAMS Quarterly Reports; TAMS; New York, NY.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY						FUNDING BY YEAR					
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	DY8 82	CP83
Mauritania 682-0205 Renewable Resource Management	SH	Natural Resources/ Fuelwood	1208	1100	285	---	2593	4678	250	325	275	1278	---	1800
Length of Project/PACD:		5 years; 9/83												
Contractor:		Remote Sensing Institute, South Dakota State University					Primary Activity:		Analysis/Planning/Training					
							Secondary Activities:		Reforestation for Fuelwood (+52% of funds)					

PROJECT PURPOSE:

To develop an ecologically and socially sound, integrated plan for the management and conservation of renewable resources in Mauritania, in order to halt the deterioration of the renewable natural resource base.

PROJECT SUMMARY:

The project consists of three major components: (1) a renewable resources survey to establish baseline data for a national renewable resources plan, which will serve as the basis for development of project activities; (2) implementation of these experimental activities (including sand dune stabilization, range management, reforestation and forest management), to test the feasibility of specific resource conservation and renewal interventions, and (3) long-term training in resource management, extension and resource personnel management; and short-term training in extension methods and landsat and aerial photography interpretation.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GIRM will contribute a total of \$788,000 to the project, primarily in-kind for personnel, land, water rights, tree seedlings and use of equipment.

In September, 1979, an international Mauritania Environmental Workshop was held, undertaken at the request of AID and the Mauritanian Ministry of Rural Development. Following visits to the principal environmental zones of the country, workshop participants generated a list of actions to halt environmental degradation, in the form of project recommendations which have been submitted for consideration by the CILSS, the International Union for Conservation of Nature and Natural Resources, and the UN Sudano-Sahelian Office (UNSO).

AID-FINANCED INPUTS:

1. Two technical assistance teams, one to carry out the resource survey and another to implement activities in re-vegetation, range management, reforestation and extension;
2. US and in-country training for Mauritanian technicians;
3. Equipment, commodities, vehicles, housing construction.

MAJOR OUTPUTS:

1. National resource survey and inventory;
2. National management and conservation program;
3. Mauritians trained in resource management and planning, extension methodology and landsat photo interpretation;
4. Two dune stabilization areas;
5. Two well/vegetation grazing reserves;
6. Forest reserves survey and reforestation program.

PROJECT STATUS:

The project was authorized on March 30, 1978. Six Mauritians have completed training at South Dakota State. The resource survey has been conducted, and two pilot interventions were begun in 1981. A nursery has been built at each site, and more than 100,000 pots are ready to be seeded. An amendment to extend the project and incorporate elements originally proposed as the Environmental Restoration Project (682-0220) was withdrawn (2/82). A set of revised objectives is being developed during June, 1982.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 3/78.
682-0220: PID, 7/4/80; Project Paper 3/31/81.
Technical Reports #s 1-11; Visiting International Scientist Program; South Dakota State University; 1980-82. (includes trip progress and training reports; work plans and final report on survey phase).
"Staff Report: Environmental Degradation in Mauritania"; BOSTID, National Academy of Sciences; Washington, D.C.; 1981.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY						FUNDING BY YEAR					CP83
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB 82	
Niger 683-0230 Forestry and Land- Use Planning	SH	Natural Resources/ Fuelwood	1268	697	676	944	---	3585	---	---	1108	576	---	800

Length of Project/PACD: 4 years; 12/31/84
Contractor: PSCs

Primary Activity: Institution building/research/training
Secondary Activities: Forestry for fuelwood (+30% of funds)

PROJECT PURPOSE:

To establish an analytical and planning capability within Niger's Forest and Water Service for natural resource (soils, water, vegetation and wildlife) planning; and to produce a long-term plan for the rehabilitation, conservation and protection of Niger's natural resources.

PROJECT SUMMARY:

Project components include: (1) establishment of a natural resource management planning unit in the Forest and Water Service, which will be in charge of all project activities; (2) development of a natural resource inventory to serve as a basis for planning; (3) management plans for 63 national forest reserves; (4) development of 16 model sites, seven production sites for firewood, forage, seedlings, etc., and nine for conservation-oriented activities focusing on wind-breaks, fire control, re-vegetation, etc., and (5) provision of training and outreach through in-service and formal programs, information-sharing and cooperation with other ministries and a public awareness campaign.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GON will contribute \$1,332,000 for salaries, office buildings and other costs. The Peace Corps will contribute six person-years of volunteer service, equalling \$131,000.

OTHER DONOR ACTIVITIES:

The project was developed following the 1978 study by an international team of FAO experts. A planned \$10.1-million IDA credit for a second forestry project would complement the activities of this project; the first World Bank forestry project, due to end in June, 1982, has been assisting the GON in the establishment of 400 ha. of pilot irrigated plantations and 700 ha. of rainfed plantations, as well as carrying out training and research activities. West Germany is funding a project to support the National Forestry Service. The FED, France and Switzerland are also funding reforestation/fuelwood activities.

AID-FINANCED INPUTS:

1. Long- and short-term technical assistance in forestry planning and demonstrations, resource surveying and extension and management training;
2. Long-term US and third-country training (four person-years each), and short-term informal training in Niger;
3. Commodities, equipment, supplies and vehicles.

MAJOR OUTPUTS:

1. Operational planning and study unit;
2. Nationwide natural resource inventory;
3. Management plans for 63 national forest reserves;
4. 16 model forestry/conservation sites;
5. Trained Forestry Service central office and field staff.

PROJECT STATUS:

The project was authorized on December 31, 1979. The project forester arrived in Niger in December, 1980. Model sites have been selected and an experimental plot layout has been designed. The resource inventory (vegetation mapping and windbreak study) are under way. Commodities (including aerial photographs) have been ordered, and short-term technical needs have been identified.

PROJECT DOCUMENTS AND REPORTS:

PID; 6/27/77.
Project Design Committee Paper; 9/77.
Poupon, J. et al; "Projet d'Etude et Planification de l'Utilisation des Sols et des Forets"; FAO; Rome; 1978.
Project Paper; 3/5/79.
Shapiro, K.H. and West, P.C.; "Village and family forestry in Central Niger: Economic and Social Analysis"; Ann Arbor, MI; 5/82.
Peace Corps Country Assessment (see 936-5711; p.14).
Trezwell, D.; "Review of Project Information/Requirements and Recommendations for a Remote Sensing Program"; AID/W; 2/82.
"Energy Potential from Native Brushland in Niger: the Economic Perspective"; AID/USDA; 1982 (centrally-funded, FLUP input).

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					TOTAL	FUNDING BY YEAR								
			TA	A&S	TP	T&D	DS		FY78	FY79	FY80	FY 81	OY82	CP83			
Senegal 685-0233 National Plan for Land Use and Development	SH	Natural Resources	1036	599	95	---	---	2000	---	---	---	1000	1000	---			
Length of Project/PACD:		3 years; 9/30/84															
Contractor:		South Dakota State University															
												Primary Activity:		Natural resources inventory			
														Secondary Activity:		Manpower training/institution building	

PROJECT PURPOSE:

To prepare a National Plan for the management and optimal utilization of Senegal's natural and human resources, through provision of resource maps, technology exchange, and institution building.

PROJECT SUMMARY:

The project supports a multi-donor-financed program of the GOS to prepare a National Plan for Land Management (PNAT). It will provide for: (1) baseline maps and interpretation, using multistage integrated survey techniques (remote sensing, ground survey, air photo interpretation), needed to prepare a coherent, balanced development plan; (2) technology transfer and development of an operational capability of GOS resource scientists in the use of remote sensing, through training in remote sensing interpretive procedures, mapping and map interpretation, and (3) initiation of an institution-building effort for remote sensing and photo interpretation capabilities, to strengthen the Directorate of Land Management (Amenagement du Territoire), and the Remote Sensing Center at the University of Dakar.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOS will provide office and laboratory space, personnel and other costs estimated at \$380,000; contribution to the total PNAT project will equal \$2,600,000. The UNDP will provide \$1.2 million for the overall Plan preparation (\$900,000 for this project). The UNFPA will supply \$1 million in technical assistance to prepare the PNAT.

OTHER DONOR ACTIVITIES:

Training and other activities will be coordinated with the Regional Remote Sensing Center in Ouagadougou (see page 74). France is engaged in the preparation of a long-term Forestry and Natural Resources Sector Plan.

AID-FINANCED INPUTS:

1. Technical assistance from a long-term soils scientist and ecologist/remote sensing specialist;
2. Short-term consultants;
3. Training in remote sensing and mapping, informal counterpart training;
4. Basic remote sensing laboratory facilities, other equipment, vehicles.

MAJOR OUTPUTS:

1. An inventory of natural resources of the entire country including maps and statistics;
2. Senegalese personnel trained in remote sensing techniques;
3. Facilities in Senegal for basic interpretation of remote sensing data established;
4. Agencies engaged in remote sensing and resource management activities strengthened.

PROJECT STATUS:

The project was authorized on May 15, 1981. The contract with South Dakota State was signed in January, 1982, and the team arrived the following month. They are presently involved in the initial stages of field survey work, and have established liaisons with the University of Dakar.

PROJECT DOCUMENTS AND REPORTS:

PID; 12/78.
Project Paper; 5/81.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					FUNDING BY YEAR						
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB02	CP83
Botswana 633-0077 Rural Sector Grant	ESF	Natural Resources	472	115	189	---	3004	3780	---	---	1250	1250	1280	2000

Length of Project/PACD: 5 years; 6/17/85
 Contractor: Development Alternatives, Inc. (DAI)

Primary Activity: Income Generation
 Secondary Activity: Land use plans/natural resources (+13% funds)
 Forestry (+10% of funds)

PROJECT PURPOSE:

To increase opportunities for productive employment in rural Botswana, and to strengthen and stimulate the process of decentralized planning and implementation of rural development activities.

PROJECT SUMMARY:

The project will: (1) improve land use planning and management, by strengthening the Land Boards and developing land use plans (includes plans for future water development in communal areas); (2) increase small farmer arable production, including afforestation (establishment of nurseries and woodlots), and (3) increase non-farm employment in rural areas, including activities in utilization and management of wildlife. The project will be implemented through a Rural Development Fund, jointly managed by the GOB and AID. Initial subprojects may include small-scale rural industry support, afforestation, crop production, horticulture and implementation of integrated land use plans.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOB will provide salaries of host country personnel and all other subproject-related recurrent costs; the contribution will total approximately \$1.9 million. Sweden has approved a rural sector grant which complements this project by supporting district-financed activities (the AID grant will fund central government-financed activities).

OTHER DONOR ACTIVITIES:

The United Kingdom, the FED, the World Bank and Norway are funding rural development activities in Botswana.

AID-FINANCED INPUTS:

1. Long- and short-term technical assistance;
2. Training;
3. Construction of project-related facilities, including offices for the Subordinate Land Board Office and a utility building for one nursery, fencing for plantations;
4. Equipment, commodities and vehicles.

MAJOR OUTPUTS:

1. Improved capacity of local land institutions to resolve technical issues and allocate land;
2. A series of land use plans in eastern Botswana and newly-designated communal areas;
3. Water points survey completed;
4. Increased productive employment income (on- and off-farm) opportunities in rural Botswana, including at least one new wildlife utilization project and activities in horticulture development and woodlots.

PROJECT STATUS:

The project was authorized on June 11, 1980. Staff training in land use planning is under way. Operational small projects include the Shoshong Woodlot, which has been partially planted; the Lerala Drift Fence, which has been erected; the Ramatlabama Nursery and Goodhope Woodlot, where one year's seedlings have been grown and trees have been planted. An evaluation was completed in November, 1981, recommending a three-year extension of the project and continued support of the Communal Land Use Plans development.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 6/80.
 Evaluation; 11/81.

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COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY						FUNDING BY YEAR					
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	QYB 82	CP83
The Gambia 635-0203 Mixed Farming and Resource Management	SH	Natural Resources	2979	89.5	316.4	---	2165	6000	---	1145	2530	2621	901	2050

Length of Project/PACD: 5 years; 9/30/83

Contractor: Consortium for International Development (CID), Colorado State.

Primary Activity: Mixed farming

Secondary Activities: Land resources management (+30% of funds)

PROJECT PURPOSE:

To promote the intensification and integration of crop and livestock production within existing Gambian farming systems, in order to increase rural family income on an ecologically-sound, sustained-yield basis.

PROJECT SUMMARY:

The project consists of six components: (1) land resource and use evaluation, classification and cartography (including large-scale--1:25,000-- land classification maps); (2) grazing areas development and management, through establishment of controlled grazing areas and provision of data necessary for the GOTG to develop national resource management and land use policies; (3) improved crop and forage production and management; (4) improved rural technology, specifically through the establishment of a revolving credit fund to provide animal traction units and carts; (5) strengthening Ministry of Agriculture and Natural Resources (MANR) planning and evaluation capacity, through the establishment of a socio-economic unit in the MANR, and (6) agricultural skills training for Gambian technicians.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOTG will contribute \$1,296,000 for salaries, indemnities, sites and operating costs.

OTHER DONOR ACTIVITIES:

Phase I of a four-year, \$11.7-million rural development project was funded by IBRD/IDA, the British Overseas Development Ministry and ABEDA; Phase II is being supported by these, as well as the FED and UNDP/FAO. Land resource planning activities under this project are being closely coordinated with the Soil and Water Management Unit (635-0202; see page 83).

AID-FINANCED INPUTS:

1. Long-term technical assistance from a range ecologist, two agronomists, an economist and a sociologist;
2. Short-term consultants for aerial photography, land classification, cartography, training and other areas;
3. Long-term US and third-country training and workshops;
4. Limited construction;
5. Laboratory, field-testing, training and office equipment;
6. Tools, supplies and vehicles;
7. Funds for a revolving account.

MAJOR OUTPUTS:

1. Set of land classification maps;
2. Livestock feed supply increased, new crops and grasses introduced;
3. 10 Gambian participants trained in agronomy, communications and other fields;
4. Socio-economic unit of MANR established and functioning;
5. National land use planning capacity of MANR strengthened.

PROJECT STATUS:

The project was authorized on July 19, 1979. The six-person team (includes two economists, two agronomists, a range ecologist and a sociologist), arrived during the second half of 1981. The baseline survey is under way, including a village-level questionnaire on resource utilization. Mapping is not yet in progress. Pasture management trials have begun.

PROJECT DOCUMENTS AND REPORTS:

PID: 2/12/78.
Project Paper; 10/78.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY						FUNDING BY YEAR					
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OY82	CP83
Mauritania 682-0201 Guidimaka Integrated Rural Development	SH	Natural Resources	2296	82	79	1762	1932	6151*	800	1096	---	1643	1162	---
Length of Project/PACD:		5.5 years; 12/31/82						Primary Activity:		Integrated Rural Development				
Contractor:		Experience, Inc.						Secondary Activity:		Nurseries/tree planting (+2.9% of funds)				

PROJECT PURPOSE:

To assist the Government of the Islamic Republic of Mauritania in developing technically-sound and socially-acceptable methods for increasing crop and animal yields among inhabitants of the Guidimaka Region.

PROJECT SUMMARY:

The project is an experimental effort to test interventions in range management, livestock control, animal health and agronomy, through on-farm trials, training and demonstration activities, small infrastructure projects (schools, wells, etc.), a revolving fund for agricultural equipment and commodities, and a forestry component. Forestry/natural resources activities include: (1) establishment of a 0.5-ha. nursery, to provide a supply of seedlings to interested farmers for planting for shade and protection; (2) planting in experimental sites for demonstration and applied research; (3) planting in experimental range areas, to determine the correct mix of species for maintaining the maximum numbers of livestock in a given area; (4) planting around the borders of cereals test plots, to serve as live fencing and windbreaks, and (5) integration of pastoral and agricultural activities with measures to protect the environment.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GIRM is providing the equivalent of \$1,670,000 for professional, technical and support staff, and land for experimental sites.

OTHER DONOR ACTIVITIES:

The project is being coordinated with projects under the direction of the "War on Want," the Caisse Centrale pour Developpement, and the FAO-sponsored Kaedi Agricultural School.

*Original LOP total was \$3,346,000.

AID-FINANCED INPUTS:

1. Contract team personnel and support costs;
2. Agro/pastoral demonstrations;
3. Short- and medium-term training (in-country, third-country and US) for GIRM personnel;
4. Evaluation.

MAJOR OUTPUTS (FORESTRY/NATURAL RESOURCES ONLY):

1. One 0.5-ha. tree nursery supplying trees for forage, shade, windbreaks, fences and soil fixation;
2. 225 km. of firebreaks designed;
3. One rangeland resources survey, completed;
4. 16 GIRM technicians trained.

PROJECT STATUS:

The project was authorized on June 17, 1977; project activities began in April, 1979. In November, 1980, the original contractor was replaced with Experience, Inc. Forestry and agronomy training is in progress; two Mauritians have received short- and medium-term forestry training in Senegal. Range and forestry supplies have been ordered. A nursery has been established, producing 16,000-25,000 seedlings/year. Approximately 30,000 trees have been planted for forage, shade, erosion control, etc.; 20,000 trees are to be planted this year. Three water catchment basins have been constructed. An amendment to increase the funding and extend the project was approved on June 1, 1981. The project was evaluated in May, 1980, and February, 1982.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 1977. Amendment paper; 1981.
 Dickey, J.R.; Evaluation; 5/80.(livestock/range management).
 Murphy, E.L.; "Agro-Economic Evaluation of the Guidimaka IRD Project"; Washington, D.C.; 5/80.
 Preliminary Progress Report; Experience, Inc.; Washington, D.C.; 1/82.
 Evaluation; 5/82.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					FUNDING BY YEAR						
			TA	AS	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB 82	CP83
Niger 683-0202 Range and Livestock Project	FN	Natural Resources	2307	---	512	---	2339	5329.3	1500	1500	2299	---	---	---

Length of Project/PACD: 5 years
Contractor: PSCs

Primary Activity: Range management
Secondary Activities: Livestock production

PROJECT PURPOSE:

To prepare a comprehensive range management plan and livestock extension program, to optimize animal production in the pastoral zone; to develop the institutional capacity to implement such a program.

PROJECT SUMMARY:

In two phases, the project will address the problems of low productivity and deteriorating range conditions in the pastoral zone of Niger. This project is Phase I, which is composed of: (1) studies, including (a) a series of range resource and water development studies, and a pilot range management effort, (b) a sociological study of traditional herder range use and animal husbandry practices, (c) a livestock production study system, (d) short-term studies, and (2) pilot interventions, including (a) construction of livestock stations, (b) training for GON technicians in livestock extension and range management, (c) development of local training capability in range management and livestock extension, (d) advising the GON on organizational, manpower development and land tenure implications of range management.

HOST COUNTRY AND OTHER DONOR ACTIVITIES:

The GON will provide \$440,800 for personnel, vaccines for animal health services, training facilities and some equipment.

OTHER DONOR ACTIVITIES:

France and Saudi Arabia are assisting in projects in other parts of the pastoral zone. The World Bank is funding a livestock project south of the project zone.

AID-FINANCED INPUTS:

1. Technical assistance in range management, animal husbandry, etc., and short-term consulting;
2. Long-term degree and short-term, non-degree training;
3. Construction of a livestock station;
4. Commodities, equipment and vehicles.

MAJOR OUTPUTS:

1. Range resource studies, aerial photographs;
2. Comparative livestock production and other studies;
3. Expanded livestock production, four livestock posts constructed;
4. GON personnel trained (10 US degrees, 9 Livestock Service trained short-term, 6 Nigerien policy-makers completed observational tours).

PROJECT STATUS:

The project was authorized on August 28, 1977. All studies have been completed (including vegetative mapping with ILCA). Of 22 participants, 15 have completed training. The Mission intends to extend the PACD six months to permit analysis of data collected during the study phase, continuation of selected core staff training, and completion of training for three participants.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 5/16/77.
Horowitz, M.; "The Sociology of Pastoralism and African Livestock Projects"; Institute for Development Anthropology; Binghamton, NY; 12/78.
Mulligan, K.; "Addressing Human, Animal and Environmental Conditions by Low-Altitude Aerial Survey: The ILCA Experience in the Sahel"; ILCA; Kaduna, Nigeria; 5/82 (not project financed, but covers results of vegetative mapping).

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY						FUNDING BY YEAR					CP83
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB 82	
Niger 683-0226 Rural Sector Human Re- sources Development	SH	Natural Resources	1640	---	374	---	3016	5030	---	2000	995	860	1175	---
Length of Project/PACD:	5 years; 9/30/84		Primary Activity: Forestry, environment, ecology training											
Contractor:	PSCs		Secondary Activities: Other rural development training											

PROJECT PURPOSE:

To increase the Government of Niger's capacity to train rural development personnel, including forestry technicians.

PROJECT SUMMARY:

The project will work with the Ministry of Rural Development's Practical Institute for Rural Development (IPDR/Kolo), to: (1) expand the physical facilities to increase capacity from 250 to 450 students; (2) change and strengthen the curriculum to make it more relevant to Niger's rural development needs, through establishment of objectives, learning units and learning activities for subjects such as agriculture, cooperatives, animal husbandry, forestry, water management, rural engineering and research; (3) provide enough training abroad to enable IPDR to be fully staffed by Nigeriens by 1984; (4) create an internal teaching methodology unit for overseeing the quality of instruction and training, and an internal planning unit to program for needs of user agencies; (5) establish a system of professional development for cadres already in the field; (6) integrate training and development needs through small rural development project interventions in the field, and (7) create a documentation center on rural development in Niger.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOM will contribute \$4 million for the project. AID's funding represents 26% of the estimated \$19.1-million project; other donors include: IBRD (\$4.6 million), France (\$1.8 million), UNDP (\$1.6 million), Belgium (\$1.2 million), FED (\$0.5 million) and Switzerland (\$0.3 million). The IPDR is being restructured in collaboration with the UNDP/FAO. The contributions of other donors are earmarked for: Phase I construction (Switzerland); classroom and workshop construction (Belgium), and construction of dormitories and other facilities (IBRD).

OTHER DONOR ACTIVITIES:

There are training components in the integrated rural development projects of AID and other donors.

AID-FINANCED INPUTS:

1. Five technician/trainers;
2. Graduate training for 8 Nigerien instructors, and study tours for others;
3. Funds for construction of facilities for IDPR;
4. Equipment, vehicles and commodities;
5. Evaluation assistance.

MAJOR OUTPUTS:

1. A renovated and reformed IPDR/Kolo capable of graduating 150 mid-level rural technicians per year;
2. Eight permanent Nigerien faculty members with graduate-level academic degrees;
3. A socio-economic instructional unit functioning with trained Nigerien staff;
4. Curriculum reform and a village operations program established;
5. Productivity improvement projects designed, implemented and evaluated for over 600 farm plots.

PROJECT STATUS:

The project was authorized on June 7, 1979. Four technician/trainers are teaching at the Kolo school. Vehicles and commodities have been procured, and construction of school buildings is under way.

PROJECT DOCUMENTS AND REPORTS:

PID; 1977.
Project Paper; 6/7/79 (approval date).
"Reforme de l'IPDR"; UNDP/FAO; 1/79 (non-AID).

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					TOTAL	FUNDING BY YEAR					CP83
			TA	A&S	TR	T&D	DS		FY78	FY79	FY80	FY 81	OYB 82	
Niger 683-0240 Niamey Department Development II	SH	Natural Resources	2725	---	474	---	9616	13,582	---	---	---	5704	---	3000
Length of Project/PACD:		5 years; 12/31/86		Primary Activity:		Rural development								
Contractor:		PSCs		Secondary Activities:		Community forestry (+1.5% of funds)								

PROJECT PURPOSE:

To institutionalize a process of rural development through the establishment of self-managed village organizations and farmers who, as a result, will be capable of achieving increased food production.

PROJECT SUMMARY:

This project will build upon and reinforce the successful activities initiated during Phase I (683-0205). The primary emphases of this second phase will be on systems of: (1) technical service delivery, through the creation of farmer-couple training centers providing extension support in areas including village literacy, reforestation, animal husbandry and leadership training; (2) self-managed village organization, by organizing cooperatives, constructing cooperative warehouses and training cooperative officials; (3) credit delivery, developed with the provision of agricultural inputs; (4) agricultural input delivery, to assure the timely and reliable delivery to farmers and cooperatives; (5) increased access of women to development activities, through training and installation of cereal grinding mills; (6) testing and evaluation of proposed technologies, through the establishment of a monitoring and evaluation office within the Project Management Unit, and (7) coordination and management for the project zone.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GON will contribute \$7,700,000 for full-time local salaries, partial cost of commodities, etc. Ten Peace Corps volunteers will be requested.

OTHER DONOR ACTIVITIES:

Similar development projects in other regions of Niger are being supported by France, the EEC, Canada, Germany and the World Bank.

AID-FINANCED INPUTS:

1. Technical assistance and short-term consultants;
2. Construction of 7 farmer-couple training centers and 12 cooperative office/warehouse buildings;
3. Counterpart and third-country training;
4. Funds for fertilizer and pesticides for a credit delivery system;
5. 30 millet-grinding mills;
6. Funds for aerial or satellite photography for soils, vegetation and land use mapping.

MAJOR OUTPUTS:

1. 7 new farmer-couple training centers (10 total), with a program including reforestation, husbandry, literacy, etc.;
2. 16 new cooperatives organized (57 total);
3. Credit fund and agricultural input delivery system operational;
4. Expanded monitoring and evaluation unit, with an adaptive research office;
5. Project management unit established;
6. Agricultural production increased;
7. Increased forestry extension and community forestry.

PROJECT STATUS:

The project, a continuation of the completed Niamey Department Development (683-0205), was authorized on April 28, 1981. Forestry supplies are being ordered, and windmills are being shipped. An applied research consultant was in the field in the fall of 1981 to plan activities for this year, including an improved pest control program.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 12/19/80.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					FUNDING BY YEAR						
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB82	CP83
Senegal 685-0224 SODESP Live- stock Production	SH	Forestry/ Natural Resources	2227	---	551	---	5222	8000	---	2030	1500	3500	---	970

Length of Project/PACD: 5 years; 3/31/83
Contractor: Chemonics

Primary Activity: Improved livestock production
Secondary Activity: Tree plantings (+15% of funds)

PROJECT PURPOSE:

To modernize traditional cattle-herding practices, and to improve management of renewable resources in order to increase production and herder incomes while protecting the rangelands.

PROJECT SUMMARY:

The project will support: (1) livestock production and marketing; (2) range management, focusing on development of a comprehensive plan for the management of forage and water resources in the project zone; (3) forestry activities, including 300 ha. of reforestation around each of the four major water points, tree-planting around settlements, and forest management training for Senegalese personnel; (4) support to herder families, and (5) research and monitoring.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOS will contribute personnel, some operating costs and well-site equipment, totalling approximately \$1.9 million. Certain technical assistance and facilities will be shared with projects being implemented by the FED and Canada (see below).

OTHER DONOR ACTIVITIES:

The FED has been working with SODESP in Project Zone 1 since 1975; the GOS requested assistance from Canada and the United States, for expansion of the project into Zones 2 and 3 respectively. During the design of this project, AID worked closely with CIDA and FED, to investigate design approaches and insure maximum compatibility among the separately-funded projects; the basic strategy of approach and the implementation plans among the three are as consistent as possible. Each of the donors will place one technician in SODESP headquarters, forming a consortium advisory group to the Director of SODESP to assure a common strategy for attaining program goals and assuring the interchange of project resources. The Canadian and FED projects total about \$17 million.

AID-FINANCED INPUTS:

1. Technical assistance in production, range management, marketing and extension;
2. Training for livestock production, range management and forestry;
3. Commodities for SODESP facilities and programs;
4. Operating costs;
5. Revolving funds for SODESP to provide livestock production inputs;
6. Construction of SODESP headquarters and out-stations.

MAJOR OUTPUTS:

1. Four centers constructed, and well-sites improved;
2. 25,000 head improved; 11,275 head marketed;
3. Eight technicians trained;
4. 280,000 ha. improved through grazing management;
5. 600-800 ha. of trees planted.

PROJECT STATUS:

The project was authorized on December 28, 1978. The contract with Chemonics was signed on March 12, 1981, and the team began to arrive in the spring of that year (veterinarian, range management specialist, anthropologist). The range management specialist's activities to date have included a study of forage grasses. Reforestation activities have not yet begun.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 7/16/78.
Quarterly Reports; Chemonics; Washington, D.C.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					TOTAL	FUNDING BY YEAR					
			TA	A&S	TR	T&D	DS		FY78	FY79	FY80	FY 81	OYB 82	CP83
Somalia 649-0108 Central Rangelands Development	FN	Natural Resources	5025	772	354	---	8793	14,944	---	1000	3366	3680	3600	3050

Length of Project/PACD: 6 years; 9/30/86
Contractor: Louis Berger

Primary Activity: Resource studies
Secondary Activity: Training/ institution building

PROJECT PURPOSE:

To implement a system of range management in Somalia which optimizes livestock production, while preserving range resources and arresting ecological decline.

PROJECT SUMMARY:

This multi-donor project will implement a system of range management in an area which represents 25% of the country's rangeland area. AID-financed components include: (1) range development, including a resource inventory (two aerial surveys, a vegetation resource map, acetate transparencies), a range ground survey (to verify the resource inventory, establish range condition guides and standards, identify areas of high erodability, locate access tracks), and range investigations (establishment of range reference areas, grazing trials, grazing reserves); (2) formal training, in the form of support for the Livestock and Range School at Afgoi, the establishment of a Range Management Department at the National University of Somalia and overseas post-graduate training. Other donors will fund non-formal training, veterinary services, forestry and construction of a National Range Agency (NRA) headquarters.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GSDR will contribute \$9,000,000 for local salaries, commodities, etc. Other donors will be: IDA (\$8,000,000 credit); IFAD (\$9,000,000 loan for civil works, vehicles, equipment, technical assistance); Overseas Development Ministry* (\$4,000,000 for training support, shelterbelts and nurseries); the World Food Program (\$4,000,000 in food for unskilled laborers). The World Bank, IFAD, IDA, ODM and WFP collaborated on project design.

OTHER DONOR ACTIVITIES:

The government of Britain has funded range surveys for the north and central regions of the country. The World Bank is assisting the GSDR in establishing a Project Implementation Unit to advise in contracting and procurement in all projects.

AID-FINANCED INPUTS:

1. Technical assistance from a range/environmental specialist, a range scientist, taxonomist, soil and water conservationist, cooperatives advisor, water development advisor, and range management lecturers and instructors/
2. Formal education and training for Somali counterparts;
3. Range and stock water development, soil conservation and grazing cooperatives components;
4. Range investigations.

MAJOR OUTPUTS:

1. Resource inventory and vegetation resource map, representing 150,000 km.² surveyed;
2. 50,000 km.² of grazing reserves established;
3. 15 participants trained in the US, and 175 personnel trained locally;
4. 30 range associations formed;
5. 3 nurseries, town shelterbelts (non-AID);
6. Range Management Department established at the Faculty of Agriculture in the National University of Somalia.

PROJECT STATUS:

The project was authorized on August 6, 1979. Seven participants are in training in the United States. The contract with Louis Berger was signed in December, 1981, and the four-person team (team leader, two range ecologists and a range consultant) arrived the following month. A draft inception report has been completed, and range data collection activities are under way, in collaboration with Somali range personnel.

PROJECT DOCUMENTS AND REPORTS:

PID; 1978.
Project Paper; 8/79.

* Of Great Britain.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					TOTAL	FUNDING BY YEAR					CP83
			TA	A&S	TR	T&D	DS		FY78	FY79	FY80	FY 81	OYB 82	
Tanzania (OPG) 621-0160 Lutheran World Relief Village Environment Improvement	SD	Forestry Fuelwood	31	10	18	---	439	498	---	---	---	500	---	---

Length of Project/PACD: 3 years; 6/30/84
Contractor: Lutheran World Relief

Primary Activity: Integrated rural development
Secondary Activities: Community forestry (5% of total; 2% of AID funds)

PROJECT PURPOSE:

To help raise the standard of living and improve the environment of six villages in the Singida Region, by establishing household/irrigation water supplies, grain storage silos, vegetable gardens and reforested areas.

PROJECT SUMMARY:

The project will work with six villages initially; if pilot efforts prove successful, they will be replicated in other villages in the region and throughout Tanzania. These pilot activities will provide: (1) water for farm and home use, through installation of shallow wells with pumps and windmills, and storage tanks; (2) safe grain storage, in cement silos to be constructed by the villagers; (3) increased food supplies, by developing home gardens watered by trickle or drip irrigation; (4) increased wood supplies, by reforesting 10 ha. surrounding each village with fuel, pole and fruit trees, and (5) training, for villagers to acquire skills necessary for project implementation, and to serve as extensionists.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

Local labor and materials costs will amount to \$166,068. Lutheran World Relief will contribute \$309,419, for capital and recurrent administration costs and village programs. Three US Peace Corps volunteers will be recruited to work as project advisors in the villages, and will receive support from the Singida Folk Development School.

OTHER DONOR ACTIVITIES:

The Australian Ground Water Project has been funding wells installation and villager training in the Singida Region since 1975; experience and expertise will be shared with this project. The Dutch are also funding a water resource development project. Danish volunteers are assisting in rural development activities in the Singida Region.

AID-FINANCED INPUTS:

1. Technical assistance;
2. Seminars and other training;
3. Commodities, fuel and maintenance for vehicles;
4. Mid-term and final evaluations.

MAJOR OUTPUTS:

1. 20 shallow wells, windmills and storage tanks per village;
2. Irrigated home gardens and nurseries;
3. Grain silos and platforms;
4. 60 ha. of reforestation, with 9,900 fuel/pole trees and 200 fruit trees at each 10-ha. site;
5. 10 extensionists trained in each village.

PROJECT STATUS:

The project was authorized on October 30, 1980. Village surveys and selection were completed in 1981, and the project leader arrived on-site on January 29, 1982. The nursery has been started, and citrus trees have been planted; gardens have been established. Grain storage experiments are under way. The team is presently studying alternative materials and technologies for well construction. Due to delays in start-up (attributed to purchase and clearance of commodities), mid-term evaluation has been postponed until FY83.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 10/80.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY						FUNDING BY YEAR					
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB 82	CP83
Upper Volta 686-0221 Agriculture Human Re- sources Development	SH	Forestry	3060	---	1344	---	5053	9457	2000	2000	2000	---	---	---

Length of Project/PACD: 5 years; 3/31/83

Contractor: South East Consortium for International Development (SECID)

Primary Activity: Training of agricultural, extension agents
Secondary Activities: Training of foresters

PROJECT PURPOSE:

To improve the Government of Upper Volta's planning, administration and implementation capability for rural development projects, through the creation and expansion of training centers for middle- and upper-level agricultural technicians and extension agents.

PROJECT SUMMARY:

The project will help the GOUV meet pressing personnel needs, through: (1) provision of technical assistance, to fill faculty positions at the University Polytechnic Institute (ISP), and Agricultural Training Centers (CAPs), while Voltaic staff is being trained; (2) training of faculty members, mid-level technicians and rural development engineers; (3) construction and/or expansion of educational facilities, including one new and one up-graded CAP, a central research station and three field stations for the ISP, transportation and support facilities for three village centers used in applied extension training. The project includes training for one forester in advanced-level agronomy, who will fill the faculty gap in forestry and water management (most recent area of specialization added to the ISP curriculum).

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOUV is providing land, office space, teaching facilities, architectural and engineering services and salaries for faculty and staff, valued at approximately \$6,079,000. The French Government is funding salaries at the Polytechnic Institute. France, Canada and the USSR fund scholarships for ISP students.

OTHER DONOR ACTIVITIES:

UN, French, and American volunteers have taught at the ISP and at CAPs; two Dutch volunteer engineers have worked on the community development component of the CAP program. France has financed construction of ISP main campus buildings and the FAO funded training at the Matourkou CAP. The World Bank is funding a young farmers' training program.

AID-FINANCED INPUTS:

1. Technical assistance to fill faculty positions while Voltaics are being trained;
2. Three-year, masters-level training for 20 Voltaics (includes 3 forestry slots), and university tours;
3. Construction of one new CAP, housing for one CAP, a central field station, three field stations, transportation/support facilities;
4. Laboratory and other equipment.

MAJOR OUTPUTS:

1. One training facility constructed (CAP Bogande);
2. CAP Matourkou upgraded;
3. 300 agricultural technicians trained;
4. 125 agricultural engineers trained;
5. Research into crops, livestock and forestry conducted;
6. Eight participants trained in the US to become university faculty.

PROJECT STATUS:

The project was authorized on March 10, 1978. One forestry expert has been teaching at the University since January, 1980, and will remain until the project is completed. One Voltaic received a MS in May, 1982, and four will complete MS degrees by December, 1982; three others will continue studies. An animal science/nutrition lab has been constructed at CAP Matourkou; a library, dormitory and some faculty housing were completed during 1981. An animal science lab has been built for the ISP as well. After some delays, construction of the Gampela research station is expected to be resumed this year. No work has been done on the CAP Bogande and the three field stations.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 1/18/78.
Evaluation; RONCO; Washington, D.C.; 6/81.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					FUNDING BY YEAR					CP83	
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81		OYB 82
Upper Volta 686-0231 (OPG) Seguenega Integrated Rural Development	SH*	Forestry	2620	---	175	---	2395	4956	---	1000	1000	1366	1600	---

Length of Project/PACD: 5 years; 9/30/83
Contractor:

Primary Activity: Integrated rural development
Secondary Activities: Community forestry (±5% of funds)

PROJECT PURPOSE:

To build and strengthen the process of integrated rural development, while improving the economic conditions and quality of life of the people who live in the Seguenega sector of the Yatenga ORD.**

PROJECT SUMMARY:

AFRICARE will work directly with Voltaic officials, technicians and villagers, to provide: (1) social services, including establishment of Village Development Committees, and in some villages, placement of resident extension agents, provision of loans and grants, village technician training, health services, functional adult literacy and young farmer training; (2) increased production opportunities, focusing on village commercial and school vegetable gardens, development of low-lying areas for rice production, and livestock/poultry improvement programs, road improvement, ORD planning and management support (including development of overall land use and resources employment plans), and revegetation/soil conservation work (including tree planting, development of marginal areas for forest plantations, increasing the potential of forestry products and conservation education/demonstration of windbreaks, live fencing and other measures).

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOVU will provide personnel support and village labor costs, land, buildings and operating costs, valued at \$1,502,000. The ORD has requested that the FED supply an economist to the Planning Section (\$93,000). The Peace Corps will provide \$295,000 for volunteer support; other donors will contribute \$367,000.

OTHER DONOR ACTIVITIES:

The Yatenga ORD has received the greatest amount of assistance from the FED, for personnel, vehicles and ORD operating expenses. US, German, Dutch and French volunteers have worked in the region. CATHWELL, OXFAM and AID have funded forestry projects.

*\$1,000,000 is non-Sahel funding for an OPG.

**Regional Development Organization, a government administrative division.

AID-FINANCED INPUTS:

1. US, third-country and local-hire personnel;
2. Third-country training for Voltaic central support staff;
3. Villager training;
4. Support for revolving funds;
5. Construction and/or renovation of wells, buildings and drainage structures.

MAJOR OUTPUTS:

1. 45 Village Development Committees established;
2. Health services, functional literacy and young farmer training programs established;
3. Improved production of: vegetables (12 ha.); rice (100 ha.); livestock and poultry;
4. A nursery producing up to 50,000 seedlings/year;
5. 150 ha. of reforestation;
6. Several 5-to-50-ha. revegetation plots;
7. A small conservation unit able to carry out local activities;
8. New wells and improved roads;
9. Institutional capacity of the ORD strengthened.

PROJECT SUMMARY:

A small-scale project (\$50,000) that funded AFRICARE seminars and workshops laid the basis for the present Seguenega IRD project, which was authorized on September 26, 1978. The Seguenega nursery has been established, and is producing 20,000 seedlings/year; a site for a second nursery has been identified. Reforestation materials and supplies have been delivered; 67 ha. have been reforested. The project was evaluated by AID (May-June, 1982)

PROJECT DOCUMENTS AND REPORTS:

Project Paper; "Integrated Rural Development for Seguenega, Upper Volta"; AFRICARE; Washington, D.C.; 3/78, 7/78 (revised).
AFRICARE Quarterly Reports; 10/78-present.
AFRICARE Evaluations; 11/80, 11/81.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					TOTAL	FUNDING BY YEAR					
			TA	ABS	TR	T&D	DS		FY78	FY79	FY80	FY 81	OY82	CP83
Somalia 649-0122 CDA Forestry (Phase I): Refugee Reforestation	MRA (RP)	Fuelwood						6000	---	---	---	---	6000	---

Length of Project/PACD: 3 years; 1985
Contractor: N/A

Primary Activity: Nursery establishment/tree planting (75%)
Secondary Activity: Institution building/training/research

PROJECT PURPOSE:

To strengthen the institutional capability of the Government of Somalia, so it can formulate and implement a larger volume of forestry and fuelwood planning programs; to establish basic decentralized tree seedling supply services and undertake expanded tree planting, beginning in and near refugee camps.

PROJECT SUMMARY:

Within a multi-donor framework, the project will: (1) strengthen the coordinating and forestry program management capability of the National Range Agency headquarters staff (particularly that of the newly-authorized Anti-Desertification Unit), to monitor and support the project's field operations; (2) provide new, accelerated reforestation and fuelwood planting support services in three of the four major areas where refugee camps are located, primarily through voluntary agencies already in the field. In each region, services will support the establishment and maintenance of regional, sub-regional and satellite tree seedling nurseries, related water supplies and testing/demonstration plots; extension activities will cover fuelwood-conserving stoves, on-site non-formal training for expanded amenity planning, farm and village fuelwood lots, windbreaks, shelterbelts and agroforestry; (3) provide augmented management and non-food commodities for larger-scale (up to 400 ha. each) shelterbelt or fuelwood plantations planned for areas neighboring the refugee camps (food-for-work program), and (4) complete Somalia's natural resource survey and mapping efforts currently in progress.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GSDR will contribute approximately 30% of the value of the project, for staff labor, commodities and other costs. In 1979, Belgium, Canada, West Germany, France, Great Britain and the United States agreed to coordinate resources for joint projects within the framework of a "Concerted Action for Development in Africa" (CDA). As part of the CDA program, a forestry/fuelwood initiative was developed; this project is one of the first activities. Other donors have pledged: (Britain) \$550,000 equivalent for improved charcoal production, scholarships and lectures for the Afgoi Forestry Training Center, fuelwood plantations and village reforestation; (France) \$200,000, for collaboration in the village woodlot projects, improved charcoal production in refugee camps, establishment of fuelwood plantations, research/training support; (West Germany) \$755,000 in forestry projects (agreements already signed); (UNSO/FAO) long-term technical assistance to the Anti-Desertification Unit and \$1,000,000 for tree-planted sand dune stabilization.

OTHER DONOR ACTIVITIES:

Italy, Yugoslavia and China are planning additional forestry assistance.

AID-FINANCED INPUTS:

1. Coordinator and research consultants for Anti-desertification Unit;
2. Technical assistance, vehicles and non-food commodities for reforestation and fuelwood production;
3. Funds for completion of national resource survey.

MAJOR OUTPUTS:

1. Anti-desertification unit, initial staffing in place;
2. Cadre of trained foresters, nursery managers, project supervisors;
3. Up to 25 new seedling nurseries in refugee camps, and related tree planting;
4. Up to 6 larger-scale fuelwood plantations;
5. Up to 6 research testing and demonstration plots;
6. Completed national resource survey.

PROJECT STATUS:

The PID has been revised by a field team (spring, 1982); the Project Paper will be written during August, 1982. An anti-desertification unit has been officially designated as a part of the Somali National Range Agency to coordinate current and planned forestry and conservation efforts

PROJECT DOCUMENTS AND REPORTS:

PID; 1/20/82. Revised PID; 6/24/82.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					TOTAL	FUNDING BY YEAR					
			TA	A&S	TR	T&D	DS		FY78	FY79	FY80	FY81	OY82	CP83
Sudan (OPG) 650-0064 Eastern Reforestation	MRA	Fuelwood						4000	---	---	---	---	4000	---

Length of Project/PACD: 5 years/ 1987
Contractor: CARE

Primary Activity: Reforestation for fuelwood
Secondary Activity: Commercial forestry

PROJECT PURPOSE:

To promote self-sufficiency of the inhabitants of seven refugee settlements in the Kassala Province, by securing a regular supply of fuelwood, and to increase the productivity of the refugees' land, by reducing soil erosion.

PROJECT SUMMARY:

The project will be implemented near refugee villages in the Presidential Decree Area, which has been heavily deforested, to: (1) establish two nurseries and provide for the transport of soil and seedlings; (2) reforest a total of approximately 10,000 acres, by dividing the area into four sectors in which five species will be planted for fuelwood and agro-forestry activities (gum arabic), and (3) provide employment to refugees, through the provision of local currency to pay for labor, (maintenance, seed transport, and seedling protection).

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOS will provide 10,000 acres of land and forest service personnel; no monetary value has been determined as yet.

OTHER DONOR ACTIVITIES:

There is a large UNDP/FAO gum arabic project in the North Cordofan region. Canada has funded a forestry/fuelwood project. West Germany is assisting in the establishment of a forestry management system in South Sudan.

AID-FINANCED INPUTS:

1. Funds for materials (fencing, seedling pots, seeds, nursery and planting tools);
2. Local currency costs for remuneration of refugee labor;
3. Vehicles and maintenance;
4. Long-term technical assistance from a CARE forester.

MAJOR OUTPUTS:

1. Fuelwood for local consumption, and secondary forest products for export;
2. Soil revitalized;
3. 25,000 refugees provided with wood; a number of these benefitting directly from remuneration for labor.

PROJECT STATUS:

A preliminary project profile has been developed; a CARE Regional Program Officer and an AID-financed CARE forester went into the field on June 1, 1982, to carry out a detailed project design.

PROJECT DOCUMENTS AND REPORTS:

CARE project profile; 4/82.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					FUNDING BY YEAR					CP83	
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81		OYB 82
Africa Regional 698-0424 Energy Initiatives for Africa	SD SH*	Renewable Fuelwood Fossil Fuel						17,500	---	---	---	---	868	2 700
Length of Project/PACD: 5 years; 9/30/87			Primary Activity: Technology dissemination											
Contractor: N/A			Secondary Activities: Institution building											

PROJECT PURPOSE:

To strengthen the institutional capabilities of African governments to plan and implement sound energy programs and projects, and to demonstrate and help disseminate self-sustaining public and private sector initiatives to address Africa's problems of deforestation, oil import dependence, inefficient energy use and lack of development of indigenous energy resources.

PROJECT SUMMARY:

The project will consist of four major components: (1) planning, policy development and technology assessment, including detailed Africa-wide project evaluations in high-potential energy and forestry areas and provision of energy planning and assessment assistance to host country governments (forestry and energy areas include woodlot extension, alternative agroforestry, improved kilns and cookstoves, mini-hydro); (2) a subprojects fund, providing grants to host country agencies or PVOs for private enterprise development activities, project lending by national development banks and other intermediate financial institutions, initiation of CDA fuelwood projects, and other initiatives; (3) training and institutional strengthening, providing grants for training, workshops and related activities for African energy planners, intermediate financial institutions, and energy/forestry practitioners, and cooperative activities with the African Development Bank, and (4) information and experience sharing, through establishment of an information/resource-sharing network in Africa, drawing on existing information centers.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

African contributions of \$2.65 million will be solicited for the sub-projects fund. The project will be coordinated with planning assistance from the World Bank, the EEC, and other donors working in Africa.

OTHER DONOR ACTIVITIES:

The UNEP, UNESCO, ECA, France and Germany have funded region-wide projects in energy planning and training in Africa (studies, seminars, technical aid).

*Funds from a separate project account (625-0956) will finance Sahel sub-projects.

AID-FINANCED INPUTS:

1. Prime contractor technical assistance, and short-term consultants for early subproject design and national energy assessments;
2. Allotment of sub-project funds;
3. Training;
4. Funds to establish a small libraries, to print and distribute materials;
5. Funds for project evaluation.

MAJOR OUTPUTS:

1. Assessments of African program/project experience in 10 energy/forestry areas;
2. National energy assessments in 10 countries;
3. Minimum of 30 sub-project direct grants; grants, loans, contracts to intermediate financial institutions;
4. Minimum of 15 sub-projects completed and evaluated;
5. Short-term energy planning training sessions/workshops;
6. Intermediate financial institution training sessions;
7. Practitioner workshops;
8. Technical assistance to the African Development Bank;
9. Results of technology assessments and sub-project evaluations disseminated Africa-wide.

PROJECT STATUS:

The project design underwent revision between the PID and the Project Paper, based on new CDA initiatives and the AID energy strategy developed following the Nairobi workshop. The Project Paper was reviewed in May, 1982, and submitted for approval in June, 1982.

PROJECT DOCUMENTS AND REPORTS:

PID; 11/14/80.
Project Paper; 4/29/82.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					FUNDING BY YEAR					CP83	
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81		OYB 82
Burundi 698-0407.33 (IRT) Farm Dryers	SD	Renewable						73	---	---	---	---	73	---

Length of Project/PACD: 2 years; N/A
Contractor: Experience, Inc.

Primary Activity: Solar food drying technology
Secondary Activities:

PROJECT PURPOSE:

To develop and test an inexpensive solar food dryer suitable for conditions in Burundi.

PROJECT SUMMARY:

The project, which will be implemented by the University's Research Center for the Utilization of Alternative Energies, consists of two phases: (1) construction of a hothouse dryer, a tilting dryer, a tower dryer, an "autobus" dryer and a tent dryer, which will be evaluated (on the basis of different construction materials used, climatological conditions, etc.) for optimum performance and minimum cost, and (2) replication of the best model for at least 10 pre-selected farms and cooperatives in rural areas of Burundi. Local artisans and extension workers will participate in the installation; the local population will participate in the operation of the dryers.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOB will contribute \$25,000 in-kind, for land, raw materials, two agronomy department staffpersons and a student assistant.

OTHER DONOR ACTIVITIES:

The project will be implemented in conjunction with the forthcoming FED-financed High-Altitude Food Production Project along the Zaire Nile crest, which will subsidize the installation of crop dryers. There is a FAO project to reduce post-harvest losses that has funded experiments with improved drying technologies, including development of the "autobus" crop dryer.

AID-FINANCED INPUTS:

1. Funds for dryers, replacement parts and tools for fabrication;
2. Measuring devices for temperature, humidity, etc.;
3. Vehicles and vehicle maintenance;
4. Unskilled labor support.

MAJOR OUTPUTS:

1. Low-cost solar crop dryers developed for maize, wheat, beans, coffee, vegetables and fish;
2. Dryers in use through demonstration and extension programs, in at least 10 sites involving 5,000 farmers;
3. Post-harvest food loss reduced;
4. Evaluation of the possibility of the application of solar drying on a large scale in Burundi.

PROJECT STATUS:

The project Activity Paper has been written, and is being reviewed by USAID/Burundi and REDSO/EA.

PROJECT DOCUMENTS AND REPORTS:

Trip Report; Experience, Inc.; Washington, D.C.; 2/82.
Draft Activity Paper.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					TOTAL	FUNDING BY YEAR					CP83
			TA	A&S	TR	T&D	DS		FY78	FY79	FY80	FY 81	OYB 82	
Mauritania 682-0223 Alternative Energy Development	SH	Renewable						4150	---	---	---	---	---	960

Length of Project/PACD: 4 years; N/A
Contractor: N/A

Primary Activity: Renewable energy research & development
Secondary Activities:

PROJECT PURPOSE:

To create an Applied Energy Center: (1) where developments in alternative energy can be adapted to the Mauritanian environment, (2) where Mauritanians can be trained in alternative energy development, and (3) to assist in promoting widespread acceptance of renewable energy innovations accessible to rural and low-income urban populations.

PROJECT SUMMARY:

The Center will include: (1) a Technical Section with the capacity to design, fabricate and test simple technologies and tools related to the utilization of new energy sources or to the conservation of traditional ones. Energy applications to be immediately examined are cooking, wind, water quality improvement, methane production and animal traction. Technologies for secondary consideration include photovoltaics, solar refrigeration, passive solar cooling, small-scale industrial applications and solar food drying; (2) an Implementation/Extension Section assigned to analyze the potential social and economic impact of proposed innovations and facilitate their adaptations. Local leaders, village artisans and residents will be involved in problem identification; (3) a Training and Documentation Section which will organize instruction in the field and at the Center, and record all activity in the alternative energy sector.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The UNDP will make available up to \$1,207,000, which may include some of the GIRM contribution to the project, for personnel, materials and equipment. The Peace Corps will contribute \$258,000 for six volunteers.

OTHER DONOR ACTIVITIES:

While several energy projects have been initiated in Mauritania (the largest being the SOFRETES solar thermal pumps financed by the FED), there has been no official, coordinated approach to energy projects to this date. France has also financed photovoltaic pumps, and a wind generator for electricity.

AID-FINANCED INPUTS:

1. A long-term technical advisor, and short-term technical assistance;
2. US, third-country, and in-country training for Energy Center staff;
3. Materials for the construction of the Energy Center;
4. Equipment and vehicles.

MAJOR OUTPUTS:

1. Applied Energy Center established and operating;
2. Center staffed with trained personnel;
3. Technologies adapted to the Mauritanian environment field-tested and evaluated.

PROJECT STATUS:

The PID was reviewed in July, 1980. The Project Paper is currently being written. *

PROJECT DOCUMENTS AND REPORTS:

Hughes, L.; "Report to VITA on Wind Energy in Mauritania"; Stillwater, OK; 4/80 (trip report).
PID; 7/21/80.
Planned Project Summary Sheet; FY83 CP, Annex I.

*Funding is not anticipated for the near future.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					TOTAL	FUNDING BY YEAR					CP83
			TA	A&S	TR	T&D	DS		FY78	FY79	FY80	FY 81	OYB 82	
Somali- 698-04J7.2R (TRT) Appropriate Tech- nology Demonstration*	SD	Renewable						100	---	---	---	---	100	---

Length of Project/PACD: 2 years
Contractor: Experience, Inc.

Primary Activity: Wind/water research and development
Secondary Activities:

PROJECT PURPOSE:

To develop the capability of the Government of Somalia to harness wind power for water pumping, through the installation and testing of windmills and hand pumps.

PROJECT SUMMARY:

The project, working through the National University of Somalia, will: (1) install and test windmills and handpumps to provide water for domestic, agricultural and pastoral use; (2) train University staff and students in wind energy conversion technologies; (3) train existing pump maintenance teams and local villagers in windmill maintenance; (4) collect wind and windmill performance data, in order to analyze the technical and economic viability of wind energy conversion systems; (5) provide the basis for a windmill and hand pump technology exhibit at the 1983 International Trade Fair of Mogadishu.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GSDR will contribute approximately \$33,415 in the form of University support for two counterparts responsible for day-to-day implementation of the project, fuel and maintenance costs, use of workshops, travel and per diems. Other government costs will cover donation of non-functioning windmills, broadcast of radio programs, and unskilled labor. Italy and West Germany will provide technical assistance; West Germany is planning a program in the repair, maintenance, installation and manufacture of windmills, which includes placement of an advisor in the national foundry who will also provide technical assistance to the University (related to installations including those to be repaired under the TRT project). This will be a joint collaboration with USAID and the National University.

OTHER DONOR ACTIVITIES:

The project will complement the Italian "Water from Wind in Somalia" activity, and will work in close collaboration with a proposed UNDP project which includes field testing and research on wind and solar conversion systems. OXFAM has installed 35 photovoltaic pumps in the northwest, to provide water in refugee camps.

AID-FINANCED INPUTS:

1. Windmills, pumps and parts;
2. Tools, instruments, equipment and vehicles;
3. Construction costs.

MAJOR OUTPUTS:

1. Two new windmills installed, and one or more old, non-functioning mills dismantled and reassembled;
2. Two hand pumps installed;
3. Small teams trained in windmill maintenance;
4. Local villagers trained in daily care for windmills and hand pumps;
5. Wind and wind pump performance data collected;
6. University staff and students trained in windmill siting and sizing, design of parts for local manufacture;
7. A small windmill maintenance booklet produced in Somali;
8. An exhibit and radio programs for the 1983 Trade Fair.

PROJECT STATUS:

The revised Activity Paper has been completed. An FY82 obligation is expected.

PROJECT DOCUMENTS AND REPORTS:

Draft Activity Paper.
Lillywhite, M. and L.; "Report on Renewable Energy Technology for Somalia"; Domestic Technology Institute; Evergreen, CO; 3/80.
Trip Reports; 8/27-9/9/81, 11/12-25/81. (Experience, Inc.)
Fisher, W.; "Energy Assessment and Strategy for Somalia."
Revised Activity Paper; 1982.

*Project description based on Draft Activity Paper and cables.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					TOTAL	FUNDING BY YEAR					CP83
			TA	A&S	TR	T&D	DS		FY78	FY79	FY80	FY 81	OYB 82	
Sudan 650-0059 Energy Planning and Management	SD	Renewable Fossil Fuel						6600	---	---	---	---	1000	---

Length of Project/PACD: 5 years; 1987
Contractor: N/A

Primary Activity:
Secondary Activities:

PROJECT PURPOSE:

To help the Government of Sudan better use available energy resources, and to ease energy-related constraints to economic recovery while contributing to a longer-term goal of meeting the country's energy requirements for agricultural and industrial use.

PROJECT SUMMARY:

The project will: (1) increase the short-term reliability of the Blue Nile electric power grid and improve the managerial capability of the Public Electric and Water Corporation to generate, transmit and distribute power*, and (2) improve the capability of the GOS energy agency to plan and prepare for the most efficient use of all of its energy resources through macro-economic and financial analysis, manpower planning and training, and development of end-use education programs.**

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOS will provide \$3,732,000, including \$2,340,000 in-kind for National Energy Agency salaries, operating costs and office space (the balance is CIP-generated local currency).

OTHER DONOR ACTIVITIES:

This program complements the AID Commodity Import Program, and ST/EY assistance to the Electric and Water Company (see pages 69 and 11, respectively), as well as a \$6.5-million World Bank/IDA credit, a \$114-million grant from the United Kingdom, and \$25 million from West Germany for a Power III project. Denmark is providing \$28.3 million for 10 power facilities.

* Coordinated with the Commodities Import Program (650-0049).
**Related to activities in Rural Renewable Energy (650-0041),
and Energy Planning and Policy (936-5703).

AID-FINANCED INPUTS:

1. Long- and short-term experts for the National Energy Agency and the Electric and Water Company;
2. Funds for training National Energy Agency and Electric and Water Company personnel.

MAJOR OUTPUTS:

1. National energy assessment with projections through the year 2000;
2. Computerized data collection and analysis system;
3. Manpower study for the energy sector;
4. Training needs assessment and plan;
5. An effective, operational conservation plan.

PROJECT STATUS:

The PID was approved on April 26, 1982. Atlantis, Inc. has been selected to assist in preparation of the Project Paper. They sent a three-person team to Khartoum in June; the AID Mission anticipates completion of the design work no later than August, 1982.

PROJECT DOCUMENTS AND REPORTS:

PID; 4/13/82.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					TOTAL	FUNDING BY YEAR					CP83
			TA	A&S	TR	T&D	DS		FY78	FY79	FY80	FY 81	OYB 82	
Uganda 698-0407.25 (IRT) Charcoal Briquette Production	SD	Renewable					95	---	---	---	---	95	---	
Length of Project/PACD: 1 year; N/A								Primary Activity: Alternative fuel development						
Contractor: Experience, Inc. (Gordon Melvin and Associates)								Secondary Activities:						

PROJECT PURPOSE:

To develop charcoal from coffee husks, to provide a cost-effective domestic fuel from a readily-renewable resource which will not contribute to further deforestation or degradation of the environment.

PROJECT SUMMARY:

The project will: (1) establish a pilot facility to convert part of Uganda's 100,000 tons/year of waste from coffee processing into charcoal briquettes, to reduce deforestation resulting from present charcoal production methods; (2) collect economic data and test market response and demand for the end-product, to determine the feasibility of replication, and (3) collect environmental impact data for a comparative study with present charcoal production and use patterns.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOU will contribute approximately \$20,000 to cover all local costs for establishment of the facility.

OTHER DONOR ACTIVITIES:

None at present related to this technology.

AID-FINANCED INPUTS:

1. Funds for feasibility studies;
2. Establishment of a pilot plant;
3. Development of a marketing strategy;
4. Staff training.

MAJOR OUTPUTS:

1. A facility producing 850 tons/year of cheaper, reliable high-quality charcoal;
2. Prevention of husk-dumping into rivers and streams, and husk-burning;
3. Generation of employment for approximately 15 workers at the facility.

PROJECT STATUS:

A consultant from the Kenyan engineering firm of Gordon Melvin and Associates wrote the Activity Paper in May, 1982.

PROJECT DOCUMENTS AND REPORTS:

Activity Identification Cable; 11/81.
Activity Paper; 1982.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LGP AUTHORIZATION/REQUEST-BY ACTIVITY					TOTAL	FUNDING BY YEAR					CP83
			TA	A&S	TR	T&D	OS		FY78	FY79	FY80	FY 81	OYB 82	
Zaire 660-0095 Small Hydropower Development	FN	Renewable						10,000	---	---	---	---	---	2000

Length of Project/PACD: 5 years; N/A
Contractor: N/A

Primary Activity: Hydropower development
Secondary Activities:

PROJECT PURPOSE:

To test and institutionalize a process whereby Zaire's endowments for hydropower can be turned to the benefit of the rural communities in a position to take advantage of this source of energy.

PROJECT SUMMARY:

The project will develop: (1) prototype mini-hydroelectric power plants for replication, and (2) a nucleus organization within the national electricity agency, that will be capable of planning future mini- and small hydroelectric developments (making the necessary economic feasibility, engineering and design studies; licensing plants and hydroplant operators; setting up a consumer charge rate structure).

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOZ and local communities will contribute an equivalent of \$5 million for local costs.

OTHER DONOR ACTIVITIES:

The FED has financed energy studies and infrastructure projects.

AID-FINANCED INPUTS:

1. Technical assistance for institution-building, training and sub-project planning;
2. Training;
3. Materials and construction.

MAJOR OUTPUTS:

1. Operational mini-hydroelectric plants;
2. A cadre of National Energy Agency technicians trained in all aspects of mini-hydroelectric project planning and management.

PROJECT STATUS:

A prefeasibility study of the potential for a small hydroelectric project was conducted by NRECA in July, 1981. The PID design team is currently in the field.

PROJECT DOCUMENTS AND REPORTS:

Howe, J., and Omkar, S.; "Zaire-- Proposed Small Hydropower and Rural Electrification Project"; NRECA; Washington, D.C.; 7/81.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					TOTAL	FUNDING BY YEAR					CP83
			TA	A&S	TR	T&D	DS		FY78	FY79	FY80	FY 81	OYB 82	
Zaire 698-0407 (IRT) Solar-Powered Radio	SD	Renewable						64.5	---	---	---	---	64.5	---

Length of Project/PACD: 1 year; N/A
 Contractor: Experience, Inc.

Primary Activity: Solar-powered communication system
 Secondary Activities:

PROJECT PURPOSE:

To provide a reliable and economical communications system to rural centers that have no two-way radios, or are unable to guarantee regular communication because of power supply problems.

AID-FINANCED INPUTS:

Funds for procurement and shipping of equipment.

PROJECT SUMMARY:

The project will support the installation of solid-state transceivers powered by photovoltaic panels, to: (1) remedy the lack of efficient two-way communications between rural centers providing basic services such as health and education; (2) provide a reliable and economical source of energy to reduce dependence on generators, necessitated by tube-type transceivers.

MAJOR OUTPUTS:

1. 21 solid-state transceivers and 23 photovoltaic generators with auxiliary equipment installed in 29 rural centers (13 presently without radios or electricity);
2. Local radio committees composed of representatives of user groups (where presently none exist);
3. Operators trained in use, inspection and maintenance;
4. Written instructions in French and local languages for operation, inspection and maintenance;
5. Standard radio logs at all radio stations.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The GOZ contribution will equal or exceed 25% of the total \$86,000 project cost, for local materials, transport of US goods to project sites, personnel and training; centers receiving equipment have agreed to contribute the local currency equivalent of \$600 each (\$13,000 total). The Evangelical Community of Central Africa (CECA) will manage and implement the project; churches and missionaries will provide other contributions.

PROJECT STATUS:

The Activity Identification Cable was received by AID/W in May, 1982, and was approved.

PROJECT DOCUMENTS AND REPORTS:

Activity Identification Cable; 5/14/82.

OTHER DONOR ACTIVITIES:

The CECA has been sponsoring the use of transceivers for about 15 years. France has funded solar telecommunications activities.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					TOTAL	FUNDING BY YEAR					CP83
			TA	A&S	TR	T&D	DS		FY78	FY79	FY80	FY 81	OYB 82	
Sahel Regional 625-0944 Niger River Basin Planning	SH RA	Natural Resources						11,000 200	---	---	---	---	4867	700

Length of Project/PACD: 4 years; 8/31/87
Contractor: N/A

Primary Activity: Natural resources planning
Secondary Activities:

PROJECT PURPOSE:

To develop an institutional capability in the Niger Basin Authority (NBA*), to do coherent river basin development planning, and to identify rational development projects.

PROJECT SUMMARY:

This project continues and enlarges on the Niger River Basin Planning Project (625-0915; see page), currently under way. It will fund: (1) environmental and socio-economic baseline surveys of the Niger River Basin; (2) training for nationals of Niger Basin countries, who eventually will staff the NBA planning unit; (3) a River Systems Analysis Program, which includes the production of a water sediment routing model, to be used by the NBA in evaluating the impacts of alternative engineering works proposed for the Niger River, and (4) the development of an Integrated Niger Basin Plan.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The NBA contribution will equal \$2,700,000 for professional staff salaries, office space, clerical assistance, and some local staff. About \$14 million of other studies will be funded by other donors. These include: France (completion of a hydrological model, cartography, irrigated agriculture inventory); Canada (hydro-energy planning); FED (forestry); OPEC (flood forecasting), and FAO (agricultural studies).

OTHER DONOR ACTIVITIES:

Major donors currently assisting the NBA include the FAC, UNDP, FAO, FED and CIDA.

*Niger Basin Authority, composed of Guinea, Mali, Upper Volta, Ivory Coast, Niger, Chad, Cameroon, Benin and Nigeria. Its title was changed from the River Niger Commission (RNC) in 1980.

AID-FINANCED INPUTS:

1. Funds for the socio-economic, river systems, environmental baseline studies and the environmental assessment of Kandadji Dam;
2. Training for NBA personnel.

MAJOR OUTPUTS:

1. River systems analysis, water sediment routing model;
2. Environmental and sociological baseline study;
3. Environmental assessment for Kandadji;
4. A cadre of trained NBA personnel.

PROJECT STATUS:

The project paper is under review; authorization is expected during July, 1982.

PROJECT DOCUMENTS AND REPORTS:

Project Paper; 4/82.

COUNTRY PROJECT # TITLE	APP. CAT.	ENERGY SOURCE	LOP AUTHORIZATION/REQUEST-BY ACTIVITY					FUNDING BY YEAR						
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY 81	OYB 82	CP83
Sahel Regional 625-0261 OMVS* Integrated Development	SH	Natural Resources					62,000	---	---	---	---	---	9500	
Length of Project/PACD:	7 years; 1988													
Contractor:	N/A													

Primary Activity: Agricultural development
Secondary Activities: Natural resources studies

PROJECT PURPOSE:

To increase and secure agricultural production in the Senegal River Basin, through a multi-donor financed integrated development of the river basin agricultural sector; to strengthen the capacity of public and private institutions to plan and implement agricultural development projects in the Senegal River Basin.

PROJECT SUMMARY:

The project will help the OMVS identify major problems confronting Senegal River Basin development, develop long-range regional strategies, and oversee and coordinate development activities, through three simultaneous development activities: (1) an immediate agricultural production program including food and forage irrigated perimeters, farm access road repair and health care in the three member countries; (2) feasibility studies and design plans for broader-scale projects suitable for medium-term, multi-donor financing, and (3) a series of impact studies aimed at rectifying long-term river basin problems affecting Senegal River Basin agricultural development.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The host countries will provide \$21.5 million (\$15.5 million in government salaries), of which \$4.5 million will be funded through OMVS, \$11 million will be provided in bilateral salaries, and \$6 million equivalent of local labor contributions. The project will complement other donor programs already in progress, and design projects for funding by donors that include France, West Germany, Canada, FED, UNDP, the World Bank and several OPEC countries.

OTHER DONOR ACTIVITIES:

According to OMVS figures, as of 1980, there were 238,180 ha. under preliminary studies by donors including France, Italy, Kuwait, Saudi Arabia and the World Bank. The studies are due for completion during the 1982-84 period. The results of this AID project will contribute to data for the large, multi-donor effort to complement the capital investment being made by the donor community for the construction of the Diama and Manantali Dams.

*Organisation pour la Mise en Valeur du Fleuve Senegal, composed of Senegal, Mali and Mauritania.

AID-FINANCED INPUTS:

- Technical assistance, training, equipment and support for:
1. feasibility and preliminary design studies;
 2. studies of long-term issues, including reforestation;
 3. irrigated perimeter and feeder road construction;
 4. seedlings for village woodlots and windbreaks.

MAJOR OUTPUTS:

1. +3,800 ha. of small irrigated perimeters rehabilitated or constructed;
2. +200 ha. of experimental livestock feeding/forage perimeters;
3. 150 km. of rural roads;
4. Three health surveillance centers/monitoring/care posts equipped and staffed;
5. Feasibility studies for irrigated agriculture (15,000 ha.), livestock, health and other projects.

PROJECT STATUS:

The PID was approved on November 27, 1980; a PID addendum containing a sociological documentation and bibliographies was approved in January, 1981. A mid-term design review was held in March, 1982, and a draft project summary was prepared. The final Project Paper is scheduled to be submitted in August, 1982.

PROJECT DOCUMENTS AND REPORTS:

PID; 10/80. PID Addendum; 1/81.
Draft Project Summary; 3/82.
Prepared under "OMVS Environmental Assessment" (625-0617):
"Assessment of Environmental Effects of Proposed Developments in the Senegal River Basin"; Gannett, Fleming, Corddry & Carpenter, Inc. (USA) and ORGATEC (Senegal); 1981 (14 individual reports and a synthesis).
Planned Project Summary Sheet; FY83 CP; Annex I.

APPENDIX A
BUDGET TABLES
SUMMARY AND BY SECTOR
(REGIONAL AND BILATERAL PROJECTS)

Notes:

1. Decimals have been rounded to the nearest whole number in the total.
2. LOP Authorization/Request by Activity may not reflect amendments in the activity breakdown, and therefore may not add up to the total.
3. Activity breakdowns are not provided for planned projects, as the distributions are likely to change substantially as the project budget becomes more definite (especially for projects in the PID stage).
4. "Other Projects with an Energy Component" and "Other Projects with a Natural Resources Component" are not included in the summary budget table, as it has not been possible to determine the exact funding for the relevant component in all cases.

ENERGY, FORESTRY AND NATURAL RESOURCES PROJECTS¹
 BUREAU FOR AFRICA
 SUMMARY BUDGET
 (\$000s)

	LOP Authorization/Request by Activity ³						Funding by Year					
	TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY81	OYB82	CP83
AUTHORIZED/OPERATIONAL FUELWOOD PROJECTS ²	6365	789	3115	1172	6495	17954	---	3500	5793	6592	1800	600
AUTHORIZED/OPERATIONAL RENEWABLE ENERGY PROJECTS	5114	1886	1636	7072	3782	19868	2754	2138	1519	3282	6429	3945
AUTHORIZED/OPERATIONAL FOSSIL FUEL PROJECTS	6116	---	367	---	24687	31895	3145	---	2000	2900	21706	2262
SUBTOTAL (ENERGY)	17595	2675	5118	8244	34964	69717	5899	5638	9312	12774	29935	6807
AUTHORIZED/OPERATIONAL NATURAL RESOURCES PROJECTS	29997	15914	8593	944	19378	79279	6281	8228	8001	15564	12186	13202
SUBTOTAL	29997	15914	8593	944	19378	79279	6261	8228	8001	15564	12186	13202
PLANNED FUELWOOD PROJECTS						10000					10000	---
PLANNED RENEWABLE ENERGY PROJECTS						38583					2201	4660
PLANNED NATURAL RESOURCES PROJECTS						31660					4867	3835
SUBTOTAL						80243					7068	8495
TOTAL	47592	18589	13711	9188	54342	229239 ⁴	12241	13866	17313	28338	69189	28504
COMPLETED ENERGY PROJECTS ⁵	233	63	261	---	259	816	490	---	326	---	---	---

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¹ Does not include projects with an energy or natural resources component.

² Does not include tree-planting activities in other projects; for full breakdown see Appendix 2.

³ Numbers have been rounded, and may not add up to total.

⁴ Combined authorized/operational and planned totals.

⁵ Projects which have ended since last year's report (Larson, 1981): Senegal Reforestation (685-0243); Burundi Peat I (698-0410.09); Sudan Petroleum Training (650-0039).

1. AUTHORIZED/OPERATIONAL FUELWOOD
(\$000s)

Project No.	Country/Title	App. Cat.	En. Sr.	LOP Authorization/Request by Activity						Funding by Year					
				TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY81	OY882	CP83
695-0105	Burundi Bururi Forest	FN	FW	244	---	68	87	743	1141	---	---	---	---	1200	---
635-0205	The Gambia Reforestation Project	SH	FW	240	141	363	---	812	1575	---	1575	---	---	---	---
698-4010.35	Guinea (AIP) Community Forestry	FN	FW	354	---	16	40	50	460	---	---	---	460	---	---
615-0205	Kenya Renewable Energy Development	SD	FW RN FF	2144	399	369	944	944	4800	---	---	3482	1318	---	---
698-0407.23	Kenya (IRT) Environmental Liaison Center	SD	FW RN	---	---	---	---	75	75	---	---	---	75	---	---
625-0937	Mali Village Reforestation	SH	FW	50	22	32	101	290	495	---	---	---	495	---	---
685-0219	Senegal Fuelwood Production	SH	FW	700	187	247	---	1999	3133	---	1400	700	730	600	600
685-0247	Senegal (OPG) Village Woodlots	SH	FW	63	---	---	---	148	211	---	---	211	---	---	---
686-0235	Upper Volta Forestry Education and Development	SH	FW	2570	40	1999	---	1349	5958	---	525	1350	3458	---	---
625-0937.08	Upper Volta (AIP) Village Forestry	SH	FW	---	---	5.5	---	44.5	50	---	---	50	---	---	---
625-0937.08	Upper Volta (AIP) Yatenga Agri-Forestry	SH	FW	---	---	15.8	---	40.2	56	---	---	---	56	---	---
FUELWOOD, SUBTOTAL				6365	789	3115	1172	6495	17954	---	3500	5793	6592	1800	600

2. AUTHORIZED/OPERATIONAL RENEWABLE ENERGY
(\$000s)

Project No.	Country/Title	App. Cat.	En. Sr.	LOP Authorization/Request by Activity						Funding by Year					
				TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY81	OYB82	CP83
625-0911	Sahel Regional VITA/Woodstoves	SH	RN FW	184	---	10	---	---	194	---	---	194	---	---	---
633-0209	Botswana Renewable Energy Technology	ESF	RN FW	1193	129	457	1132	393	3304	---	---	725	1000	1579	---
625-0937.03	Cape Verde (AIP) Renewable Energy	SH	RN	76	85	22	312	---	500	---	---	500	---	---	---
603-0013	Djibouti Energy Initiatives	ESF	RN	780	942	35	1720	523	4000	---	---	---	---	2000	2000
632--0206	Lesotho Renewable Energy	SD	RN	617	---	108	650	223	1600	---	1600	---	---	---	---
698-0407.07	Liberia (IRT) Mini-Hydro Electric Activity	FN	RN	---	4	3	---	63	70	---	50	---	20	---	---
688-0217	Mali Renewable Energy	SH	RN	555	604	210.5	2370.5	---	4100	2174	---	---	930	470	700
683-0235	Niger Solar Energy	SH	RN	63	---	72	365	---	500	500	---	---	---	---	---
689-0410.22	Rwanda (AIP) Renewable/Improved Traditional Energy	SD	RN	120	.9	59	240	60	488	---	488	---	---	---	---
625-0937	Senegal Renewable Energy	SH	RN	26	36	70	118	48	300	---	---	---	300	300	---
650-0041	Sudan Rural Renewable Energy	SD	RN	1476	67	564	61	2430	4600	---	---	---	1000	2055	1245
698-0407.16	Swaziland (IRT) RDA Outreach	SD	RN	---	---	20	15	15	50	---	---	50	---	---	---
698-0407.22	Tanzania (IRT) Photovoltaic Refrigeration	SD	RN	---	---	5	---	27	32	---	---	---	32	---	---
698-0407.09	Togo (IRT) Rural Solar Technology Activity	FN	RN	---	---	---	50	---	50	---	---	50	---	25	---
698-0410.13	Upper Volta (AIP) Solar Energy Demonstration	SD	RN	24	17.5	---	30.5	---	80	80	---	---	---	---	---
RENEWABLE ENERGY, SUBTOTAL				5114	1886	1636	7072	3782	19868	2754	2138	1519	3282	6429	3945

3. AUTHORIZED/OPERATIONAL FOSSIL FUEL
(\$000s)

Project No.	Country/Title	App. Cat.	En. Sr.	LOP Authorization/Request by Activity						Funding by Year					
				TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY81	OYB82	CP83
695-0103	Burundi Peat II	SD	FF	5408	---	277	---	2315	8000	---	---	2000	2000	1106	2262
655-0005	Cape Verde Desalination and Power	PH SD	FF	433	---	90	---	3372	3895*	3145	---	---	900	600	---
650-0049	Sudan Commodity Import Program	ESF RN	FF	275	---	---	---	19000	20000	---	---	---	---	20000	---
FOSSIL FUEL, SUBTOTAL				6116	---	367	---	24687	31895	3145	---	2000	2900	21706	2262

4. AUTHORIZED/OPERATIONAL OTHER PROJECTS WITH AN ENERGY COMPONENT

688-0202	Mali Operation Mills (Solar Pump)	SH	RN	---	---	---	---	220	220	220	---	---	---	---	---
688-0213	Mali Action Ble (Solar Pump)	SH	RN	---	---	---	---	220	220	220	---	---	---	---	---
685-0208	Senegal Bakel Crop Production (Solar Pump)	FN	RN	---	75	---	625	---	700	700	---	---	---	---	---
OTHER PROJECTS, SUBTOTAL				---	75	---	625	440	1140	1140	---	---	---	---	---

*Represents 50% of Project, for Power Generation

5. AUTHORIZED/OPERATIONAL NATURAL RESOURCES
(\$000s)

Project No.	Country/Title	App. Cat.	En. Sr.	LOP Authorization/Request by Activity						Funding by Year					
				TA	AS	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY81	OYB82	CP83
690-0414	Africa Regional Remote Sensing/East Africa	FN	NR	1245	---	369	---	750	2364	---	750	540	550	750	400
698-0420	Africa Regional Remote Sensing/West Africa	FN	NR	2242	---	257	---	---	2525	770	100	500	235	1000	400
698-0427	Africa Regional Environmental Training and Resource Management	FN SD SH	NR	4366	240	3866	---	---	8500	---	---	408	2524	1250	500
625-0012	Sahel Regional Gambia River Basin Development	SH	NR	2200	11342	150	---	---	13394	---	---	---	4000	4611	---
625-0911	Sahel Regional CILSS Ecologist	SH	NR	224	---	---	---	---	224	---	---	---	---	224	---
625-0915	Sahel Regional Niger River Basin Development Planning	SH	NR	360	705	155	---	130	1850	1350	---	---	500	---	---
625-0917	Sahel Regional Sahel Water Data Network Management I	SH	NR	1300	---	267	---	2693	6268	1711	954	1313	---	---	---
625-0940	Sahel Regional Sahel Water Data Network Management II	SH	NR	1710	---	1075	---	4215	7000	---	---	---	---	1300	1250
625-0929	Sahel Regional MAS Advisory Committee	SH	NR	250.4	36.6	---	---	---	285	---	---	---	285	---	---
655-0006	Cape Verde Watershed Management	SH	NR	214	50	38	---	4698	6275	---	1000	1457	2057	1761	---
635-0202	The Gambia Soil and Water Management Unit	SH	NR	2099	---	146	---	92	2337	---	251	---	834	---	1230
615-0172	Kenya Arid and Semi-Arid Land Development	FN	NR	7409	600	1000	---	2837	13000	---	4179	2000	---	---	6622
688-0205	Mali Land Use Inventory	SH	NR	2866	544	214	---	1370	4994	2200	669	400	1725	290	---
682-0205	Mauritania Renewable Resource Management	SH	NR F/FW	1206	1100	285	---	2593	4678	250	325	275	1278	---	1800
683-0230	Niger Forestry and Land Use Planning	SH	NR F/FW	1268	697	676	944	---	3585	---	---	1108	576	---	800
685-0233	Senegal National Plan for Land Use and Development	SH	NR	1036	599	95	---	---	2000	---	---	---	1000	1000	---
NATURAL RESOURCES, SUBTOTAL				29997	15914	8593	944	19378	72279	6261	8220	8001	15564	12186	13202

6. AUTHORIZED/OPERATIONAL OTHER PROJECTS WITH NATURAL RESOURCES COMPONENT
(\$000s)

Project No.	Country/Title	App. Cat.	En. Sr.	LOP Authorization/Request by Activity*						Funding by Year					
				TA	AIS	TR	T&D	OS	TOTAL	FY78	FY79	FY80	FY81	OY882	CP83
633-0077	Botswana Rural Sector Grant	ESF	NR F	472	115	189	---	3004	3780	---	---	1250	1250	1280	2000
635-0203	The Gambia Mixed Farming and Resource Management	SH	NR	2979	89.5	316.4	---	2165	6000	---	1145	2530	2621	901	2050
682-0201	Mauritania Guidimaka IRD	SH	NR F	2296	82	79	1762	1932	6151	800	1096	---	1643	1162	---
683-0202	Niger Range and Livestock	SH	NR	2307	---	512	---	2339	5329.3	1500	1500	2299	---	---	---
683-0226	Niger Rural Sector Human Resources Development	SH	NR F	1640	---	374	---	3016	5030	---	2000	995	860	1175	---
683-0240	Niger Niamey Department Development II	SH	NR F	2725	---	474	---	9616	13582	---	---	---	5704	---	3000
685-0224	Senegal SODESP Livestock Production	SH	NR F	2227	---	551	---	5222	8000	---	2030	1500	3500	---	970
649-0108	Somalia Central Rangelands Development	FN	NR	5025	772	354	---	8793	14944	---	1000	3366	3680	3600	3050
621-0160	Tanzania (OPG) Lutheran World Relief Vil- lage Environment Improvement	SD	F/FW	31	10	18	---	439	5498	---	---	---	500	---	---
686-0221	Upper Volta Agriculture Human Resources Development	SH	F	3060	---	1344	---	5053	9457	2000	2000	2000	---	---	---
686-0231	Upper Volta (OPG) Seguenege IRD	SH	F	2620	---	175	---	2395	4956	---	1000	1000	1356	1600	---
SUBTOTAL				25382	1069	4386	1762	43974	82727	4300	11771	14940	21114	9718	11070

*Funding for full project; natural resources or forestry component has not been disaggregated.

PLANNED PROJECTS
(\$000s)

Project No.	Country/Title	App. Cat.	En. Sr.	Proposed LOP Total	Proposed Funding by Year	
					OYB82	CP83
1. FORESTRY/FUELWOOD						
649-0122	Somalia CDA Forestry	MRA	FW	6000	6000	---
650-0064	Sudan Eastern Reforestation	MRA	FW	4000	4000	---
FORESTRY/FUELWOOD SUBTOTAL				10000	10000	
2. RENEWABLE ENERGY						
698-0424	Africa Regional Energy Initiatives for Africa	SD SH	RN FW FF	17500	868	2700
698-0407.33	Burundi (IRT) Farm Dryers	SD	RN	73	73	---
682-0223	Mauritania Alternative Energy Development	SH	RN	4150	---	960
698-0407.28	Somalia (IRT) Appropriate Technology Demonstration	SD	RN	100	100	---
650-0059	Sudan Energy Planning and Management	SD	RN	6600	1000	---
698-0407.31	Uganda (IRT) Charcoal Briquette Production	SD	RN	95	95	---
660-0095	Zaire Small Hydropower Development	FN	RN	10000	---	2000
698-0407.	Zaire (IRT) Solar Powered Radio	SD	RN	64.5	64.5	---
RENEWABLE ENERGY SUBTOTAL				38583	2201	5560
3. NATURAL RESOURCES						
625-0944	Sahel Regional Niger River Basin Planning	SH RA	RN	11200	4867	700
625-0621*	Sahel Regional OMVS Integrated Development	SH	NR	20460	---	3135
NATURAL RESOURCES SUBTOTAL				31660	4867	3835

*Natural Resources component; funding represents approximately 30% of total project funds.

APPENDIX B

BUDGET TABLE

FORESTRY AND FUELWOOD ACTIVITIES

Notes and Definitions:

This table reflects the amount of funding determined to be earmarked for tree-planting activities in regional and bilateral projects. The figures are based on the percentages shown in parentheses next to "Primary Activity" or "Secondary Activities" on the project data sheets. Most percentages are based on calculations in "Forestry and Natural Resources Activities Supported by the Africa Bureau" (Comings, 1981); they correspond as follows to the footnote number following the project title:

- 1 10% or less
- 2 20% or less
- 3 30% or less
- 4 40% or less
- 5 50% or less
- 6 over 50%
- 7 100%

NB: Totals have been rounded to the nearest whole number.

TREE-PLANTING ACTIVITIES
IN REGIONAL AND BILATERAL PROJECTS
(FORESTRY AND FUELWOOD)

AUTHORIZED/OPERATIONAL
(\$000s)

Project No.	Country/Title	Acti- vity	LOP Authorization/Request by Activity						Funding by Year					
			TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY81	OY882	CP83
695-0105	Burundi Bururi Forest ⁶	FW/F	183	---	51	65	557	855	---	---	---	---	900	---
635-0205	The Gambia Forestry Project ⁶	FW/F	180	105.0	272.3	---	609	1181.3	---	1181.3	---	---	---	---
698-0410.35	Guinea (AIP) Community Forestry School ⁷ Tree Nursery	FW/F	354	---	16	40	50	460	---	---	---	460	---	---
615-0205	Kenya Renewable Energy ⁶	FW	1030	133	223	622	622	2630	---	---	1915	725	---	---
625-0937	Mali (AIP) Village Reforestation ⁷	FW/F	50	22	32	101	290	495	---	---	---	495	---	---
685-0219	Senegal Fuelwood Production ⁷	FW	700	187	247	---	1999	3133	---	1400	700	730	600	600
685-0247	Senegal Village Woodlot Firewood ⁶ Production	FW	63	---	---	---	148	211	---	---	211	---	---	---
686-0235	Upper Volta Forestry Education and Development ⁶	F	1927.5	30	1499.3	---	1011.8	4468.5	---	393.8	1012.5	2593.5	---	---
625-0937.06	Upper Volta (AIP) Village Forestry ⁶	FW/F	---	---	3.6	---	28.9	32.5	---	---	32.5	---	---	---
625-0937.03	Upper Volta (AIP) Yatenga Agri-Forestry ⁶	FW/F	---	---	9.1	---	23.1	32.2	---	---	---	32	---	---
633-0209	Botswana Renewable Energy ⁵	FW	597.5	64.5	228.5	566	196.5	1652	---	---	362.5	500	789.5	---
655-0006	Cape Verde Watershed Management ¹	F	10.7	2.5	1.9	---	234.9	313.8	---	50	72.9	102.9	88.1	---
682-0205	Mauritania Renewable Resource Management ⁶	F	628.2	572	140.2	---	1348.4	2432.6	130	169	143	---	---	---

TREE-PLANTING ACTIVITIES
IN REGIONAL AND BILATERAL PROJECTS
(FORESTRY AND FUELWOOD)

AUTHORIZED/OPERATIONAL
(\$000s)

Project No.	Country/Title	Acti- vity	En. Sr.	LOP Authorization/Request by Activity						Funding by Year					
				TA	A&S	TR	T&D	DS	TOTAL	FY78	FY79	FY80	FY81	OYB82	CP83
683-0230	Niger Forestry and Land Use Planning ³	F		380.4	209.1	202.8	283.2	---	1075.5	---	---	332.4	172.8	---	---
633-0077	Botswana Rural Sector Grant ¹	F		47.2	11.5	18.9	---	300.4	378.0	---	---	125	125	128	---
632-0201	Mauritania Guidimaka Integrated Rural ¹ Development	F		66.6	2.4	2.3	51.1	56	178.4	23.2	31.8	---	---	---	---
683-0240	Niger Niamey Department Develop- ¹ ment II	F		40.9	---	7.1	---	144.2	203.7	---	---	---	85.6	---	45
685-0224	Senegal SODESP Livestock Production ²	F		334.1	---	82.7	---	783.3	1200	---	304.5	225	---	---	---
621-0160	Tanzania Lutheran World Relief ¹ Village Environment Improvement	FW/F		.6	.2	.4	---	8.8	10	---	---	---	10	---	---
686-0231	Upper Volta (CPG) Seguena Integrated Rural ¹ Development	F		131	---	8.8	---	119.8	297.6	---	50	50	67.8	80	---
	SUBTOTAL			6725	1340	3055	1728	8531	21240	153	3580	5182	6100	1686	645
PLANNED															
649-0122	Somalia CDA Forestry (Phase I) ⁶	FW		---	---	---	---	---	4500	---	---	---	---	4500	---
650-0064	Sudan (OPG) Eastern Reforestation ⁷	FW/F		---	---	---	---	---	4000	---	---	---	---	4000	---

APPENDIX C
NEW AND RENEWABLE ENERGY
PROJECT STATISTICS

Notes:

These tables were prepared by Peter Dewees for a PPC/EY report on "AID's Programs in New and Renewable Sources of Energy: Activities in Support of the Nairobi Program of Action," June, 1982. The report covered all four geographic regions; the Africa Bureau statistics have been disaggregated for the purpose of this report.

Agency for International Development
Renewable Energy Activities

Africa Bureau
FY 1980 - FY 1983

ENERGY ASSESSMENT AND PLANNING

Development Assistance

Kenya

6150205 Renewable Energy Development

Mali

6880217 Renewable Energy

Senegal

6850219 Fuelwood Production - Phase 1

Upper Volta

6860235 Forestry Education and Development

Sahel Regional

6250937 Accelerated Impact Programs (Sahel)

Africa Regional

6980410 Accelerated Impact Programs

690427 Energy Initiatives for Africa

Economic Support

Botswana

6330209 Renewable Energy Technology

Djibouti

6030013 Energy Initiatives

RESEARCH, DEVELOPMENT, AND DEMONSTRATION

Development Assistance

Burundi

6950103 Alternative Energy - Peat II
6950105 Bururi Forest

Kenya

6150205 Renewable Energy Development

Mali

6880217 Renewable Energy

Mauritania

6820205 Renewable Resources Management
6820223 Alternative Energy Programs

Niger

6830320 Forestry and Land Use Planning

Senegal

6850219 Fuelwood Production - Phase I
6850243 Africare Forestry (PVO)

Sudan

6500041 Renewable Energy

Upper Volta

6860235 Forestry Education and Development

Sahel Regional

6250937 Accelerated Impact Programs (Sahel)

Africa Regional

6980407 Improved Rural Technology
6980410 Accelerated Impact Program
6980427 Energy Initiatives for Africa

Economic Support

Botswana

6330209 Renewable Energy Technology

Djibouti

6030013 Energy Initiatives

TECHNOLOGY TRANSFER, APPLICATION, AND ADAPTATION

Development Assistance

Burundi

6950103 Alternative Energy - Peat II
6950105 Bururi Forest

Kenya

6150205 Renewable Energy Development

Mali

6880217 Renewable Energy

Mauritania

6820223 Alternative Energy Programs

Senegal

6850243 Africare Forestry (PVO)
6850247 Africare/PC Village Woodlots (PVO)

Sudan

6500041 Renewable Energy

Zaire

6600095 Rural Hydro-electric Development

Sahel Regional

6250937 Accelerated Impact Programs (Sahel)

Africa Regional

6980135 Program Development and Support
6980407 Improved Rural Technology
6980410 Accelerated Impact Program
6980427 Environmental Training for Africans

Economic Support

Botswana

6330209 Renewable Energy Technology

Djibouti

6030013 Energy Initiatives

INFORMATION FLOWS, EDUCATION, AND TRAINING

Development Assistance

Burundi

6950105 Bururi Forest

Kenya

6150205 Renewable Energy Development

Mali

6880217 Renewable Energy

Mauritania

6820205 Renewable Resources Management

6820223 Alternative Energy Programs

Senegal

6850243 Africare Forestry (PVO)

6850247 Africare/PC Village Woodlots (PVO)

Sudan

6500041 Renewable Energy

Upper Volta

6860235 Forestry Education and Development

Zaire

6600095 Rural Hydro-electric Development

Sahel Regional

6250937 Accelerated Impact Programs (Sahel)

Africa Regional

6980135 Program Development and Support

6980410 Accelerated Impact Program

6980424 Energy Initiatives for Africa

6980427 Environmental Training for Africans

Economic Support

Djibouti

6030013 Energy Initiatives

ENERGY ACTIVITIES (\$000s)		Development Assistance					
C. TECHNOLOGY TRANSFER, APPLICATION, AND ADAPTATION		App. Cat.	1980 Actual	1981 Actual	1982 Est.	1983 Requ.	Total (1980-1983)
Burundi							
6950103	Alternative Energy - Peat II	SD	200	200	111	226	737
6950105	Bururi Forest	FN	---	---	432	---	432
Kenya							
6150205	Renewable Energy Development	SD	348	132	---	---	480
Mali							
6880217	Renewable Energy	SH	---	279	141	210	630
Mauritania							
6820223	Alternative Energy Programs	SH	---	---	---	288	288
Senegal							
6850243	Africare Forestry (PVO)	SH	25	---	---	---	25
6850247	Africare/PC Village Woodlots (PVO)	SH	127	---	---	---	127
Sudan							
6500041	Renewable Energy	SD	---	100	206	120	426
Zaire							
6600095	Rural Hydro-electric Development	FN	---	---	---	1400	1400
Sahel Regional							
6250937	Accelerated Impact Programs (Sahel)	SH	420	214	---	---	634
Africa Regional							
6980135	Program Development and Support	SD	360	462	180	270	1272
6980407	Improved Rural Technology	FN	15	23	36	---	74
6980410	Accelerated Impact Program	SD	203	343	459	---	1004
6980427	Environmental Training for Africans	FN, SD	---	---	165	---	165
Subtotal			1698	1753	1730	2514	7695
Economic Support							
Botswana							
6330209	Renewable Energy Technology	ESF	218	300	474	---	992
Djibouti							
6030013	Energy Initiatives	ESF	---	400	400	---	800
Subtotal			218	700	874	---	1792
TECHNOLOGY TRANSFER, APPLICATION AND ADAPTATION TOTAL			1916	2453	2604	2514	9487

ENERGY ACTIVITIES (\$000s)		<u>Development Assistance</u>					Total (1980-1983)
D. <u>INFORMATION FLOWS, EDUCATION, AND TRAINING</u>		App. Cat.	1980 Actual	1981 Actual	1982 Est.	1983 Requ.	
Burundi							
6950105	Bururi Forest	FN	---	---	144	---	144
Kenya							
6150205	Renewable Energy Development	SD	1045	395	---	---	1440
Mali							
6880217	Renewable Energy	SH	---	93	47	70	210
Mauritania							
6820205	Renewable Resources Management	SH	28	32	25	45	130
6820223	Alternative Energy Programs	SH	---	---	---	480	480
Senegal							
6850243	Africare Forestry (PVO)	SH	13	---	---	---	13
6850247	Africare/PC Village Woodlots (PVO)	SH	85	---	---	---	85
Sudan							
6500041	Renewable Energy	SD	---	300	617	360	1277
Upper Volta							
6860235	Forestry Education and Development	SH	405	519	---	---	924
Zaire							
6600095	Rural Hydro-electric Development	FN	---	---	---	600	600
Sahel Regional							
6250937	Accelerated Impact Programs (Sahel)	SH	140	71	---	---	211
Africa Regional							
6980135	Program Development and Support	SD	240	308	120	180	848
6980410	Accelerated Impact Program	SD, FN	68	124	153	---	345
6980424	Energy Initiatives for Africa	SD	---	---	90	254	344
6980427	Environmental Training for Africans	FN, SD	---	---	385	---	385
Subtotal			2024	1842	1581	1989	7436
			<u>Economic Support</u>				
Djibouti							
6030013	Energy Initiatives	ESF	---	200	200	---	400
Subtotal			---	200	200	---	400
INFORMATION FLOWS, EDUCATION, AND TRAINING TOTAL			2024	2042	1781	1989	7836

APPENDIX D
PL 480/Title II
WORLD FOOD PROGRAM
Forestry and Conservation Projects

Notes and Definitions:

exp.= expansion of previous project
ext.= extension of this project

¹Forestry component only.

²Complete program.

³Figures do not include ocean freight.

Figures cover total commitment, not amount called forward.

In some cases, a second figure appears beneath the total; this is the amount attributed to forestry in a list prepared in the fall of 1982 by FVA/FFP/II.

⁴Information not available.

⁵Total WFP cost of project.

PL 430/Title II
WORLD FOOD PROGRAM

Country/Code Project Title	Principal Activities	Duration WFP Approval Date Termination Date	Total Cost to WFP	WFP Cost of Forestry	AID Contribution	Host Country Contribution
Benin/2096 Multipurpose Rural Development	Includes a subproject for afforestation and improvement of national parks, including experimental plantations and 6,000 ha. of teak and other species.	7 years (ext.) July, 1974 1982	\$11,015,000	\$ 205,000	\$ 4,871,000	\$ 697,000 ¹
Cameroon/773 (exp.) Assistance under the fourth five-year plan	Includes a scheme for assistance in forest surveys, concentrating in south-eastern Cameroon.	4 years May, 1979 1984	\$10,405,000	\$ 73,000	\$ 4,428,000	\$ 214,000 ¹
Chad/2452 (exp.) Multipurpose Rural Development	Including a reconstitution of up to 3,000 ha. of forest and plantation of 500 ha. around N'Djamena; nursery development.	3 years May, 1979 suspended	\$ 9,480,000	\$ 627,000	\$ 45,600	\$ 415,000 ¹
Ghana/2075 (exp.) Forest Plantations	Up to 100,000 acres of new plantations for firewood, roundwood, wood pulp and charcoal; maintenance and beating-up of planted areas; nurseries and seed collection.	5 years May, 1979 1985	\$12,380,000	/5/	\$ 4,386,000	\$16,213,000 ²
Guinea-Bissau/2383 Multipurpose Rural Development	Oio region: plantation of 300 ha. of exotic species; protection and improvement of 50,000 ha. of existing forest; village plantations. Bissau region: establishment of a 200-ha. national forest. Bafata region: village plantations (560 ha.)	3 years October, 1978 1982	\$ 3,577,000	\$1,999,000	\$ 1,348,305	/4/
Liberia/703 Reforestation	Establishment of 21,500 acres of teak and terminalia as compensatory forests.	10 years April, 1971 1982	\$ 2,264,000	/5/	\$ 615,295	/4/
Mali/2231 (exp.) Multipurpose Rural Development	Forestry subprojects include: FAO/World Bank project (4315 ha. of plantations; 1,700 ha. of management); Sikasso Forest project (1,000 ha. of plantation; 7 nurseries); Kayes region forestry (500 ha.); establishment of 10 nurseries; park management.	3 years, October, 1979 1983	\$22,451,000	\$3,536,000	\$3,800,000	\$ 1,136,363 ¹

PL 480/Title II
WORLD FOOD PROGRAM

Country/Code Project Title	Principal Activities	Duration WFP Approval Date Termination Date	Total Cost to WFP	WFP Cost of Forestry	AID Contribution	Host Country Contribution
Rwanda/2369 Rural Development in the Prefecture of Gikongoro	Includes an erosion control scheme and a forestry scheme (plantation of 1,500 ha. on communal lands). As of 4/82 evaluation, 1,158 ha. have been planted and 71 nurseries have been established.	2 years November, 1979 1982	\$1,348,000	\$1,059,000	\$ 365,000	\$ 480,815 ²
Senegal/2230 Agricultural Development of the Sine-Saloum Area	Assistance for the removal of stumps, and for establishment of windbreaks to help reduce the threat of soil erosion.	5 years (ext.) October, 1975 1982	\$6,397,000	\$2,643,000	\$ 342,530	/4/
Senegal/2236 (exp.) Conservation and Development of Natural Vegetation	Plantation of acacia albidia; establishment of windbreaks, village woodlots, fire control, fire-breaks, dune fixation, seedling production.	3 years October, 1980 1984	\$6,105,000	/5/	\$1,559,000	\$6,386,728
Togo/402 (exp.) Multipurpose Rural Development	Includes a forestry sub-project of 1,500 ha. of plantations, 90 km. of fire-breaks and 20 km. of forest tracks.	4 years May, 1981 1986	\$8,304,000	\$1,010,000	\$4,023,000 \$ 840,000 ¹	/4/
Upper Volta/2239 Multipurpose Rural Development	Includes a forestry scheme for planting approximately 8,300 ha. and for maintenance of 20,000 ha.	5 years May, 1981 1987	\$33,293,000	\$3,791,000	\$6,255,000 \$ 829,194 ¹	\$1,929,350 ¹
Comoro Islands/2545 Multipurpose Rural Development	Includes reforestation of mountains and uplands, and a scheme for soil management, reclamation and conservation.	4 years October, 1980 1985	\$7,018,000	\$ 36,000	\$2,648,000	\$ 218,375 ¹
Lesotho/352 (exp.) Soil and Water Conservation and Road Improvement	Multipurpose project including 1,959 ha. of village woodlots and soil conservation schemes.	3 years April, 1980 1983	\$9,684,000	\$1,124,000	\$4,199,000	\$4,600,000
Madagascar/700 Regional Development and Afforestation	Assistance to three sub-projects: plantation of 35,000 ha., forest road construction and creation of forest villages in Upper Mangoro; plantation of 700 ha. of quinquina in Antananarivo; assistance to forestry training school.	6.5 years January, 1975 1983	\$1,468,000	/5/	\$ 210,000 \$ 2,961 ¹	\$ 100,000

PL 480/Title II
WORLD FOOD PROGRAM

Country/Code Project Title	Principal Activities	Duration WFP Approval Date Termination Date	Total Cost to WFP	WFP Cost of Forestry	AID Contribution	Host Country Contribution
Malawi/2145 (exp.) Forestry Development of the Vipha Plateau	Plantation of 6,070 ha. for pulp production; includes nursery work, site preparation, planting, fire protection (6,000 ha/year target exceeded in Phase I).	3 years October, 1978 1982	\$ 2,653,000	/5/	\$2,011,000 ¹ \$ 757,897 ¹	/4/
Mozambique/2514 Development through Forestry Activity	Consists of two subprojects: Manica forestry and forest industries development (22,500 ha. of pulpwood plantation, charcoal production, fire protection); Maputo fuelwood plantations (14,000 ha. of plantations for fuelwood and charcoal, charcoal production, road construction).	5 years October, 1980 1986	\$19,371,000	/5/	\$7,645,000	\$22,200,000
Somalia/719 (exp.) Rangeland Development and Reforestation	Includes 100 km ² of improved and maintained forestry reserves, 1,600 ha. of sand dune stabilization, and 2,800 ha. of plantations and town shelter belts.	3 years June, 1979 1982	\$17,238,000	\$2,940,000	\$8,767,000	\$34,042,900
PLANNED PROJECTS/PROJECTS PENDING AID APPROVAL						
Benin/2096 (exp). same as previous project	Includes thinning of 6,000 ha. of teak, plantation of 2,000 ha. of fuelwood, 2,400 ha. of village plantations and national parks maintenance.	3 years May, 1982 1985	\$13,427,000	\$2,202,028	\$5,211,000	\$13,331,600
Kenya/2589 Rural Development in Arid and Semi-Arid Lands (ASAL)	Two ASAL settlement schemes include sub-projects for forest conservation/afforestation: Bura (protection of existing riverine forest, 4,500 ha. of afforestation for building poles and firewood, tree nursery establishment, planting of 50,000 amenity tree seedlings); Magarini (forestation of 1,290 ha. of individual and communal lands).	5 years October, 1981 1987	\$5,500,000	\$ 600,000	\$3,252,000	/4/

PL 480/Title II
WORLD FOOD PROGRAM

Country/Code Project Title	Principal Activities	Duration WFP Approval Date Termination Date	Total Cost to WFP	WFP Cost of Forestry	AID Contribution	Host Country Contribution
Senegal/2230 (exp.) same as previous project	Tree-planting component includes 80,000 ha. of windbreaks, village woodlots (1,500 ha./ 1,200,000 eucalyptus) and 37,000 acacia al-bida seedlings.	4 years October, 1981 1986	\$3,600,000	\$ 289,000	\$7,645,000	/4/
Uganda/2624q Multipurpose Rural De- velopment in the Karamoja Region	Including tree-planting, rehabilitation of Moroto nursery, establishment of nine new nurseries, rehabilitation and extension of four plantations, controlled production of charcoal and logs.	1 year future 1983	\$1,384,000	/4/	\$ 268,000	\$7,966,320

APPENDIX E
USE OF TECHNOLOGIES BY COUNTRY

Notes:

1. This list is based on Appendix A, "Energy Activities Supported by the Africa Bureau" (Larson, 1981).
2. No distinction is made between technologies proposed and technologies in use in ongoing projects; all technologies proposed in the Project Paper are listed. Technologies proposed for planned projects are also listed.

TECHNOLOGYPROJECT

1. Pedal-powered grain grinding and/or dehulling	633-0209 632-0206 650-0041	Botswana Renewable Energy Technology Lesotho Renewable Energy Sudan Renewable Energy
2. Pedal-powered pumps for water	625-0937.03 615-0205 688-0202	Cape Verde Renewable Energy (AIP) Kenya Renewable Energy Development Mali Operation Mills
3. Hand pumps for water	633-0209 625-0937.03 615-0205 698-0407.28	Botswana Renewable Energy Technology Cape Verde Renewable Energy (AIP) Kenya Renewable Energy Development Somalia AT Demonstration (IRT)
4. Hydrants	615-0205 698-0407.16	Kenya Renewable Energy Development Swaziland RDA Outreach (IRT)
5. Photovoltaic electricity production	633-0209 682-0223 698-0407.22 698-0410.13	Botswana Renewable Energy Technology Mauritania Alternative Energy Tanzania Photovoltaic Energy (IRT) Upper Volta Solar Energy Demonstration (AIP)
6. Photovoltaic grain grinding	688-0213 698-0410.13	Mali Action Blé Upper Volta Solar Energy Demonstration (AIP)
7. Photovoltaic radio	698-0407.	Zaire Solar-Powered Radio (IRT)
8. Photovoltaic pumps for irrigation and/or drinking water	633-0209 603-0013 688-0202 688-0217 688-0213 683-0039 698-0410.22 698-0410.13	Botswana Renewable Energy Technology Djibouti Energy Initiatives Mali Operation Mills Mali Renewable Energy Mali Action Blé Niger Solar Energy Rwanda Renewable/Improved Traditional Energy (AIP) Upper Volta Solar Energy Demonstration (AIP)
9. Solar thermal pump for irrigation	685-0208	Senegal Babel Crop Production

TECHNOLOGYPROJECT

10. Passive solar heating and cooling	633-0209 625-0937.03 682-0222	Botswana Renewable Energy Cape Verde Renewable Energy (AIP) Mauritania Alternative Energy
11. Solar fish dryers	625-0937.03 603-0013 688-0217 625-0937.07	Cape Verde Renewable Energy (AIP) Djibouti Energy Initiatives Mali Renewable Energy Senegal Renewable Energy (AIP)
12. Solar crop or grain dryers	698-0407.33 625-0937.03 615-0205 688-0217 683-0039 698-0410.22 698-0407.16 698-0407.09	Burundi Farm Dryers (IRT) Cape Verde Renewable Energy (AIP) Kenya Renewable Energy Development Mali Renewable Energy Niger Solar Energy Rwanda Renewable Energy (AIP) Swaziland RDA Outreach (IRT) Togo Rural Solar Energy (IRT)
13. Solar cookers	633-0209 625-0937.03 650-0041 698-0407.09	Botswana Renewable Energy Technology Cape Verde Renewable Energy (AIP) Sudan Renewable Energy Togo Rural Solar Energy (IRT)
14. Solar greenhouses (growholes)	632-0206 698-0407.16	Lesotho Renewable Energy Technology Swaziland RDA Outreach (IRT)
15. Solar stills	625-0937.03 603-0013 698-0407.09	Cape Verde Renewable Energy (AIP) Djibouti Energy Initiatives Togo Rural Solar Energy (IRT)
16. Solar thermal refrigerators (primarily for village dispensaries)	682-0223 683-0235 650-0049 698-0407.22	Mauritania Alternative Energy Niger Solar Energy Sudan Commodity Import Program Tanzania Photovoltaic Energy (IRT)

TECHNOLOGYPROJECT

17. Solar water heaters	633-0209 688-0217 698-0407.16 698-0407.09	Botswana Renewable Energy Technology Mali Renewable Energy Swaziland RDA Outreach (IRT) Togo Rural Solar Energy (IRT)
18. Evaporative coolers	633-0209	Botswana Renewable Energy
19. Windmills to pump water and/or generate electricity	633-0209 625-0937.03 603-0013 615-0205 682-0223 698-0410.22 698-0407.28 621-0160	Botswana Renewable Energy Technology Cape Verde Renewable Energy (AIP) Djibouti Energy Initiatives Kenya Renewable Energy Development Mauritania Alternative Energy Rwanda Renewable Energy (AIP) Somalia AT Demonstration (IRT) Tanzania LWR Village Environment Improvement (OPG)
20. Mini-hydro	698-0424 632-0206 698-0407.07 698-0410.22 650-0041 660-0095	AFR Regional Energy Initiatives for Africa Lesotho Renewable Energy Liberia Mini Hydro-Electric Activity (IRT) Rwanda Renewable Energy (AIP) Sudan Renewable Energy Zaire Small Hydro-Power Development
21. Hydropower	655-0005 650-0049 650-0059	Cape Verde Desalination & Power Sudan Commodity Import Program Sudan Energy Planning and Management
22. Biogas	625-0937.03 632-0206 682-0223 650-0041 698-0407.16	Cape Verde Renewable Energy (AIP) Lesotho Renewable Energy Technology Mauritania Alternative Energy Sudan Renewable Energy Swaziland RDA Outreach (IRT)
23. Biogas refrigerators for village dispensaries	698-0410.22	Rwanda Renewable Energy (AIP)

TECHNOLOGYPROJECT

24. Improved charcoal production	615-0205 625-0937 650-0041 698-0407.25	Kenya Renewable Energy Development Senegal Renewable Energy (AIP) Sudan Renewable Energy Uganda Charcoal Briquette Production (IRT)
25. Thatch insulation	633-0209 632-0206	Botswana Renewable Energy Technology Lesotho Renewable Energy Technology
26. Peat production	695-0103	Burundi Alternative Energy--Peat II
27. Peat stoves	695-0103	Burundi Alternative Energy--Peat II
28. Wood- & dung-burning stoves, charcoal kilns	698-0424 625-0911 633-0209 695-0105 625-0937.03 635-0205 615-0205 632-0206 688-0217 625-0937 682-0223 683-0235 698-0410.22 625-0937 650-0041 698-0407.16 625-0937	AFR Regional Energy Initiatives for Africa Sahel Regional VITA Woodstoves Botswana Renewable Energy Technology Burundi Bururi Forest Cape Verde Renewable Energy (AIP) The Gambia Forestry Project Kenya Renewable Energy Development Lesotho Renewable Energy Technology Mali Renewable Energy Mali Village Reforestation (AIP) Mauritania Alternative Energy Niger Solar Energy Rwanda Renewable Energy * Senegal Renewable Energy (AIP) Sudan Renewable Energy Swaziland RDA Outreach (IRT) Upper Volta Yatenga Agri-forestry (AIP)
29. Agroforestry (includes windbreaks, live fencing, etc.)	698-0424 625-0929 615-0205 625-0937	AFR Regional Energy Initiatives for Africa Sahel Regional NAS Advisory Committee Kenya Renewable Energy Development Mali Village Reforestation (AIP)

*649-0122

Somalia CDA Forestry

TECHNOLOGY

PROJECT

29. Agroforestry (continued)

682-0201 Mauritania Guidimaka IRD
683-0230 Niger Forestry and Land Use Planning
685-0219 Senegal Fuelwood Production
685-0247 Senegal Village Woodlots
649-0122 Somalia CDA Forestry
650-0064 Sudan Eastern Reforestation
625-0937.08 Upper Volta Yatenga Agri-forestry (AIP)
625-0937.08 Upper Volta Village Forestry (AIP)
686-0231 Upper Volta Seguenega IRD (OPG)

30. Fuelwood

695-0105 Burundi Bururi Forest
632-0205 The Gambia Reforestation
698-0410.35 Guinea Community Forestry School Tree Nursery (AIP)
615-0205 Kenya Renewable Energy Development
625-0937 Mali Village Reforestation (AIP)
682-0205 Mauritania Renewable Resource Management
683-0230 Niger Forestry and Land-Use Planning
685-0219 *Senegal Fuelwood Production
650-0064 Sudan Eastern Reforestation (OPG)
686-0235 Upper Volta Forestry Education and Development
625-0937.08 Upper Volta Village Forestry (AIP)

31. Village Woodlots

698-0424 AFR Regional Energy Initiatives for Africa
625-0261 Sahel Regional OMVS Integrated Development
633-0209 Botswana Renewable Energy Technology
635-0205 The Gambia Reforestation
615-0205 Kenya Renewable Energy Development
625-0937 Mali Village Reforestation (AIP)
685-0247 Senegal Village Woodlots
655-0041 Sudan Renewable Energy
625-0937 Upper Volta Village Forestry (AIP)

32. Weather-measuring instruments,
Telecommunications networks

625-0917 Sahel Regional Water Data Network Management I
625-0940 Sahel Regional Water Data Network Management II

*649-0122 Somalia CDA Forestry

TECHNOLOGY

33. Remote sensing and resource mapping,
aerial photography

PROJECT

698-0414 AFR Regional Remote Sensing/East Africa
698-0420 AFR Regional Remote Sensing/West Africa
625-0012 Sahel Regional Gambia River Basin Development
635-0203 The Gambia Mixed Farming & Resource Management
615-0172 Kenya Arid & Semi-Arid Lands Development
688-0202 Mali Land Use Inventory
683-0240 Niger Niamey Department Development II
683-0202 Niger Range and Livestock
685-0233 Senegal National Plan for Land Use & Development
649-0168 Somalia Central Rangelands Development

34. Soil conservation measures (terracing,
dams, groin construction)

655-0006 Cape Verde Watershed Management
615-0172 Kenya Arid & Semi-Arid Lands Development

APPENDIX F
LIST OF
FREQUENTLY-USED ABBREVIATIONS

Notes:

1. Abbreviations of organizations germane to specific projects are explained on the Project Data Sheets.
2. Governments of African countries are written out in full on first reference, and abbreviated on subsequent reference (eg: Government of the Gambia, GOTG; Government of Sudan, GOS; etc.).

ABEDA	Arab Bank for Economic Development in Africa
ABS	Annual Budget Submission (AID)
ADB	Arab Development Bank
AIP	Accelerated Impact Program (AID)
ARD	Associates in Rural Development
BOSTID	Board on Science and Technology in Development (NAS)
CARE	Cooperative for American Relief Everywhere
CDA	Concerted Action for Development in Africa (also CADA)
CIDA	Canadian International Development Agency
CILSS	Permanent Interstate Committee for Drought Control in the Sahel
CP	Congressional Presentation (AID)
ECA	Economic Commission for Africa
EDF	European Development Fund of the Common Market (see FED)
ED/I	Energy Development, International
EEC	European Economic Community (Common Market)
ENDA	Environment and Development in Africa
FAO	Food and Agriculture Organization (UN)
FED	Fonds Européens de Développement/European Development Fund (see EDF)
IBRD	International Bank for Reconstruction and Development (World Bank)
IDA	International Development Association
IFAD	International Fund for Agricultural Development
ILCA	International Livestock Center for Africa
IMF	International Monetary Fund
IRD	Integrated Rural Development
IRT	Improved Rural Technology (AID)
IUCN	International Union for Conservation and Nature
NAS	National Academy of Sciences
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NRECA	National Rural Electric Cooperative Agency
ODC	Overseas Development Council
OPG	Operational Program Grant (AID)
PACD	Project Assistance Completion Date (AID)
PASA	Participating Agency Service Agreement
PCV	Peace Corps Volunteer
PID	Project Identification Document (AID)
PP	Project Paper (AID)
PRP	Project Review Paper (AID)
PSC	Personal Services Contract (AID)
REDSO/EA	Regional Economic Development Services Office, East Africa
REDSO/W	Regional Economic Development Services Office, West Africa
RET	Renewable Energy Technology
RSSA	Resources Services Support Agreement

SECID	South East Consortium for International Development
SERI	Solar Energy Research Institute
SOFRETES	Company for Thermal and Solar Studies (French)
UNDP	United Nations Development Program
UNEP	United Nations Environmental Program
UNIDO	United Nations International Development Organization
UNSO	United Nations Sudano-Sahelian Office

APPENDIX G
PROJECT INDEX

CENTRALLY-FUNDED PROJECTS

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ST/EY	936-5701	Low Cost Energy Technology for the Rural Poor	9
ST/EY	936-5702	Energy Technical Service Support	10
ST/EY	936-5703	Energy Policy and Planning Assistance	11
ST/EY	936-5709	Bio-Energy Systems and Technology	12
ST/EY	936-5710	Photovoltaic Development and Support Program	13
ST/EY	936-5711	Renewable Energy Survey and Demonstration	14
ST/EY	936-5715	Small Decentralized Hydropower	15
ST/EY	936-5716	Alternative Energy Training	16
ST/EY	936-5724	Conventional Energy Technical Assistance	17
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ST/FNR	931-1209	Environment & Natural Resources Expanded Info. Base	21
ST/FNR	936-5517	Environmental Planning and Management	22
ST/FNR	936-5519	Forest Resources Management	23
ST/FNR	936-5545	Agroforestry Research and Training	24
ST/FNR	936-5546	Forestry Sector Development	25
ST/FNR	936-5518	Coastal Resources Management	26
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