# Energy, Forestry and Natural Resources Activities in the Africa Region

**Bureau for Africa**
**Agency for International Development**

**January 1984**

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# ENERGY, FORESTRY & NATURAL RESOURCES ACTIVITIES IN THE AFRICA REGION

BUREAU FOR AFRICA
TECHNICAL RESOURCES, SPECIAL DEVELOPMENT PROBLEMS
AGENCY FOR INTERNATIONAL DEVELOPMENT
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Dr. Aida C. Monares

## I. Introduction

The purpose of this compendium is to provide an overview of AID's project activities in Energy, Forestry and Natural Resources in the Africa Region. It is intended to serve as a reference to AID/Washington Bureaus, Missions, regional offices, Congress and other federal agencies, international development and private voluntary agencies and other interested individuals. Projects described herein have been developed in response to Congressional mandates and AID policies to address critical shortages in energy, forestry/fuelwood and natural resources confronting less developed countries (LDCs) of the world. Project efforts encompass a wide spectrum of activities, are tailored to meet specific LDC needs, and are aimed at LDC assistance in the following fields: policy planning, training and institutional support; technology development, testing and research; program evaluation; data collection; energy research; and expansion of energy supplies (including fuelwood, fossil fuels, and electric power). Through these efforts, it is hoped that LDC energy constraints to development will be alleviated and a transition to a balanced mix of energy sources will be achieved.

In recent years AID programs have reflected a significant emphasis on energy, forestry/fuelwood and natural resources problems confronting LDCs. Over a relatively short span of time, this increased concern has led to the introduction of numerous technologies in African countries. As part of the institution building strategy, an increased cadre of professionals within LDCs have received in-country, third-country and/or U.S.-training to meet their country's pressing energy, forestry/fuelwood and natural resources constraints. Actual and planned AID funds committed to Africa in these sectors from FY78 - FY84 are illustrated in Figure I.

Supplementary to project activities, AID funds have supported special studies such as: environmental profiles;[1] community viability/social acceptibility of proposed technologies; establishment of laboratories and workshops in LDCs; research on fast-growing trees; identification of more efficient devices for fuelwood combustion and conversion; petroleum use and distribution patterns; studies on coal technology, biomass conversion, solar applications and energy conservation; and biomass resources and conversion technologies.[2]

Furthermore, AID has financed workshops, seminars and conferences that have fostered establishment of professional links

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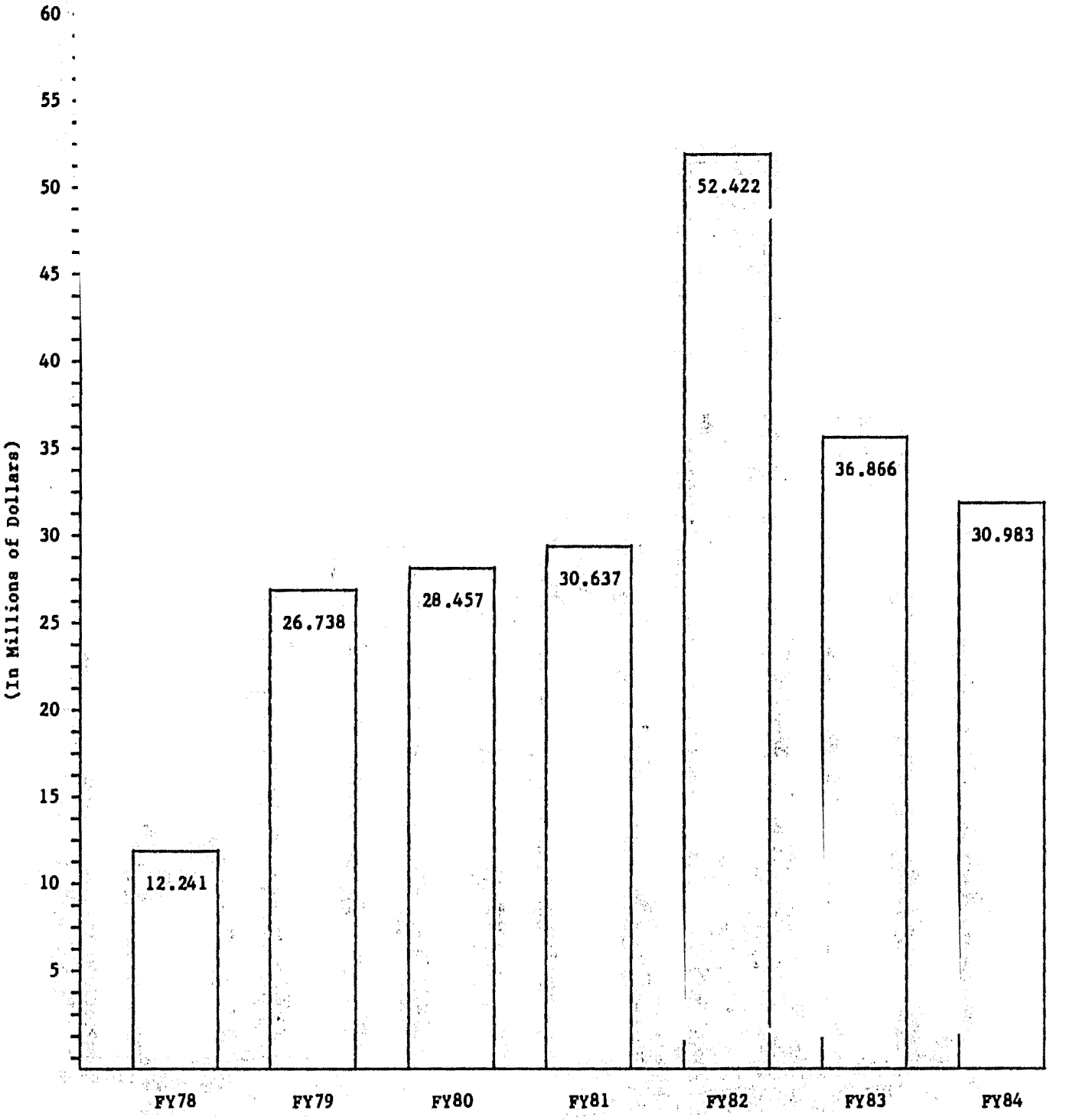
[1]As of February, 1983, 22 draft environmental profiles had been prepared under contract with AID's Bureau of Science and Technology; Office of Forestry, Environmental and Natural Resources (S&T/FNR) and the MAB Program. These profiles have two purposes: (1) to develop better information for AID Missions, host country officials, and others on the environmental situation in countries receiving U.S. bilateral assistance, and (2) to identify the most critical environmental areas of concern.

[2]This is a multi-year energy research grant with the National Academy of Sciences.

FIGURE 1

AUTHORIZED/PLANNED ENERGY, FORESTRY/FUELWOOD, NATURAL RESOURCES OBLIGATIONS BY FISCAL YEAR




- Note that FY84 totals represent planned obligations to date and should be interpreted along with FY83 as tentative estimates.
- For a breakdown of funding obligations by sector see Appendix A.

and sharing of knowledge between LDC professionals and experts from AID and other international agencies. Recent illustrative events have included: the Office of Energy sponsored conference on AID Energy Analysis, and Policy Development, held in Reston, Virginia, February 27 - March 4, 1983; a Forestry and Natural Resources Workshop, held in North Carolina in 1983; and a Sahel Resource Inventory/Mapping Coordination Seminar in May 1982. AID funds have similarly supported participation in international conferences among them: the United Nations World Conference on New and Renewable Sources of Energy, held in Nairobi, Kenya, August 10-21, 1981;[3] an ECOWAS Energy for Survival Conference, held in November, 1981; and a technical Colloquium on Fuelwood Research in Africa, convened in Paris by the Development Assistance Committee and the OECD Development Center.[4]

By drawing on the technical expertise of other federal agencies -- U.S. Forestry Service, Department of Energy, National Academy of Sciences, to name a few -- AID has been able to mobilize technical experts for a broad range of activites. This approach has been fundamental in providing assistance and encouragement to LDC government agencies and universities to assume a more active role in the planning and development of their own energy and natural resources. Collaboration with the Peace Corps has prompted design of projects utilizing volunteer expertise in implementing community level programs primarily in conservation and tree planting activities. Agency agreements with U.S. universities have permitted AID to provide training programs for LDC participants as well as to draw upon the academic community's technical expertise in planning, designing, and implementing programs. As a result of these associations U.S. private voluntary agencies, consulting firms and industries engaged in energy forestry and national resources development have benefited and expanded their roles by assisting AID in accomplishing its mission. Of note are the slow but continuing efforts to enlist the participation of African private enterprise which by necessity must become an integral part of the development process if LDCs are to assume a more constructive role in finding solutions to their national problems.

## A. Legislative Setting

The Foreign Assistance Act of 1961, as amended in 1982, (FAA), provides the legal basis for AID's assistance to developing countries in energy, forestry/fuelwood and natural resources.

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[3]Report on the U.S. Delegation to the World Conference on New and Renewable Sources of Energy by Ambassador James Stromayer, Bureau of International Organizations Affairs, Department of State, 1981.

[4]Other workshops have included: Firewood in Africa June, 1978; and Africa Solar Energy Workshop 1978; an AID/Peace Corp Community Fuelwood Workshop February, 1980; a workshop in Energy, Forestry and Environment December, 1981; Small Water Resources Workshop March, 1982.

Through the various provisions of this act, the U.S. Congress has given AID a clear mandate to assist developing countries in meeting their energy and natural resources needs through increased production and conservation (Sec. 103, 106, 107, 118).

An energy issue which has commanded the interest of Congress is the deforestation problem. In Section 103 (b)(3) of the FAA:

> "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 to meet the basic human need of the poor. Deforestation results in increased flooding, reduction in water supply for agricultural capacity, loss of firewood and needed wood products, and loss of valuable plants and animals. In order to maintain and increase forest resources, the President is authorized to provide assistance to forestry projects which are essential to fulfill the fundamental purposes of this section. Emphasis shall be given to community woodlots, agroforestry, reforestation, protection of watershed forests, and more effective forest management."*

Another provision of this Act, Section 106 underscores the purpose and value of foreign assistance to LDCs and finds that they are undetermined by the inability of many developing countries to satisfy their energy requirements. In order to alleviate the acute energy problems and concomitant unfavorable balance of payments confronting less developed countries (LDCs) energy assistance is authorized to include "data collection and analysis, the training of skilled personnel, research on and development of suitable energy resources, and pilot projects to test new methods of energy production."** This mandate is further delineated by Section 106 (b)(1)(A)(2) authorizing foreign assistance agencies to focus on:

> "cooperative programs with developing countries in energy production and conservation through research on development and use of small-scale, decentralized, renewable energy sources for rural areas carried out as integral parts of rural development efforts in accordance with Section 103 of this Act. Such programs shall also be directed toward the earliest practicable development and use of energy technologies which are environmentally acceptable, require minimum capital investment, are most acceptable to and affordable by the people using them, are simple and inexpensive to use and maintain, and are transferable from one region of the world to another. Such

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*Sec. 101 of the International Development Cooperation Act of 1979 (Public Law 96-53; 93 Stat. 359).

**Sec. 304(c) of the International Security and Development Cooperation Act of 1980 (Public Law 96-533; 94 Stat. 3146).

programs may include research on and the development, demonstration, and application of suitable energy technologies (including use of wood); analysis of energy uses, needs, and resources; training and institutional development; and scientific interchange."*

Simultaneously, trends in the degradation of natural resources have highlighted the need to provide further assistance to strengthen the capacity of developing countries to protect and manage their environment and natural resources. Accordingly, in Section 118 (c)(1)(A) of the FAA, Congress has mandated that foreign assistance agencies must now prepare and take into account environmental impact statements and assessments of:

"any program or project...significantly affecting the environment of any foreign country."**

Moreover, in carrying out project activities, Section 107 of the FAA provides Congressional guidance on the subject of Appropriate Technology by stating that:

"special emphasis [shall be placed] on the use of relatively smaller, cost-saving, labor-using technologies that are generally most appropriate for the small farms, small businesses, and small incomes of the poor."***

## B. Africa Bureau's Energy, Forestry and Natural Resources Policy & Program

The Africa Bureau Draft Strategic Plan provides the most recent statement of Bureau policy in the interrelated fields of energy, forestry and natural resources.**** It constitutes a comprehensive and integrated statement of the Bureau's programming strategy and approach to the problem of energy and environmental degredation. Energy and environmental concerns are explicitly recognized as significant elements of overall development strategy and are seen as being directly related to problems in agricultural development.

The general strategy or framework as presented in the plan places:

(1) an emphasis on policy dialogue;

(2) an emphasis on the increased contribution that the private sector can make to African development;

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*Ibid.

**Sec. 307 of the International Security and Development Cooperation Act of 1981 (Public Law 97-113; 95 Stat. 1533).

***Sec. 107 of the International Development and Food Assistance Act of 1978 (Public Law 95-424; 92 Stat. 947).

****Africa Bureau Draft Strategic Plan May 6, 1983 p. 47.

(3) a recognition of the necessity of donor coordination;

(4) a recognition that, although any country's development program must be a blend of direct action and institutional developoment, the Africa Bureau's assistance strategy will emphasize institutional development; and

(5) an emphasis on agriculture as the sector in which donor activity can most quickly have a positive impact on the most individual lives as well as on economic growth.

Consistent with these broad strategy concerns, AID's program priorities in energy forestry and natural resources are:

(1) to assist host countries to devise national policies, plans and programs that promote more efficient use and management of both renewable and conventional energy sources; and

(2) to strengthen African institutions in the public and private sectors which can provide the human and material resources needed to recognize and address problems associated with energy scarcity and environmental degradation, particularly through the integrated management of the natural resources of forest and river basins.*

More specifically, in working with the aforementioned sectors these guideliness are to be implemented through programs in the following areas:

(1) forestry research (agro-forestry, fast-growing trees for fuelwood, forest management, improved seed, improved management practices;

(2) information dissemination (sources of improved tree seed);

(3) energy efficiency and conservation;

(4) energy information systems, planning, policy analysis and management; and

(5) energy research, development and dissemination of energy technologies adapted to local needs.

Complementary to these areas of primary concern, efforts will continue in U.S., in-country and third-country training which seek to augment LDC planning capacity and expertise to carry out the adaptive research on which efficient energy use depends. Rapid and effective dissemination of technologies which increase alternative energy supplies and conserve conventional and traditional energy supplies form key elements of the Bureau's Strategic Plan.

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*Africa Bureau Draft Strategic Plan May 6, 1983 p. 50.

In compliance with legislative mandates a significant element of AID's policy is to provide assistance and leadership in collaboration with other donors, U.N. specialized agencies, other U.S. government agencies, U.S. land grant institutions, and private voluntary organizations. The Africa Bureau has increasingly assumed a leading role in collaboration with other donors in the areas of energy, forestry/fuelwood and natural resources. In 1980, Belgium, Canada, France, Great Britain, West Germany and the United States joined together in an association now called "Cooperation for Development in Africa" (CDA). As the lead country in forestry and fuelwood, the U.S. is working with CDA members and African governments to develop projects as part of a CDA initiative in the forestry sectors.

Additionally, agency efforts in environment and natural resource management have assumed a more focused and deliberate tone. Recently, in a message by the Administrator, M. Peter McPherson, to the Congressional Committee on Foreign Affairs, he noted that:

> "[F]ormal procedures requiring environmental review of the development [donor] support ... ha[ve] been discussed at the Development Assistance and Environmental Committees of the Organization for Economic Cooperation and Development and at the Economic Commission for Europe. It is a topic we will continue to press since we increasingly find it to be a most important element of sustainable development. This is evidenced in part by many of the activities and projects which have been significantly changed as a result of environmental impact assessments....[w]e expect them to provide helpful insight to LDC decision makers faced with preparing major development projects."*

At an increasing pace the Africa Bureau has expanded its program activities not only in energy, and forestry/fuelwood, but in environment and natural resource management as well, thus assisting LDCs in developing a capacity to forecast and plan for natural disasters, 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 antidesertification measures, and regional development. These activities are implemented through the bilateral, regional and centrally funded projects which form the subject of the following chapters of this report.

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*Prepared statement by M. Peter McPherson, Administrator, Agency for International Development, before the Subcommittee on International Economic Policy and Trade and Human Rights and International Organizations, Committee on Foreign Affairs, U.S. House of Representatives. March 16, 1983, p.5 .

## II. Africa Bureau Bilateral Projects

### A. Data Sources and Definitions

This section describes bilateral projects funded by the Africa Bureau in the areas of energy, forestry and national resources. The following information explains the organization of this section and assists in interpreting the data.

To facilitate access to the data, bilateral project summaries are categorized by country, in alphabetical order, and comprise the first section of this report. Within country, the projects are grouped according to sector; energy projects appearing first, followed by forestry/fuelwood, and natural resources. Within these sectors the projects are sequenced by project number in ascending order. Both operational (designated as "active" in project sheets) and planned projects are included, and are designated accordingly in the upper right corner of the data summary sheets. Although projects are not classified according to energy source, they exemplify on-going and planned activities in the following areas: Forestry/fuelwood: tree planting and oil conservation activities designed for environmental protection (live-fencing, dune stabilization, etc.) and for fuel use; Renewable Energy: direct solar, wind, hydro and biomass; Fossil Fuel: oil, gas, coal, shale, tar sands and peat; Natural Resources: planning, management and protection of land resources, primarily related to forestry such as water conservation, catchment basins, mapping, remote sensing, land use planning.

A matrix listing the bilateral projects precedes the actual data summaries. It is intended to provide ready access to project title, number, source of funding and countries impacted by project activities. Country-specific activities--including studies, human resources training, workshops or other interventions -- may be determined by referring to the appropriate "project status" information category. It should be noted that the matrix and project status are not intended to reflect life of project activities as this is beyond the scope of this study. However, they do reflect activities conducted within the past year, more specifically, since the publication of the previous report (July, 1982). The following information provides definitions and explanatory notes concerning the information categories reported on the project summary data sheets and are included to assist in interpreting the data.

COUNTRY/PROJECT NO./TITLE:

In some cases, the project number is followed by one of three abbreviations, indicating:

(1) Accelerated Impact Program (AIP):

A regional umbrella program that supports small ($500,000 or less) pilot projects and meets the following criteria:

(a) introduces a new technology; (b) provides for participation by local institutes and beneficiaries; and (c) provides for transfer of productive skills and knowledge to beneficiaries. There are Sahel and Africa regional AIPs;

(2) Improved Rural Technology (IRT):

Another regional umbrella program that funds small projects ($100,000 or under) in technology innovations undertaken by local organizations in such areas as agriculture, food processing, village water supplies, energy, construction and health;

(3) Operational Program Grant (OPG):

A general program that provides grants of up to $1 million to PVOs, which can be approved in the field, and are usually for a maximum three-year duration.

APPROPRIATION CATEGORY (App. Cat.):

A project can be funded out of more than one AID funding account, as is noted for some projects. The abbreviations may differ from those currently in use; new abbreviations are noted 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).

OBLIGATIONS BY FISCAL YEAR:

Project summary sheets provide past, current, and projected budgetary data by fiscal year (October 1 - September 30) in thousands of dollars for:

FY79, FY80, FY81, FY82:

These figures reflect actual obligations by fiscal year and are obtained from the Office of Financial Management's Project Accounting Information System Documents (PAIS);

FY83:

Estimated funding figures for the current Operating Year Budget (OYB) are subject to change in the course of the year depending on project circumstances and bureau budgetary conditions. The Revised OYB figures as of July 1983 are reported;

FY84:

Estimated funding figures for FY84 are from the Annual Budget Submissions (ABS) FY85 and are by definition subject to change.

LOP AUTHORIZATION/BY ACTIVITY:

This breakdown of activities (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. It should be noted that a certain degree of subjectivity has been exercised in assigning budget items to these categories which do not correspond to the variety of breakdowns in Project Paper budgets. Given these constraints, these figures should be considered indicative rather than definitive. Centrally funded projects and planned projects will not show an activity breakdown, as in the latter case the funding data is tentative at this stage. Five categories of activities are noted and are defind as:

Technical Assistance (TA):

Provision of skilled experts in a variety of fields to provide advice and training to carry out the project;

Analysis and Studies (A&S):

Activities undertaken to compile or assess available energy sources, actual end uses, energy demand, other studies, and evaluations;

Training (TR):

Activities of an instructional nature, including in-service or academic training, observational training, workshops, and allied activities;

Testing and Demonstration (T&D):

Activities undertaken to learn how a system works in a laboratory or a controlled field application; includes funds for construction and allied costs such as materials, and equipment for prototype development and testing, including operating costs, etc.

Dissemination (DS):

Activities undertaken with the primary purpose of disseminating technologies to expand the available supply of energy through production and increased efficiency. Includes associated costs for building construction, materials, equipment, operating costs, etc.

LOP:

Represents the total Life of Project funding. Totals are in thousands of dollars.

PROJECT STATUS:

"Active" indicates that funds have been authorized and activities, including start-up, are on-going;

"Planned" indicates that a PID and/or a Project Paper exists. If the project does not appear in the ABS FY 85, the project has been excluded from this report.

LENGTH OF PROJECT/PACD:

The first entry indicates the date the project was initially obligated, and usually corresponds to commencement of project activities; this is followed by the PACD or Project Assistance Completion Date on which activities are scheduled to end. The length of project, although not explicitly indicated, can be discerned from the beginning and end dates.

CONTRACTOR/GRANTEE

An effort has been made to list the primary contractor(s) or grantee, followed by any other sub-contractors, address and telephone number(s). This category is not intended to provide an exhaustive list of contractors utilized in accomplishing project goals.

FIELD CONTACT/CONTACT

Identifies the office from which the project is administered, project officer and/or advisor, and address.

PROJECT PURPOSE, SUMMARY, AID-FINANCED INPUTS, MAJOR OUTPUTS:

Descriptors are taken from the Project Paper, and describe projects as originally designed; in some cases modifications have been incorporated.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

Information refers to financial contributions to the project by the host country and other donors.

OTHER DONOR ACTIVITIES:

Provides information related to the technology and/or thrust of the AID project; in the case of regional and central projects this section may also include donors' projects in the region.

PROJECT STATUS:

This is a descriptive narrative of project activities and accomplishments within the last year and for the most part does not include evaluative information. It is based on a combination of sources, including conversations with project and desk officers, technical resources staff, contractors/grantees, visiting field officers and Quarterly Implementation Reports (QIR).

PROJECT DOCUMENTS AND REPORTS:

Three types of documents are referenced:

(1) Project Identification Document (PID):

This is usually a brief description of the project submitted by the field mission to AID/W to determine project feasibility;

(2) Project Paper (PP):

If the PID is approved, a detailed description of the project is written including an analysis of social, economic, technical, environmental and institutional feasibility, an implementation and a financial plan. If the PP is approved, the project is authorized, a Project Agreement is signed with the host country government, and the funds are obligated. The authorization date is provided in the status narrative, except in a few cases wherein the obligation date is substituted. In a few cases, the Project Review Paper (PRP) is sometimes listed for older projects which was an intermediate step between the PID and the PP; and

(3) Reports prepared with project funds or non-AID documents related to the project thrust.

AFRICA BUREAU BILATERAL PROJECTS

| | Angola | Benin | Botswana | Burundi | Cameroon | Cape Verde | Central African Republic | Chad | Comoros | Congo | Djibouti | Equatorial Guinea | Ethiopia | Gabon | Gambia | Ghana | Guinea | Guinea-Bissau | Ivory Coast | Kenya | Lesotho | Liberia | Madagascar | Malawi | Mali | Mauritania | Mauritius | Mozambique | Namibia | Niger | Nigeria | Rwanda | Sao Tome/Principe | Senegal | Seychelles | Sierra Leone | Somalia | Sudan | Swaziland | Tanzania | Togo | Uganda | Upper Volta | Zaire | Zambia | Zimbabwe |
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| 633-0209 Renewable Energy Technology ( 16) | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 633-0077 Rural Sector Grant ( 18) | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 695-0103 Alternative Energy Peat II ( 20) | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 695-0105 Bururi Forest ( 22) | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 655-0005 Sal Desalination & Power ( 23) | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 655-0006 Watershed Management ( 24) | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 603-0013 Energy Initiatives ( 25) | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 635-0205 Forestry Project ( 27) | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 635-0220 Agro-Forestry Integration ( 29) | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 635-0202 Soil & Water Management Unit ( 30) | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 635-0203 Mixed Farming & Resource Mgmt. ( 32) | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 615-0205 Renewable Energy Development ( 34) | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 615-0172 Arid & Semi-Arid Lands Kitui ( 36) | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 632-0206 Renewable Energy Technology ( 38) | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | |
| 688-0205 Land Use Inventory ( 40) | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | |
| 688-0217 Renewable Energy ( 42) | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | |

AFRICA BUREAU BILATERAL PROJECTS (Continued)

| | Angola | Benin | Botswana | Burundi | Cameroon | Cape Verde | Central African Republic | Chad | Comoros | Congo | Djibouti | Equatorial Guinea | Ethiopia | Gabon | Gambia | Ghana | Guinea | Guinea-Bissau | Ivory Coast | Kenya | Lesotho | Liberia | Madagascar | Malawi | Mali | Mauritania | Mauritius | Mozambique | Namibia | Niger | Nigeria | Rwanda | Sao Tome/Principe | Senegal | Seychelles | Sierra Leone | Somalia | Sudan | Swaziland | Tanzania | Togo | Uganda | Upper Volta | Zaire | Zambia | Zimbabwe |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 683-0230 Forestry & Land-Use Planning ( 44) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | |
| 683-0240 Niamey Dept. Development II ( 46) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | |
| 683-0226 Rural Sector Human Res. Dev. ( 48) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | |
| 683-0242 - Integrated Livestock Prod. ( 50) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | |
| 685-0219 Fuelwood Production ( 51) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | |
| 685-0224 SODESP Livestock Production ( 53) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | |
| 685-0247 Village Woodlots & Firewood Prod. ( 55) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | |
| 685-0233 National Plan for Land Use and Development ( 56) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | |
| 649-0122 S. Woodstove SubProject ( 57) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | |
| 649-0122 CDA Forestry Refugee Reforestation ( 58) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | |
| 649-0108 Central Range-Lands Development ( 60) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | |
| 655-0041 Rural Renewable Energy ( 62) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | |
| 650-0059 Energy Planning & Management ( 64) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | |
| 650-K603 Commodity Import Program ( 65) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | |
| 650-0020 Western Sudan Agric. Research ( 66) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | |

AFRICA BUREAU BILATERAL PROJECTS (Continued)

| | Angola | Benin | Botswana | Burundi | Cameroon | Cape Verde | Central African Republic | Chad | Comoros | Congo | Djibouti | Equatorial Guinea | Ethiopia | Gabon | Gambia | Ghana | Guinea | Guinea-Bissau | Ivory Coast | Kenya | Lesotho | Liberia | Madagascar | Malawi | Mali | Mauritania | Mauritius | Mozambique | Namibia | Niger | Nigeria | Rwanda | Sao Tome/Principe | Senegal | Seychelles | Sierra Leone | Somalia | Sudan | Swaziland | Tanzania | Togo | Uganda | Upper Volta | Zaire | Zambia | Zimbabwe |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 650-0064 Eastern Reforestation ( 68) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | |
| 621-0143 Arusha Planning & Village Dev. ( 69) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | |
| 621-0160 LWR Village Environment Improvement ( 70) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | |
| 686-0235 Forestry Educ. & Development ( 71) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | |
| 686-0221 Agri. Human Resource Development ( 73) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | |
| 686-0231 Seguenega Intergrated Rural Development ( 75) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | |

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Botswana 633-0209 | ES SD | — | 725 | 1,000 | 1,579 | — | — | 1,193 | 129 | 457 | 1,132 | 393 | 3,304 | Active |
| Renewable Energy Technology (BRET) | | | | | | | | | | | | | | |

**LENGTH OF PROJECT/PACD:**

1980 - 9/26/85

**CONTRACTOR**

Associates in Rural Development (ARD), 362 Main St. Burlington, Vermont 05401. (202) 658-3890

**FIELD CONTACT:**

Energy Advisor, Botswana (ID), Department of State, Washington, D.C. 20520.

**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.

**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 (woodburning 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.

**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.

**OTHER DONOR ACTIVITIES:**

The FED has granted about $700,000 to create a technological information

**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.

**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.

**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 training Botswanan staff. Activities toward meeting project outputs include, but are not limited to, the following: (1) installation of one PV powered water pump and one PV powered health clinic, (2) research on metal and earthen stoves began in May, 1982; (3) R&D of windmill pumping for deep wells is scheduled to begin the third quarter of 1983; (4) one local staff trainer, one technician and one village facilitator have been hired; (5) a rural energy survey has been completed in two villages; (6) a one month consultancy on solar water heaters and other technologies for village domestic use has been completed; (7) also completed is a two month consultancy in public energy awareness strategies at both the local and national levels. Additional activities underway are: identification of a third test village; energy data collection/analysis; and identification of

clearinghouse at the Botswana Technology Center. Canada is providing technical assistance for windmill and solar technology. Germany is funding a study of gas production.

priority technologies prior to village testing. Construction of the Botswana Technology Center and GOB funding remain pending issues.

DOCUMENTS AND REPORTS:

Project Paper: 4/80.

Temple, P., and Norris, D., "Design of Demonstration Passive Solar Buildings", ARD, Burlington, Vt., 1982.

Quarterly Implementation Reports.

An Assessment of renewable energy technologies in seven countries, including Boswana, was conducted by AID's Africa Bureau, Office of Technical Resources, Special Development Programs (AFR/TR/SDP) during a four week period in October/November 1982. A multi-disciplinary team visited projects funded by AID and other donors and produced a report entitled "Renewable Energy Technologies in Africa: An Assessment of Field Experience and Future Directions."

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Botswana 633-0077 | ES FN | — | 1,250 | 1,250 | 1,280 | 1,569 | 1,838 | 472 | 115 | 189 | — | 3,004 | 3,780 | Active |

Rural Sector Grant

LENGTH OF PROJECT/PACD:

1980 - 9/17/86

CONTRACTOR

Development Alternatives, Inc., (DAI)
624 9th Street, N.,W. Suite 600
Washington, D.C. 20009 (202) 783-9110

FIELD CONTRACT:

Natural Resources and/or Forestry Advisor,
Botswana (ID), Department of State, Washington 20520

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.

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 activites in utilization and management of wildlife. The project will be implemented through a Rural Development Fund, jointly managed by the GOB and AID. Initial sub-projects may include small-scale rural industry support, afforestation, crop production, horticulture and implementaton of intergrated 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 and 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.

STATUS:

The project was authorized on June 11, 1980. AID/W has received a request for a training officer position. This individual will work with the Rural Industrial Officer cadre through the Ministry of Commerce and Industry, the Institute of Development Management and the University of Botswana. The various implementing ministries have prepared their respective proposals for the Rural Sector Grant Amendment. These proposals will be presented and reviewed by the Ministry of Finance and Development Planning in about the fourth quarter of 1983. Other activities initiated and completed by this project include staff training in land use planning; establishment of the Shoshong Woodlot, and construction of the Lerala Drift Fence, and the Goodhope Woodlot. An evaluation was completed in November of 1981, recommending a three year extension of the project and continued support of the Communal Land Use Plans Development.

DOCUMENTS AND REPORTS:

Project Paper: 6/80
Evaluation: 11/81
Research Report 2/82; Research on the Role & Strenghtening of Local Institutions in Communal Area Resources.
Quarterly Implementation Reports.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Burundi 695-0103 Alternative Energy Peat II | SD | -- | 2,000 | 2,000 | 1,106 | 1,200 | 2,494 | 5,408 | -- | 277 | -- | 2,315 | 8,000 | Active |

**LENGTH OF PROJECT/PACD:**

1980 - 12/31/85

**CONTRACTOR**

Irish Peat Board (Bord na Mona). Supplemented by Personal Services Contracts. Dublin, Ireland

**FIELD CONTACT:**

Energy Advisor, Burundi (ID), Department of State, Washington, D.C. 20520.

**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.

**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 Gran Marais riverine basin.

*Office Nationale de Tourbe, the Burundian Peat Parastatal Agency.

**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.

**STATUS:**

The project was authorized August 28, 1980. During the same year, the project was staffed and contracts were signed with the Irish Peat Board and the GOB. The first three peat macerating machines arrived and were tested in 1981. A contract has been let for additional macerating machines for the 1983 season. During the 1981 season, 6,000 MT of peat were produced. Total production for the 1982 season was 10,570 MT compared with a target of 12,000 MT. (Difco machines performed well.) A training plan is being developed with ONATOUR staff. An industrial consultant arrived in the field in April, 1983, to study the increased use of peat in boilers at tea factories. A new ONATOUR office building is being constructed. Planned activities include improvement of peat stoves; review findings and recommendations of industrial consultant and assist factories if possible.

A precursor to this AID financed peat project (Alternative Energy Peat I, 698-0410.C9) was carried out in 1978-1979 and laid the ground-work for Peat II.

DOCUMENTS AND REPORTS:

PID: 3/80.
Project Paper: 7/23/80; Project Paper: 3/78.
Consultant Reports: 5/80; 6/80.
Mid-term Evaluation: 12/82.
AID Rep/ONATOUR/Project Staff Final Evaluation: 3/83.
Quarterly Implementation Reports.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Burundi 695-0105 Forest Bururi | FN | -- | -- | -- | 1,144 | -- | -- | 246 | -- | 68 | 87 | 743 | 1,144 | Active |

**LENGTH OF PROJECT/PACD:**

1982 - 9/30/86

**CONTRACTOR**

PASA with USDA/Forest Service
P.O. Box 2417, Washington, D.C. 20013
Tim Resch (202) 447-5748.

**FIELD CONTACT:**

Forestry Advisor, Burundi (ID), Department of State, Washington, D.C. 20520.

**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.

**SUMMARY:**

The project will save the 1,200 ha. Bururi Forest by: (1) surrounding it with a 1,200 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) provide seedlings for 300 ha. of communal and private woodlots; (3) replenish 100 ha. of native species within the forest; (4) establish a nursery to provide seedlings for the plantation and to local residents; (5) provide an extension program for forest agents and local residents on seedling care and other conservation measures, and conduct research, and (6) introduce improved woodstoves to reduce pressure on fuelwood supplies.

**HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:**

The GRB will contribute an estimated $220,146 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, stove development, testing and extension;
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 (1,200 ha. plantation, 300 ha village woodlots, 100 ha. restocked area in forest, and established nursery);
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.

**STATUS:**

The project was authorized on April 22, 1982. An agreement was signed with the GRB on June 1982. Work on nursery began in September of 1982. To date over 100 kgs of a local mahogany seed has been sown and is sprouting well. Beds for several exotic legumes from AID sources are being prepared. Project implementation letter. (PIL) No. 3 was issued November 8, 1982. A REDSO engineer arrived to review project, January 7, 1983. A short-term forester technician was provided to the project. Continuing plans include expansion of nursery, road design and contruction, and plantation planning.

**DOCUMENTS AND REPORTS:**

Project Paper: 12/16/81.
Quarterly Implementation Reports.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cape Verde 655-0005 SAL Desalination and Power | SD HE SH | 900 | — | 900 | 600 | -- | — | 966 | — | 180 | -- | 6,644 | 7,790 | Active |

LENGTH OF PROJECT/PACD:

1978 - 12/31/84

CONTRACTOR

BRISC RUHLIN/WALLACE; Burns and Roe; P.O. Box 677, 650 Winters Ave. Paramus, New Jersey 07652 (201) 265-2000

FIELD CONTACT:

Energy Advisor, Cape Verde (ID), Department of State, Washington, D.C. 20520.

PURPOSE:

Contribute to public health and economic growth by building a desalination and electric power plant to provide water and electricity to five communities in the northern section of Sal Island.

SUMMARY:

The project provides for the design and constuction 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 five communities on the island; (3) a potable water distribution system to households, businesses and government consumers in the five communities; (4) a high-tension power delivery system connecting the water/power plant to the five communities; (5) an electrification system providing power to individual households, commercial and governmental facilities in the five 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 GOCV 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 $m^3$/day of potable water, and 50,400 KwH of electricity from a combined desalination/power plant;
2. A water delivery system for five communities;
3. Water distribution to households, businesses, etc.;
4. A power delivery system for five communities;
5. Electricity distribution to households, businesses, etc.;
6. Trained Cape Verdean staff;
7. An operation and maintenance program in place.

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. Construction of the desalination plant began in May, 1982. As of May, 1982, all major plant equipment had been procured and project contruction was 95% complete. Presently, the project is in the closing phase.

DOCUMENTS AND REPORTS:

Project Paper: 3/24/78.
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.
Engineering Study of Desalination Using Salt Gradient Solar Ponds; Burns and Roe; 1982.
Quarterly Implementation Report.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cape Verde 655-0006 | SD SH | 1,000 | 1,457 | 2,057 | 1,761 | -- | 1,611 | 214 | 50 | 38 | 275 | 4,698 | 6,275 | Active |

Watershed Management

LENGTH OF PROJECT/PACD:

1979 - 3/31/86

CONTRACTOR

PASA with U.S. Department of Agriculture, Graduate School, 600 Maryand S.W. Rm. 129, Washington, D.C. 20024. (202) 447-2187

FIELD CONTACT:

Forestry Advisor, Cape Verde (ID), Department of State, Washington, D.C. 20520.

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.

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 services;
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.

STATUS:

The project was authorized on July 30, 1979. An Agriculture extension expert and a soils/water conservation specialist arrived in Cape Verde in mid-1981. The conservationist completed topographical surveys of the four watershed areas. Aerial photographs have been taken and the extensionist program has established working contacts with well over 100 farmers. Project evaluation has been conducted and the report has been written. An extension for the PACD is being formulated. Project redesign is in process.

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.
Project Evaluation: 4/1983.
Quarterly Implementation Report.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Djibouti 603-0013 | ES | — | — | — | 4,000 | — | — | 780 | 942 | 35 | 1,720 | 523 | 4,000 | Active |

Energy Initiatives

LENGTH OF PROJECT/PACD:

6/6/81 - 8/86

CONTRACTOR

VITA - Volunteers in Technical Assistance, 1815 N. Lynn St., Su. 200, Arlington, VA. 22209. Donna Reed (703) 276-1800

FIELD CONTACT:

Energy Advisor, Djibouti (ID), Department of State, Washington, D.C. 20520.

PURPOSE

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

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, sociocultural 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 ISERT technicians in the development of specific project related skills, and GROD decision-makers in energy planning; (5) development of 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

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.

STATUS:

The project was authorized on June 6, 1981, and the contractor, VITA, was selected in June 1982. The final plans for the ISERT's building (National Institute for Higher Scientific Training and Technical Research) were completed in March, 1983, and were approved by project architect Dan Dunham in New York. Authorization for construction was obtained from the GROD. A local construction firm was contacted in June of 1983. Seven climatronics weather stations have been put up and are presently gathering wind and solar data. The data are being collected and analyzed for the National Energy Assessment which will take place in the late fall of 1983. An energy audit is scheduled to begin on or about September 15, 1983.

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).

DOUMENTS AND REPORTS:

Project Paper: 5/6/81.
Quarterly Implementation Reports.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| The Gambia 635-0205 | SH | 1,575 | — | — | — | — | — | 240 | 141 | 363 | — | 820 | 1,575 | Active |

Forestry Project

LENGTH OF PROJECT/PACD:

1979 - 12/1/84

CONTRACTOR

Series of Personal Services Contractors (PSC)

FIELD CONTACT:

Forestry Advisor, The Gambia (ID), Department of State, Washington, D.C. 20520

PURPOSE:

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

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 U.S. 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 30%.

HOST COUNTRY AND OTHE DONOR CONTRIBUTIONS:

The GOTG will contribute $233,329 for salaries and/or land and fenceposts 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 plantation;
4. Ten village woodlots;
5. Mangrove feasibility study completed;
6. Sawmill productivity increased by 30%;
7. Extended use of improved woodstoves.

STATUS:

The project was authorized on August 3, 1979. A PSC forester has been hired to assist with the project's plantations and woodlots, extension and accounts. Renovation of existing sawmill and improved tree harvest techniques are underway; equipment for the sawmill has been ordered. Establishment of woodlots — three ha. of village woodlots have been completed in six villages. Establishment of tree plantations — 406 ha. of trees were completed towards a goal of 1,300 ha. in plantations. Development of an extension program — the current extension program consists of weekly radio programs and Peace Corps Voluteers' efforts coupled with GOTG Extension Workers Programs at the village level. Workshops have been held for three PCV and five Forestry Department personnel. Topics covered included nursery extension methods, woodlots and village cooperation. Four sawyers have been trained in the U.S. Four individuals have completed two-year forestry degrees in Nigeria and one is obtaining a BS in Tanzania. The saw mill is expected to be completed by January 1984.

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.
Quarterly Implementation Reports

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| The Gambia 635-0220 AgroForestry Integration | SH | -- | -- | -- | -- | -- | 1,777 | -- | -- | -- | -- | -- | 3,998 | Planned |

LENGTH OF PROJECT/PACD:

1984 - 1989

CONTRACTOR

To be determined

FIELD CONTACT:

Forestry Advisor, The Gambia (ID), Department of State, Washington, D.C. 20520

PURPOSE:

To enhance environmental awareness, woodlands production and soil and water conservation through agroforestry.

SUMMARY:

The goal of the project is to enhance environmental awareness, woodlands production, and soil and water conservation through agroforestry. Specific purposes of the project are to implement agroforestry demonstrations and establish productive forest parks in four villages. The project will start by gathering socio-economic, environmental attitude status, and forest consumption surveys and intensive resource inventories in and around each village. Fenced demonstration areas will be planted with multipurpose trees such as Acacia albida, Leucaina spp., lime, guavas, mangos and cashews. Live fencing will be attempted. Community forest parks will be established and a management plan drawn-up for maximum production of forest products and income. Activities such as bee keeping, pit sawing, fruit and nut collection, fire breaks, restocking, and controlled livestock grazing will be pursued on an experimental basis. The extension aids unit of the Ministry of Agriculture will be revitalized.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

Not yet delineated.

OTHER DONOR ACTIVITIES:

Will use information from German Forestry Project, the Mixed Farming Project and Soil and Water Management Project, i.e., current AID on-going projects in The Gambia.

AID-FINANCED INPUTS:

1. Training - $650,000;
2. Technical assistance - $2,160,000;
3. U.S. commodities - $490,000;
4. Local commodities - $187,500;
5. EAU renovation - $10,000.

MAJOR OUTPUTS:

1. 40 ha. of Acacia albida;
2. 20 ha. of other agroforestry demonstrations;
3. Extension materials prepared and tested;
4. 3 technicians trained in audio/visual techniques;
5. 5 Gambians trained as BSC Forest Managers.

STATUS:

The project Identification Document (PID) is presently in draft form.

DOCUMENTS AND REPORTS:

PID: 6/23/83 (Draft)

| PROJECT NO. TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| The Gambia 635-0202 | SH | 1,203 | -- | 834 | -- | 710 | -- | 2,099 | -- | 695 | -- | 92 | 2,747 | Active |

Soil and Water Management Unit

LENGTH OF PROJECT/PACD:

1978 - 12/87

CONTRACTOR

Soil Conservation Services, U.S. Department of Agriculture Graduate School, 600 Maryland Ave. S.W., Rm. 129, Washington, D.C. 20024. (202) (447-2187)

FIELD CONTACT:

Q. Benhow, Environmental Coordinator, The Gambia (ID), Department of State, Washington, D.C. 20520

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).

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.

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 U.S. 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.

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 U.S. and in-country training has been held. Specifically, three participants have departed for U.S. training and twenty-six field officers have been trained. A conservation package has been developed with specifications modified for implementation in several villages. Testing of conservation practices have been carried out and soils manuals have

been completed for training use. A request to AID/W for project authorization amendment is being considered. Recruitment of a PASA through USDA is planned.

DOCUMENTS AND REPORTS:

PID, Project Review Paper; 1976.
Project Paper: 2/28/78.
Evaluation: AID/W, 2/82.
Quarterly Implementation Reports.

| PROJECT NO. TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| The Gambia 635-0203 | SH | 849 | 2,530 | 2,621 | --- | 804 | 1,696 | 1,776 | 895 | 2,164 | --- | 1,165 | 9,000 | Active |

Mixed Farming and Resource Management

LENGTH OF PROJECT/PACD:

1979 - 3/31/86

CONTRACTOR

Consortium for International Development (CID), 5151 E. Broadway, Su. 1500, Tucson, Arizona 85711, Bernie Henrie (602) 745-0455.

FIELD CONTACT:

Q. Benhow, Environmental Coordinator, The Gambia (ID), Department of State, Washington, D.C. 20520

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.

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 neccessary 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.

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 U.S. 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.

STATUS:

The project was authorized on July 19, 1979, and an amendment of $3 million dollars was made in FY83. The six-person team including two economists, two agronomists, a range ecologist and a sociologist, arrived during the second half of 1981. The baseline survey has been completed on 582 compounds, including a village-level questionnaire on resource utilization. Aerial photos have been completed. Range pasture demonstrations have been completed in 20 Livestock Owners' Associations. One hundred and fifty farmers harvested an average of 2.5 tons per ha.; four hundred additional farmers have

requested to participate in the maize program; performance feeding trials have been established with more than thirty animals; two Peace Corps Vounteers have conducted maize preparation demonstration with six hundred farm women. Plans include evaluation of the project and the finalization of a farm cart program with Agricultural Development or other credit institution.

DOCUMENTS AND REPORTS:

Research Report 1977.
PID: 2/12/78.
Project Paper: 10/78
Progress Reports: 2/4/81; 9/30/81.
Project Paper Amendment of $3 million in FY83.
Quarterly Implementation Reports.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | ESTIMATED FY81 | FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kenya 615-0205 | SD | -- | 3,482 | 1,318 | -- | -- | 2,059 | 1,030[1] | 133 | 223 | 622 | 622 | 2,630 | Active |
| | | | | | | | | 514[2] | 133 | 73 | 322 | 322 | 2,364 | |
| | | | | | | | | 600[3] | 133 | 73 | -- | -- | 806 | |
| Renewable Energy Development | | | | | | | | 2,144 | 399 | 369 | 944 | 944 | 4,800 | |

**LENGTH OF PROJECT/PACD:**

1980 - 9/30/84

**CONTRACTOR**

Energy Development International (TA); Swedish Royal Academy of Sciences - Beijer Institute, Stockholm, Sweden.

**FIELD CONTACT:**

Energy Advisor, Kenya (ID), Department of State, Washington, D.C. 20520.

**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.

**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-scall 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. 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.

**STATUS:**

The project was approved in August, 1980. A five person contract team has been in-country since October, 1981 providing: (1) renewable energy technolgoy development, energy planning and conservation technical assitance; and (2) establishing the six agroforestry centers. Five hundred improved cookstoves have been distributed for testing. In the process of training local craftsmen to manufacture these stoves, a lively private sector market has been established. Methods of producing charocal more efficiently are underway. To date: (1) two tree-planting seminars for approximately 40 non-government organization participants have been held; (2) two conservations seminars have been held for about 50 representatives of private firms; (3) and three seminars for about 100 participants on making and selling the improved cookstoves have been convened; (4) five staff members from the GOK Ministry of Energy have receive training;

(5) all six nursery centers are in the production mode; (6) five million seedlings are ready for distribution. A mid-term evaluation is scheduled for August/September 1983. The Beijer Institute has been developing an Energy accounting system and a land use model which will serve to predict fuelwood consumption and use. Purchase of hardware, including a computer terminal, is pending approval.

DOCUMENTS AND REPORTS:

Project Paper: 8/80
"Energy Development in Kenya: Problems and Opportunities: SRAS Beijer Institute, Nairobi, Kenya.
Initial Project Assessment: AID/REDSO/EA, 2/82.
Project Assessment No. 2, 4/82.
Contractor Progress Reports, #1, 2, 3, 4, 5, and 6. ED/I; Washington, D.C.
Quarterly Implementation Reports.
An assessment of renewable energy technologies in seven countries, including Kenya, was conducted by AID's Africa Bureau, Office of Technical Resources, Special Development Programs (AFR/TR/SDP) during a four week period in October/November 1982. A multi-disciplinary team visited project sites funded by AID and other donors and produced a report entitled "Renewable Energy Technologies in Africa: An assessment of Field Experience and Future Directions."

1. Line one reflects fuelwood totals.
2. Line two reflects renewable energy totals.
3. Line three reflects fossil fuel totals.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kenya 615-0172 Arid and Semi-Arid Lands Development (Kitui) | FN | 4,179 | 2,000 | -- | -- | 6,822 | -- | 7,409 | 600 | 1,000 | 1,154 | 2,837 | 13,000 | Active |

LENGTH OF PROJECT/PACD: 1979 - 12/31/84

CONTRACTOR: Louis Berger International Inc., 1730 Rhode Island, N.W., Su. 910, Washington, D.C. 20036, (202) 466-4000

FIELD CONTACT: Environmental Coordinator, Kenya (ID), Department of State, Washington, D.C. 20520

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, specifically the Kitui District through a focus on soil and water conservation, farm technology and decentralized planning.

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 project design studies, including afforestation and tree nurseries in the Kitui District); (3) soil and water conservation, covering manpower development, improved organization 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. Modifications to this original agreement are anticipated but as yet undefined.

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 dis-

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.

STATUS:

The project was authorized on August 27, 1979. The team arrived in the fall of 1981. Implementation is on schedule based upon contractor's approved work plan. One group has been working with the ASAL unit in Nairobi, and has prepared an inventory for the Laikipia District. A smaller technical assistance team has trained 21 Kitui staff personnel in soil and water conservtion techniques. A water feasibility study -- the first phase of a water resource master plan -- has been completed. However, implementation of this plan may be modified or deleted due to GOK's financial and managerial constraints. In the area of long term U.S. training, participants have been identified, interviewed and the last group of 7 students have been sent to the U.S. for training through Texas A&M University (sub-contractor). A Peace Corps Volunteer for nursery maintenance is on board and an ASAL training workshop has been held in Nyeri, Nairobi. Planned activities for the immediate future include: (1) preparations for a soil conservation workshop to be held in Nairobi; (2)

tricts, 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.

relocation of remote sensing unit to The Survey of Kenya; (3) Review water feasibility study; and (4) project redesign due to GOK funding constraints.

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
Evaluation is planned for 4th quarter of 1983.
Quarterly Implementation Reports.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lesotho 632-0206 | SD | 1,600 | — | — | -- | — | — | 617 | — | 110 | 650 | 223 | 1,600* | Active |
| Renewable Energy Technology | | | | | | | | | | | | | | |

LENGTH OF PROJECT/PACD:

1979 - 6/84

CONTRACTOR

Associates in Rural Development (ARD),
362 Main St., Burlington, Vermont 05401
(802) 658-3890

FIELD CONTACT:

Energy Advisor, Lesotho (ID), Department of State,
Washington, D.C. 20520

PURPOSE

To assist the Grantee to develop, disseminate and establish the feasibility of renewable energy technologies in rural pilot areas in Lesotho and, at the same time, to establish the institutional basis for the development and dissemination of these technologies on a nation-wide basis. The project will, on the one hand, minimize demand for combustible fuels through the development and introduction of village conservation measures such as (a) fuel efficient wood and dung burning mud stoves, (b) pedal power grain grinding, (c) thatch insulation and weatherization. (d) passive solar greenhouses. Additionally, research into increasing technologically appropriate energy production will be undertaken through introduction of (a) a feedlot anerobic digester system for production of methane gas and sludge fertilizer, and (b) a small hydroelectric production scheme.

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 anerobic 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.

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.

STATUS:

The project was authorized on August 17, 1979. Project activity has accelerated over previous quarters and work on two new metal and combination brick/mud/metal stove designs--which are approximately 50 percent fuel efficient over existing models presently in use--has been largely completed. These units have elicited considerable local interest. Field testing and limited dissemination efforts are now underway. Additionally, the project has developed a mud/stone paola for institutional use which is also being used for domestic cooking. A six week pilot effort employing Food For Work laborers as disseminators/builders of prototype technologies has been completed and results of the effort are being recorded and analyzed. If conclusions warrant, a second phase of this pilot effort may be undertaken. A consultancy report on hydro power potential has also been completed and USAID, Ministry, and ATS/RET personnel assisted in the AFR Bureau

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.

*Project expansion, 18 months, is proposed with an increase in LOP funding of $300,000. USAID is also seeking regional support under the Energy Initiatives in Africa (EIA) project to support total cost of extension (estimated $800,000).

evaluation effort. The Project Paper was rewritten to allow for continued testing/analysis/dissemination of the stove technologies. Results from the limited dissemination work and the acceptance of stove designs will determine future steps in dissemination, training and project redesign. Emphasis is being placed on identifying Lesotho needs and matching technology to meet those needs. Design and testing activities, particularly of stoves are continuing. Development of a draft technology dissemination plan is projected.

DOCUMENTS AND REPORTS:

Project Paper: 8/79
Project Evaluation: 1/82
Quarterly Implementation Reports.

An assessment of renewable energy technologies in seven countries, including Lesotho, was conducted by AID's Africa Bureau, Office of Technical Resources, Special Development Programs (AFR/TR/SDP) during a four week period in October and November, 1982. A multi-disciplinary team visited projects funded by AID and other donors nd produced the report entitled "Renewable Energy Technologies in Africa: An Assessment of Field Experience and Future Directions.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL (Through) FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mali 688-0205 | SH | 2,869 | 400 | 1,725 | 228 | — | — | 2,866 | 544 | 214 | 328 | 1,370 | 5,222 | Active |

Land Use Inventory

LENGTH OF PROJECT/PACD:

1978 - 11/30/84

CONTRACTOR

Tippetts, Abbett, McCarthy, Stratton (TAMS), 1101 15th St., N.W., Washington, D.C. 20005 John Buursinnk (202) 296-4371.

FIELD CONTACT:

J. Anderson, Environmental Coordinator, Mali (ID), Department of State, Washington, D.C. 20520

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.

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 reources and present land use. In addition to the assembly of existing data, fieldwork and mapping activities, this component includes research and development (ground assocations, 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 U.S. 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

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).

STATUS:

The project was approved on August 15, 1977 and $2.2 million obligated in 1978. 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. Final population and soils/vegetation maps have been completed as was an agro-climatic analysis. Fieldwork was completed by July, 1982, and training activities are on-going. A second Amendment approved in 1982 extended the project to November 30, 1984 and an admendment to the TAMS contract was signed by the Minister of Rural Development. Activities in progress include: (1) continuation of technical assistance and on-the-job training for Malians; (2) departure of TAMS final report to GRM is expected to occur in July/August 1983. Accompanying maps should be very useful to agricultural planners.

"Sahel Resources Inventory and Mapping Coordination" in May, 1982.

DOCUMENTS AND REPORTS:

Project Review Paper: 7/75.
Project Paper: 1976.
Amendments: 9/5/78; 1/26/81: 6/1/81: 11/30/82.
Evaluation: 12/80.
TAMS Quarterly Reports: TAMS, New York, N.Y. and Washington Office.
Quarterly Implementation Reports.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mali 688-0217 | SH | 2,174 | --- | 930 | 713 | 700 | -- | 555 | 604 | 2,105 | | 1,253 | 4,517 | Active |

Renewable Energy

**LENGTH OF PROJECT/PACD:**

1978 - 9/30/84

**CONTRACTOR**

Solar Energy Research Institute (Phase 1 and II) FY78-82; SHELADIA Assoc., Inc. (Phase III)
5711 Sarvis Avenue, Riverside, Maryland 20737
Richard Flood (301) 933-1295

**FIELD CONTACT:**

Energy Advisor, Mali (ID), Department of State, Washington, D.C. 20520

**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.

**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, wind pumps, distillers, 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

**AID-FINANCED INPUTS:**

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

**MAJOR OUTPUTS:**

1. Functioning Solar Laboratory;
2. Prototype renewable energy devices fabricated 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.

**STATUS:**

The project was authorized August 16, 1978. A contract engineer arrived in Mali in October, 1980. During Phase I, four PV pumps were installed. Four Malian engineers have been trained in the U.S. Fifty five woodstoves were installed in villages and further dissemination activities are underway. Field installations of a PV refrigerator/freezer and seven lighting systems in village school-houses and medical facilities have been completed. Prototype wind pump and electrical generators, Chinese-type dome biodigesters, solar thermal food dryers and water heaters/distillers have been constructed and tested.

Viva, a private organization run by a French priest. France has funded a large solar generating station at Dire, 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.

Phase II socio-economic survey is underway towards identifying village energy needs. Research and development will continue in following areas: (1) Solar thermal: Hot water heaters, storage reservoir corrosion control, distillers; cooking; solar chimney food dryers and - portable dryers; (2) Photovoltaics; water pumping; refrigerator/ freezer; battery chargers, grain-grinders; (3) Wind: water pumping; electricity generation; (4) Bio-conversion: methane-powered pumps; biogas digesters; improved massive woodstoves; portable metal and ceramic cookstoves. Training for ten participants in solar/renewable energy technologies and in R & D facility administration are planned. The contract for Phase III was initiated in January, 1983. Long-term advisors for field operations and workshops training arrived in Mali in June, 1983. Six to eight short-term U.S. technical advisors will assist the solar lab in the next 15 month period.

DOCUMENTS AND REPORTS:

PID: 5/1/78.
Project Paper: 6/78.
Mid-term Evaluation: 4/82.
Quarterly Implementation Reports.
See also AFR/TR/SDP AID report; Renewable Energy Technologies in Africa: An Assessment of AFR/TR/SDP Field Experience and Future Directions", 8/83.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Niger 683-0230 | SH | -- | 1,108 | 576 | -- | 800 | 1,296 | 1,268 | 697 | 676 | 944 | -- | 3,839 | Active |
| Forestry and Land-Use Planning | | | | | | | | | | | | | | |

LENGTH OF PROJECT/PACD:

1980 - 3/86

CONTRACTOR

(PSC), Major firm Contracted (TAMS) Tippetts, Abbett, McCarthy, Stratton. 1101 15th St. N.W. Washington, D.C. 20005 (202) 296-4371.

FIELD CONTACT:

Forestry Advisor, Niger (ID), Department of State, Washington, D.C. 20520

PURPOSE:

To establish an analytical and planning capability within Niger's Forest and Water Service for natural resource (soils, water, vegetation and widlife) planning; and to produce a long-term plan for the rehabilitation, conservation and protection of Niger's natural resources.

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 11 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, revegetation, 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. Host country contribution may vary due to economic constraints.

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

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 U.S. 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.

STATUS:

The project was authorized on December 31, 1979. A socio-economic survey by a consultant has been initiated. Recruitment effort for a long-term resource inventory technician continues. Natural resource and socio-economic studies are proceeding as scheduled. Project Director has replaced several mid-level personnel with more qualified individuals. Director of GON Forestry and Water Services has assured Mission representatives that the project will receive priority consideration in receiving qualified national personnel as they become available for reassignment. Other activities receiving consideration include: (1) finalization of plans for wildlife survey; (2) continued recruitment for long-term resource inventory specialist; and (3) redesign of project to conform to USAID and GON human, material and financial resources and project evaluation of 6/83.

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.



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;
Treadwell, 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.
Evaluation by AID/W and GON officials completed 6/83.
Quarterly Implementation Reports.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Niger 683-0240 | SH | — | — | 5,704 | 332 | 2,500 | 1,900 | 2,725 | — | 474 | 767 | 9,616 | 13,582 | Active |

Niamey Department Development II

LENGTH OF PROJECT/PACD:

1981 - 6/30/86

CONTRACTOR

Series of Personal Services Contracts

FIELD CONTACT:

W. Collins, Environmental Coordinator or Forestry Advisor, Niger (ID), Department of State, Washington, D.C. 20520

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.

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. (Original Project Agreement may be modified due to country's economic situation.)

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.

STATUS:

The project, a continuation of the completed Niamey Department Development (683-0205) was authorized on April 28, 1981. Forestry supplies were ordered and an applied research consultant was in the field in the Fall of 1981 to plan activities for 1982, including an improved pest control program. The credit component was evaluated and redesigned in accordance with the evaluation's recommendations. An assessment of the monitoring and evaluation system is completed and final report submitted; construction completed in three arrondissements and in Niamey. A ten day training program for UNCC and CNCA

personnel was held to review proposed procedures in Phase II. Recruitment of 1983 trainees has been initiated in all arrondissements and the team for the first interim project evaluation has been identified. Monitoring and evaluation specialist has arrived in field.

DOCUMENTS AND REPORTS:

Project Paper: 12/19/80
Evaluation Report by AID, contractors and host country officials: 5/83.
Quarterly Implementation Reports

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Niger 683-0226 | SH | 2,000 | 995 | 860 | 1,175 | -- | -- | 1,640 | -- | 374 | -- | 3,016 | 5,030 | Active |

Rural Sector Human Resources Development

LENGTH OF PROJECT/PACD: 1979 - 9/30/84

CONTRACTOR: Series of Personal Services Contracts

FIELD CONTACT: Forestry Advisor, Niger (ID), Department of State, Washington, D.C. 20520

PURPOSE:

To increase the Government of Niger's capacity to train rural development personnel, including forestry technicians.

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 IDPR 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 GON 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).

AID-FINANCED INPUTS:

1. Five technician/trainers;
2. Graduate training for 8 Nigerien instructors, and study tours for others;
3. Construction of new facilities;
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.

STATUS:

The project was authorized June 7, 1979. Four technician/trainers are teaching at the Kolo school. To date, all essential commodities have arrived and are in use. All construction has been completed. Only one participant trainer needs to complete training. The 1982 Village Operation Program has been evaluated and the report released. The project's evaluation has been scheduled for the third quarter of 1983 and the FAO has forwarded the evaluation team's Terms of Reference for USAID approval. Technical assistance has been largely fulfilled. Planned activities include: clarification of TOR and schedule final date for project evaluation; and determine if an agriculturalist economist should be recruited to replace the one

OTHER DONOR ACTIVITIES:

There are training components in the integrated rural development projects of AID and other donors.

technician terminating early.

DOCUMENTS AND REPORTS:

PID: 1977.
Project Paper: 6/7/79.
"Reforme de L'IPDR; UNDP/FAO: 1/79.
Quarterly Implementation Reports

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Niger 683-0242 Integrated Livestock Production | SD | -- | -- | -- | -- | 4,900 | -- | 5,126 | --- | 4,904 | --- | 7,470 | 17,500 | Planned |

LENGTH OF PROJECT/PACD:

1983 - 1989

CONTRACTOR

Tufts University, Medford, Massachusetts 02155
(617) 628-7010.

FIELD CONTACT:

W. Collins, Environmental Coordinator, Niger (ID),
Department of State, Washington, D.C. 20520

PURPOSE:

The purpose of the Integrated Livestock Production Project is to increase livestock productivity in Niger's pastoral zone by establishing a sustainable institutional and policy framework with an appropriate set of private sector incentives.

SUMMARY:

Research in the Niger Range and Livestock Project (NRL, previous project upon which this one is based) demonstrated that the best way to achieve increases in production on a sustainable basis is by various carefully selected interventions channeled through autonomous, local-level herder associations. Major emphasis will be placed upon in-country training of herder association membership for effective action. Interventions are planned in the areas of animal health and nutrition, livestock marketing, water point and pasture development, and human health and education, all in a natural resource management context. Improvements in livestock productivity will result in increased food production, higher and more secure incomes for herders, and a greater contribution of the pastoral sector to the national economy. The project will also encourage a continuous policy dialogue on issues relating to livestock marketing and enhancement of private sector responsibility for resource distribution in the pastoral zone.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The host country will provide salaries for Nigerien personnel for project administration and implementation. No other donors are contributing directly to this project.

OTHER DONOR ACTIVITIES:

The only other livestock projects in the pastoral zone of Niger are the Niger Centre-Est project financed by the World Bank and the Sud-Tamesna project financed by the French and CILSS. Both are interested in using the approach of this project in developing potential herder associations.

AID-FINANCED INPUTS:

1. Technical assistance, short and long-term;
2. Construction;
3. Commodities and equipment;
4. Training of personnel, in-country and U.S.;

MAJOR OUTPUTS:

1. Herder association development;
2. Animal production and health improvements;
3. Resources management;
4. Market research;
5. Human resources development;
6. Project management unit.

STATUS:

This is a planned project scheduled to begin the fourth quarter of FY83.

DOCUMENTS AND REPORTS:

Project Paper: 5/31/83.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Senegal 685-0219 | SH | 1,404 | 700 | 730 | 600 | — | — | 700 | 287 | 347 | — | 2,100 | 3,434 | Active |

Fuelwood Production

LENGTH OF PROJECT/PACD:

1979 - 11/31/84

CONTRACTOR

Series of Personal Services Contracts.

FIELD CONTACT:

Forestry Advisor, Senegal (ID), Department of State, of Washington, D.C. 20520

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.

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 cooperatives 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 Word 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 U.S. 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.

STATUS:

The project was authorized on April 27, 1979. The project leader has been in-country since May, 1980. About 5,000 ha. have been surveyed and mapped. About 750,000 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%. As of March, 1983, project activities included: (1) arrival of new project co-director; (2) land preparation for the 1983 campaign; (3) maintenance/repairs e.g., overhaul of heavy equipment; (4) production of tree seedlings; and (5) final report on project evaluation will be submitted soon. As of July, 1983, it is anticipated that the project will be closing down in a few months and some local currency activity may be funded by Title III - PL 480. No further obligations are anticipated based on the final evaluation.

DOCUMENTS AND REPORTS:

PID: 8/6/78.
Project Review Paper: "Land Conservation & Revegetation"; 3/77.

DOCUMENTS AND REPORTS (Continued)

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.

Mid-Project Evaluation 2/83.

Quarterly Implementation Reports.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Senegal 685-0224 | SH | 2,030 | 1,500 | 3,500 | --- | --- | 970 | 2,227 | --- | 551 | 551 | 5,222 | 8,000* | Active |

SODESP Livestock Production

LENGTH OF PROJECT/PACD:

1979 - 12/31/83

CONTRACTOR

Chemonics, 2000 M Street, N.W.
Washington, D.C. 20036
(Jo Ann Bowman) (202) 466-5340

FIELD CONTACT:

Forestry Advisor, Senegal (ID); Department of State, Washington, D.C. 20520

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 mananagement 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 compatability 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.

STATUS:

The project was authorized on December 28, 1978. The contract with Chemonics was signed on March 12, 1981, and the team including one veterinarian, a range management specialist and an anthropologist, arrived in the spring of the same year. As of March 31, 1983, the following activities had been completed: (1) project evaluation; (2) herder enrollment reached the level of 375 herder families owning 8,500 cows (17,000 head of cattle); (3) marketing continued, and dry season supplemental feed sales began. As of July, 1983, no team mmembers were in the field. Evaluation is to be reviewed to determine if team is to be replaced. Final obligation of funds has been deferred until evaluation is reviewed and a determination is made concerning the role of technology assistance in the project. Specifics in reforestation activities could not be obtained.

DOCUMENT AND REPORTS:

Project Paper: 7/16/78
Quarterly Reports: Chemonics, Washington, D.C.
Evaluation of 11/82 has not yet been received in AID/W.
Quarterly Implementations Reports.

*The forestry component of this project is approximately 15% of total funds.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Senegal<br>685-0247 (OPG)<br><br>Village Woodlots<br>Firewood Production | SH | — | 211 | — | — | — | — | 63 | — | — | — | 48 | 211 | Active |

LENGTH OF PROJECT/PACD:

1980 - 12/31/83

CONTRACTOR

Grantee: AFRICARE, Eaux et Forets, Peace Corps
1601 Connecticut Ave., N.W., Washington, D.C.
20009. Almeda Harper (202) 462-3614

FIELD CONTACT:

Forestry Advisor, Senegal (ID), Department
of State, Washington, D.C. 20520

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.

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 the first 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 $m^3$ of wood/village/year;
3. Village quasi-cooperatives organized and members trained in the development and maintenance of woodlots.

STATUS:

The project was authorized on August 29, 1980 and the PACD was extended to December 31, 1983. Three forestry Peace Corps Volunteers have been assigned to villages. Nurseries have been established in eight villages and approx. 100 ha. have been planted. Survival rates for the first year's planting were low, between 10 and 30%. Based on this and the mid-term project evaluation, the project design was modified. The project may be expanded to include a wider range of activities (See #6 Project Summary) but not at this time. The fensing of woodlots has been completed for all plots. It is anticipated that a number of villages will participate in establishing a nursery with a capacity of 2,000 seedlings. Materials for the new nurseries have been purchased. An evaluation to determine success, potential and replicability of model for future community forestry projects is in the planning stages. An increase of LOP by 10% ($21,000) has been requested to establish new sites for the 1983 Campaign which is in progress.

DOCUMENTS AND REPORTS:

Project Paper: 6/80
Weber F. Mid-Project Evaluation: 11/80 (English and French).
Quarterly Implementation Reports.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Senegal 685-0233 | SH | — | — | 1,000 | 1,000 | — | — | 1,036 | 599 | 95 | — | — | 2,000 | Active |

National Plan for Land-Use and Development

LENGTH OF PROJECT/PACD:

1981 - 12/31/84

CONTRACTOR

Grantee: South Dakota State University, Remote Sensing Institute, Brookings, South Dakota.

FIELD CONTACT:

D. Diallo, Environmental Coordinator, Senegal (ID), Department of State, Washington, D.C. 20520

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.

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 interpetive 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 Territorie), 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 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. France is engaged in the preprration 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.

STATUS:

The project was authorized on May 15, 1981. The contract with South Dakota State University was signed in January 1982 and the team arrived in February of the same year. Present activities include: continuation of intensive field investigations and liaison with University of Dakar; operationalizing second major shipment of landsat images; change in team leader of technical assistance team and relocation of project offices. Planning for mid-project evaluation has begun.

DOCUMENTS AND REPORTS:

PID: 12/78
Project Paper: 5/81
Quarterly Implementation Reports.

| PROJECT NO. TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Somalia 649-0122 | MRA | — | — | — | — | 352 | — | 102 | — | 200 | 25 | 25 | 352 | Active |

Somalia Woodstoves Project

**LENGTH OF PROJECT/PACD:**

4/1/83 - 3/31/85

**CONTRACTOR**

VITA - Volunteers in Technical Assistance, 1815 N. Lynn St. Su. 200, Arlington, VA. 22209. Paula Gubbins, (703) 276-1800

**FIELD CONTACT:**

Energy Advisor, Somalia (ID), Department of State, Washington, D.C. 20520

**PURPOSE:**

The purpose of this sub-project is to reduce fuelwood consumption by introducing more efficient cooking methods through improved woodstoves. The sub-project is also intended to make refugee and Somali families aware of the importance of conserving Somalia's wood resources.

**SUMMARY:**

Respond to the critical fuelwood situation through: (1) dissemination of approximately 8,000 stoves to refugees and Somali Nationals; (2) strengthening the Somali National Alternative Energy Technology Committee to establish it as the leading government entity in energy conservation and development; (3) creation of a comprehensive self-perpetuating program to teach stove users fuel conservation technologies from stove building to food processing techniques; (4) training of Somali counterparts which will lead to the sustainability of the woodstove dissemination and use program following the termination of expatriate contracts; (5) the increase of women's involvement in the sector by employing them in at least half the counterpart positions; and, (6) the education of large segments of the Somali population of all income levels about the critical fuel shortage in their country.

**HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:**

The Government of the Somali Democratic Republic (GSDR) will provide resources in the amount of $220,000 through the National Range Agency (NRA) for staff labor, prototype materials, and other costs. Vita will contribute 74,000 dollars towards the life of the project costs.

**AID-FINANCED INPUTS:**

1. Program Director and technical consultants.
2. Technical assistance and vehicles
3. Funds for small grants

**MAJOR OUTPUTS:**

1. Field office established; project vehicles purchased.
2. First training program completed with 15 students from the Settlement Development Agency and the Kurten-Warry Technical School.
3. The project socio-economist is completing a six-month consultancy to study cooking and stove practices.
4. Testing of fired-clay stoves and soapstone stoves begun in an effort to increase efficiencies prior to possible introduction of these designs into the program.

**STATUS:**

The National Woodstove Project, a cooperative agreement between USAID, Volunteers in Technical Assistance (VITA) and the National Range Agency (NRA), was signed on March 31, 1983, with funding as a sub-project through the CDA Forestry Program. The goals of the program are to introduce efficient cooking methods and reduce the rate of fuelwood consumption. After four months the project is well underway with a variety of activities initiated including the training of Somali technicians, the start-up of extension programs in several areas in Somalia, and work with prototype Somali stove designs. The project calls for a consulting role with the Technical Committee for Alternative Energy. Work in this area is also underway with the naming of a coordinator and the beginning of activities involving wind energy.

**DOCUMENTS AND REPORTS:**

Project Paper:

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Somalia 649-0122 | FD | -- | -- | -- | -- | 6,000 | -- | 4,418 | -- | 450 | 1,132 | -- | 6,000 | Active |

CDA Forestry (Phase I)
Refugee Reforestation

LENGTH OF PROJECT/PACD:

1982 - 9/15/86

CONTRACTOR

AFRICARE, 1601 Connecticut Ave. N.W., Su. 600
Washington, D.C. 20009. Alan Alemian (212) 462-3614

FIELD CONTACT:

Forestry Advisor, Somalia (ID), Department of State, Washington, D.C. 20520

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.

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.

OTHER DONOR ACTIVITIES:

Italy, Yugoslavia and China are planning additional forestry assistance. In 1979, Belgium, Canada, West Germany, France, Great Britain and the United States agreed to coordinate resources for joint projects within the framework

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, 25 nursery managers, project supervisors;
3. Up to 25 new seedling nurseries in refugee camps, and outplanting: 180,000 trees in 300 ha. in agroforestry; 1.7 million fuelwood lots/shelter belts in 600 ha.; 1.5 million trees inshade and around public facilities;
4. Up to 6 research testing and demonstration plots;
5. Completed national resource survey.
6. Up to 10,000 stoves.

STATUS:

The project was authorized in 1982, and the initial obligation was made in November, 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. Two PVO proposals for reforestation and fuelwood plantation sub-projects have been approved by USAID and the National Range Agency. Outplanting preparations for 140,000 seedlings are well underway. One cooperative agreement for fuelwood conservation has been signed and initial activities are in progress. A host country contract for Southern Somalia Land Use Survey has been signed and activities have been initiated.

DOCUMENTS AND REPORTS:

PID: 1/20/82. Revised PID: 6/24/82.

OTHER DONOR ACTIVITIES (Continued):

of a "Cooperation 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 sand dune stabilization.

DOCUMENTS AND REPORTS (Continued):

Project Paper: 11/23/82.
Quarterly Implementation Reports.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Somalia 649-0108 | FN | 1,000 | 3,366 | 3,680 | 3,600 | 3,298 | -- | 5,025 | 772 | 354 | -- | 8,793 | 14,944 | Active |
| Central Rangelands Development | | | | | | | | | | | | | | |

LENGTH OF PROJECT/PACD:

1979 - 9/30/86

CONTRACTOR

Louis Berger International Inc., 1730 Rhode Island Ave. N.W., Su. 910, Washington, D.C. 20036
Ron Kornell (202) 466-4000

FIELD CONTACT:

Environmental Coordinator, Somalia (ID), Department of State, Washington, D.C. 20520

PURPOSE:

To implement a system of range management in Somalia which optimizes livestock production, while preserving range resources and arresting ecological decline.

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 of Great Britain ($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.

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 U.S. 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.

STATUS:

The project was authorized on August 6, 1979. Ten participants were trained in the United States. The contract with Louis Berger was signed in December, 1981, and the four-person management team (team leader, two range ecologists and a range consultant) arrived the following month. Range data has been collected and a report has been completed in collaboration with Somali range personnel. Eleven of the twelve technical staff have been hired and most

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.

of the activities have been initiated in conformity with the project implementation schedule.

DOCUMENTS AND REPORTS:

PID: 1978.
Project Paper: 8/79.
Quarterly Implementation Report.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sudan 655-0041 Rural Renewable Energy Project | SD | -- | -- | -- | 1,500 | -- | 2,000 | 1,476 | 67 | 564 | 63 | 2,430 | 4,600 | Active |

LENGTH OF PROJECT/PACD:

1980 - 4/30/87

CONTRACTOR

Georgia Institute of Technology, EES/TAL Atlanta, Georgia 30332. William C. Larson (404) 894-3800.

FIELD CONTACT:

Energy Advisor, Sudan (ID), Department of State, Washington, D.C. 20520

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.

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

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 U.S. 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.

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 was executed on Oct. 19, 1982 with Georgia Institute of Technology. A technical assistance team is in the field and they have finalized an implementation plan and work program which has been approved by the Energy Research Council.

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.

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.
Evaluation: International Agricultural Development Service, Arlington, Virginia, 1/24/83.
Quarterly Implementation Reports.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sudan 650-0059 | SD | — | — | -- | 1,555 | 1,500 | 2,200 | 4,952 | 823 | 824 | —— | 389 | 6,600 | Active |

Energy Planning and Management

LENGTH OF PROJECT/PACD:

1982 - 9/30/87

CONTRACTOR

Two requests for proposals were issued in July, 1983.

FIELD CONTACT:

Energy Advisor, Sudan (ID), Department of State, Washington, D.C. 20520

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.

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 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.

AID-FINANCED INPUTS:

1. Long and short-term experts for the National Energy Administration/General Petroleum Corporation (NEA/GPC) and the National Electricity Corporation (NEC);
2. Training;
3. Commodities and equipment

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 conservative plan.

STATUS:

The project was authorized in August 1982. An amendment has been submitted to increase the funding by $1.85 million dollars to provide additional assistance under the International Science and Technology Institute (ISTI) and Energy/Development International (E/DI), and Bechtel International. The project is under implementation. RFP's have been issued for technical assistance, one is to the National Electricity Corp. and the other to the NEA/GPC. USAID Sudan is presently preparing a project paper.

DOCUMENTS AND REPORTS.

PID: 4/13/82
Project Paper: 8/1/82
Quarterly Implementation Reports

*Coordinated with the Commodities Import Program (650-0049).
**Related to activities in Rural Renewable Energy (650-0041), and Energy Planning and Policy (936-5703).

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sudan 650-K603 | ES | — | — | — | 16,200 | — | — | 800 | — | — | — | 15,400 | 16,200* | Active |

Commodity Import Program
FY 82

**LENGTH OF PROJECT/PACD:**

5/82 - 12/82

**CONTRACTOR**

Multiple suppliers for Commodities; BECHTEL, 50 Beale St., San Francisco, California 94105, Technical Assistance, Blue Nile Grid.) (415) 768-1234

**FIELD CONTACT:**

Energy Advisor, Commodity Management Officer, Sudan (ID) Department of State, Washington, D.C. 20520

**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.

**SUMMARY:**

The Energy portion of this program represents less than 20% of the total CIP. The program will provide balance of payments support 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 ($15.4 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 ($800,000); (3) dredging and heavy equipment for debris removal for El Roseires Dam ($2.885 million); (4) technical assistance for design and procurement services by the U.S. Army Corps of Engineers ($120,000).

**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).

**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.

**AID-FINANCED INPUTS:**

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

**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. Maintenance of intakes to major hydropower facility at El Roseires Dam.

**STATUS:**

This is a continuation of previous grants in FY81. The program has already provided about 2.5 million dollars for commodities (various contracts to companies for heavy dredging equipment) and services (U.S. Army Corps of Engineers) for debris removal at the Rosieres Dam. The FY82 grant was authorized in April, 1982, and the grant agreement was signed in May, 1982. The contract eligibility date was made retroactive to Octobet 1, 1981. At present procurement of commodities and technical assistance are in process. Commodities for the Blue Nile Grid -- electricity generation program -- are presently being procured through Letters of Credit issued by Manufacturers Hanover Trust Bank in New York ($15.4 million). See Summary item #1. Dredging and allied heavy equipment for debris removal for the Dam is being procured through direct U.S. Government contracts with the U.S. Army Corps of Engineers on behalf of the GOS. Technical services are being provided by the Corps of Engineers and Bechtel International and are being funded through separate disbursement arrangements.

**DOCUMENTS AND REPORTS:**

Grant Agreement signed April 26, 1982.
Program Assistance Approval Document (PAAD) signed 2/23/82.
Contractor reports.

*Reflects energy-related expenditures only; total grant agreement is $100 million dollars.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 (Through FY 82) | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sudan 650-0020 | FN | — | — | — | 26,000 | — | — | 16,900 | 2,300 | 3,100 | 3,082 | 618 | 26,000* | Active |

Western Sudan Agriculture Research

LENGTH OF PROJECT/PACD:

1978 - 1985

CONTRACTOR

Series of Personal Services Contracts.

FIELD CONTACT:

Forestry Advisor, Sudan (ID), Department of State, Washington, D.C. 20520

PURPOSE:

The project will increase the capability of the Sudanese Agricultural Research Corporation (ARC) to develop and test improved production systems that conserve and rehabilitate natural resources and improve the standard of living of the subsistance farmers and pastoralists of Western Sudan.

SUMMARY:

The project as described in the original PP remains substantially unchanged. The following material presents any changes from the original and provides an updated status of activities.

The overall project is basically divided into two phases of approximately three years each, thus making a six-year life of project. Initial project activities began about August, 1979, and will end on or about September, 1985. Phase I is primarily concerned with the development of the research facilities, i.e., construction of the project center at El Obeid, the four research stations at El Fasher, El Obeid, Ghazala Gawazat and Kadugli, and project support facilities in Khartoum. Phase II, previously scheduled to commence in the first half of year three, would begin the actual initiation of the respective research programs. Rescheduling of activities taking advantage of certain existing facilities will permit earlier commencement of research. Present implementation is being carried out by the Project Support Unit functioning in ARC/WSARP Khartoum office.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

As a result of the Project Paper Amendment the host country will contribute $31.2 million; other donors, namely IBRD will contribute $15 million. Total life of the project for all donors will be $74.2 million.

AID-FINANCED INPUTS:

1. Specialized technical Assistance Service during Phase 1;
2. Construction financing;
3. Training; external and on-the-job training;
4. Commodities;
5. Operations Support.

MAJOR OUTPUTS:

1. Research Projects in: livestock/crop production systems, water and land use management, range and livestock production.
2. Development of an ARC research center and regional headquarters (7 sites total).
3. Strengthening of ARC's headquarters through the establishment of a Project Support Unit (PSU), a Planning Evaluation Unit (PEU), and a Training and Extension Unit (TEU).
4. Contract research to be carried out by specialized research institutions other than ARC.
5. Sudanese scientists trained and employed on project research stations (6 for Ph.D., 5 for M. Sc. and 17 for non-degree specialization courses).

STATUS:

The project was authorizerd in 1981. On June 15, 1983, the project was extended to 1985 and funds were increased from 20 to 26 million dollars. Forestry acccunts for $1.3 million of the total amount of the project. An amendment or follow-on to the project is contemplated beginning in FY85 which will increase the LOP to $37.312 million and the PACD to approximately 1988. The forestry part of the project will address major research constraints and farming problems defined by regional ministries of agriculture in traditionally rain

OTHER DONOR CONTRIBUTIONS:

IBRD: The IBRD, through an IDA credit, will partially finance the following inputs: Construction of the Project Center and three research stations, including offices, laboratories, staff houses, a documentation center, and a conference room, purchase and operating expenses for a project aircraft.

GOS: The GOS contribution in local currency from both regular budget and counterpart sources includes partial funding of construction of the Project Center, aircraft purchase, local salaries over the six year project, waived duties and taxes.

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*Note, total LOP AID contribution is $26 million; forestry component is 1,300 of total LOP.

fed areas in e.g., deforestation and desertification.

DOCUMENTS AND REPORTS:

Project Paper: 7/26/78.
Project Paper Amendment: 6/15/80
Evaluation: 1/82.
Evaluation headed by Dr. Kenneth Turk, International Agriculture Development Service, Arlington, Virginia. 1/12/83.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sudan 650-0064 | FD | — | — | — | — | 4,550 | — | 1,000 | — | 1,000 | — | 3,291 | 5,291 | Active |

Eastern Reforestation

LENGTH OF PROJECT/PACD:

1983 - 1987

CONTRACTOR

Cooperative American Relief Everywhere (CARE)
660 First Ave., New York, New York, 10016.
Michael Kramer/Carol Stoney (212) 686-3110.

FIELD CONTACT:

Forestry Advisor, Sudan (ID), Department of State, Washington, D.C. 20520

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 soil productivity of the refugees' land using wind breaks and intercropping with nitrogen fixing trees.

SUMMARY:

The project will be implemented near refugee villages created by Presidential Decree, which had been heavily deforested. It will: (1) establish two nurseries and provide for the transport of seedlings; (2) reforest 4,200 ha.; (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 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 charcoal for export;
2. Soil stabilized and improved;
3. 25,000 refugees provided with wood; a number of these benefiting directly from remuneration for labor.

STATUS:

The OPG was signed in April 1983 with CARE. In June 1983, CARE placed a full-time project manager in the Kassala Province. Another CARE forester is currently supervising construction of two large nurseries, one in Showak and another in Abu Rakhan, a third is expected to be recruited soon. A rural sociologist will be in the field for approximately 6 to 8 weeks during which time he/she will prepare a survey on energy consumption and forestry product needs among the refugees and the indigenous population. In 1984 project nurseries are expected to produce 600,000 seedlings of indigenous species which will provide seedlings to reforest approximately 10,000 feddans for fuelwood, forage and soil conservation in near by refugee villages. Nursery production is expected to reach one million seedlings per year by 1985. Experimental agroforestry trials will also be used to develop alternative farming systems. Two British volunteers will supplement CARE provided technical assistance to the Sudanese Forests Department.

DOCUMENTS AND REPORTS:

CARE project profile 4/82.
Operational Program Grant 1982.
Quarterly Implementation Reports.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (Through 82) | | | | | | | | | |
| Tanzania 621-0143 | FN | — | — | — | 11,416 | 1,532 | 1,643 | 5,416 | — | 673 | 8,502 | — | 14,591* | Active |
| Arusha Planning and Village Development | | | | | | | | | | | | | | |

LENGTH OF PROJECT/PACD:

1978 - 1983

CONTRACTOR

Development Alternatives Incorporated (DIA), 624 9th St. Su. 600, Washington, D.C. 20009 (202) 783-9110.

FIELD CONTACT:

Forestry Advisor, Tanzania (ID), Department of State, Washington, D.C. 20520

PURPOSE:

To improve the production, income and well being of people in the rural areas of Arumeru, Mbulu and Hanang Districts of Arusha Region. The purposes are: (1) to strengthen the capabilities of the region, the three project districts, and villages in these districts to identify, plan, implement and evaluate development activities within the framework of the policies and priorities of the Tanzania government, and (2) to prepare a long range development plan for Arusha Region.

SUMMARY:

The Project will provide technical assistance, goods, services, training and supporting and operating costs for (a) the preparation of a development plan for the Arusha Region of the Cooperating County, (b) strengthening the planning, implementation and evaluation capabilities at the regional, district and village levels; (c) improving agricultural production by constructing, equipping and staffing village farm centers that will be used for extension services in various villages and by constructing village storage facilities, (d) identifying and promoting other economic activities by constructing, equipping and staffing a center intended to promote appropriate technology and local level enterprise; (e) the construction/rehabilitation of approximately 476 miles of secondary and feeder roads in the Arusha Region; (f) the development of water systems in approximately 52 villages; (g) the rehabilitation of approximately 2800 acres of small scale village irrigation systems; and (h) the development of village level soil and water conservation programs.

HOST COUNTRY AND OTHER DONOR CONTRIBUTIONS:

The Tanzania government contribution is estimated at $6,472,000 million.

OTHER DONOR ACTIVITIES:

Canada, Germany, The United Kingdom, Finland, Norway, Sweden and the IBRD have natural resource management projects underway in 1983.

AID-FINANCED INPUTS:

1. Long-term and short-term technical assistance including 29 person months in conservation;
2. Training: 21 person months;
3. Construction;
4. Equipment: commodities and vehicles.

MAJOR OUTPUTS:

1. Planning, implementation and evaluation component established in 75 villages;
2. Agricultural production component activities in selected villages and for selected groups;
3. Short-term and long-term training;
4. Social and economic infrastructure activities

STATUS:

This project is scheduled for completion in FY83. Workshop on Arusha Regional Forestry situation was conducted in July 8-12, 1980, 43 Tanzanian participants. Emphasis was on coordination and identification of forestry problems in the Arusha Region.

DOCUMENTS AND REPORTS:

Project Paper: 5/1978
Synnott, T.J. "Forestry in the Arusha District, Tanzania", 1980.

*The forestry component of this project is estimated at $400,000 dollars.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tanzania 621-0160 (OPG) | SD | — | — | 499 | — | — | — | 32 | 10 | 18 | — | 439 | 499 | Active |

Lutheran World Relief
Village Environment Improvement

LENGTH OF PROJECT/PACD:

1980 - 6/30/84

CONTRACTOR

Grantee: Lutheran World Relief, 360 Park Ave. South, New York, N.Y. 10010. Joseph Sprunger (212) 532-6350.

FIELD CONTACT:

Forestry Advisor, Senegal (ID), Department of State, Washington, D.C. 20520

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.

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 multi-purpose 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 U.S. 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, 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.

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 and reforestation activities are underway in five villages. Emphasis in water development component has changed from high technology of windmills and deep wells to shallow wells which are more suitable for village maintenance and construction. Mid-term evaluation is planned for July 1983.

DOCUMENTS AND REPORTS:

Project Paper; 10/80
Quarterly Implementation Reports.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Volta 686-0235 | SH | 700 | 1,800 | 3,458 | — | — | — | 2,570 | 40 | 1,999 | — | 1,349 | 5,958 | Active |

Forestry Education Development

**LENGTH OF PROJECT/PACD:**

1979 - 7/31/84

**CONTRACTOR**

PASA with U.S. Department of Agriculture, Graduate School, 600 Maryland S.W., Rm. 129, Washington, D.C. 20024. (202) 447-2187.

**FIELD CONTACT:**

Forestry Advisor, Upper Volta (ID), Department of State, Washington, D.C. 20520

**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 villages in forest use and management of fueldwood supplies, as well as improved charcoal production techniques. (2) to develop a model management forest.

**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 8,700 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 GOUV sees this project as a high priority and is contributing a total of $1,929,000 for salaries of GOUV 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 8,700 ha. of forest.

**STATUS:**

The project was authorized on March 23, 1979. The USDA team leader has been in Upper Volta since January, 1981, the forest manager arrived in October, 1981. Two other long-term technicians arrived in the fall of 1981, and a sociology/economics instructor arrived in June, 1981. Work on curriculum redesign has progressed well, library materials are being collected and vehicles have arrived. Construction of the school buildings and staff housing is nearly completed. Parts of the forest management plan are now being implemented. The first year of full (40 students) enrollment is in session. All first year graduates have been assigned field positions by the GOUV. A mid-term evaluation was completed. Pursuant to the ISTI evaluation, project activity is being closely scrutinized and will be redesigned. PACD may be extended. The level of interest and cooperation of the Ministry of Environment and Tourism (MET) seems to be improving.

DOCUMENTS AND REPORTS:

Project Paper: 10/13/78.
Consultant Reports: 11/81, 4/8/82.
Evaluation ISTI: 2/83. International Science and Technology Institute, Inc., Washington, D.C.
Quarterly Implementation Reports.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Volta 686-0221 | SH | — | 2,000 | — | — | — | — | 3,060 | — | 1,344 | — | 5,053 | 9,457* | Active |

Agriculture Human Resources Development

LENGTH OF PROJECT/PACD:

1978 - 9/85

CONTRACTOR

South East Consortium for International Development (SECID) 400 Eastowne Drive Su. 207, Chapel Hill, North Carolina 27514.

FIELD CONTACT:

Forestry Advisor, Upper Volta (ID), Department of State, Washington, D.C. 20520

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.

SUMMARY:

The project will help the GOUV meet pressing personnel needs through: (1) provisions of technical assistance to fill technical positions at the University Polytechnique Institute (ISP) and agricultural training centers (CAP's), while Voltaic staff is being trained; (2) training of faculty members, mid level technicians and rural development engineers; and (3) construction and/or expansion of educational facilities, including one new and one upgraded 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 of Voltaics for advanced level degrees to fill the faculty gap at ISP, University of Ouagadougou.

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

AID-FINANCED INPUTS:

1. Technical assistance provided to fill faculty staff positions at ISP and CAP;
2. Three year master level training for Voltaic students and short-term training for faculty members;
3. Dormitories, housing and animal nutrition facilities constructed at the U. Central Field Station, laboratory equipment and access road provided.
4. Upgrading of the existing CAP, water delivery system, dormitories, housing, dining hall, classrooms and library constructed.

MAJOR OUTPUTS:

1. CAP, at Matourkou facilities upgraded and faculty assistance provided;
2. University (ISP) faculty assistance provided, agricultural extension courses initiated;
3. Central Field Station instituted for practical experience and research participation by students and staff;
4. Master degree level training in the U.S. provided for Voltaic students who will return to become full time faculty members of the University. Twelve participants from the Ministry of Higher Education and seven from Ministry of Rural Development have been selected and are presently in training for advanced degrees in the U.S.

STATUS:

The project was authorized on March 10, 1978. At CAP, Matourkou, one education specialist was assigned to the faculty for two years, the science laboratory was equipped, two dormitories, four

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.

staff housing, one dining hall, two classrooms and a library were built and a potable water delivery system is being installed. At ISF, University of Ouagadougou, four staff positions were filled by full time professors in Agriculture extension, Animal Nutrition, Horticulture and Forestry. An Animal Science/Nutrition lab was equipped and an extention field station was instituted. Animal feed facilities have been constructed and dormitories and quarters are being completed. Two technical assistance positions on the faculty will remain filled until September 30, 1983. Three participant students have returned from training in the U.S. and will assume full time teaching positions at the University. Four more, presently in the U.S. will complete their training in December, 1984. Eleven others will complete their studies for advanced degrees by September, 1985. It is anticipated that no additional funds will be obligated.

DOCUMENTS AND REPORTS:

Project Paper: 1/18/78.
Evaluation: RONCO Washington, D.C. 6/81.
Quarterly Implementation Reports.

*A project Paper and Grant Agreement Amendment are planned for the fourth quarter FY83. The amended figures are reflected above due to certainty of approval.

| PROJECT NO. TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Volta 686-0231 (OPG) Seguenega Integrated Rural Development | SH* | 1,000 | 1,000 | 1,356 | 1,600 | — | — | 2,620 | — | 175 | — | 2,161 | 4,956 | Active |

LENGTH OF PROJECT/PACD:

1979 - 9/30/83

CONTRACTOR

Grantee - AFRICARE International, 1601 Connecticut Ave. N.W. Washington, D.C. 20009. Alameda Harper (202) 462-3614.

FIELD CONTACT:

Forestry Advisor, Upper Volta (ID), Department of State, Washington, D.C. 20520

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.**

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 GOUV will provide personnel support and village labor costs, land, buildings and operating costs, valued at $1,502,000. The ORD 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. U.S., German, Dutch

AID-FINANCED INPUTS:

1. U.S., 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.

STATUS:

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 yearly; a site for a second nursery has been identified. Reforestation materials and supplies have been delivered; 67 ha. have been reforested. Normal progress on implementation continues. A request for extension of several project components will be made by AFRICARE during the third quarter of 1983. AFRICARE in collaboration with USAID and GOUV will decide on the use of remaining project funds.

and French volunteers have worked in the region. CATHWELL, OXFAM and AID have funded forestry projects.

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*1,000,000 is non-Sahel funding for an OPG.
**Regional Development Organization, a government administrative division.

DOCUMENTS AND REPORTS:


Project Paper: "Integrated Rural Developoment 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
USAID Evaluation: May - June 1982.
RONCO Evaluation: 11/82 San Francisco & Washington, D.C.
Quarterly Implementation Reports.

## III. Bureau for Food for Peace and Voluntary Assistance

### A. Data Sources and Definitions

This section of the report focuses on bilateral assistance provided to LDCs through the Bureau for Food for Peace and Voluntary Assistance in the areas of energy, forestry and natural resources in Africa. Reinforcing activities in these areas are centrally administered by the Offices for Food for Peace (FVA/FFP) and Private Voluntary Cooperation (FVA/PVC). Program assistance has the dual purpose of providing food aid to the world poor and needy as a means to combat hunger and malnutrition and, through sales of agricultural commodities, to augment LDC public revenues which can be channelled into priority development programs. It has been noted that, "Public Law 480 Food Programs have long been important instruments of development far beyond the narrow confines of short-term nutritional and food supply supplementation per se."* Assistance can take a variety of forms by marshalling food aid resources to bring about necessary policy reforms in institutional, human capital and physical infrastructure development in recipient countries. As is discernable from this report, application of food aid resources have immeasurably strengthened activities in forestry/fuelwood and soil and water conservation principally through Food for Work programs.

To facilitate access to the PL-480 program summaries, they are categorized by country, in alphabetical order and comprise the second section of this report. A matrix listing programs precedes the actual summaries. The matrix is intended to provide a quick overview of program title, source of funding and African countries impacted by these activities. Data sources for this section are from PL-480 program files, documents, cables, and conversations with PL-480 staff members. A brief explanation of PL-480 Title I, II and III enactments is provided below:

TITLE I Self-Help Measures

Title I authorizes the sales of PL-480 agricultural commodities for credit on low interest and extended repayment terms. As part of the agreement for concessional sales of U.S. farm products, recipient countries must agree to undertake specific and measureable Self-Help Measures and use of sales proceeds to augment food production. Effective use of Title I proceeds includes compliance with three basic criteria:

(1) conceptual multi-year programming of Title I for development purposes as specified in Section 413 of PL-480;

(2) deposit of commodity sales revenues in special accounts for their subsequent disbursement for discrete development related projects with verifiable benchmarks for annual evaluation; and

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*"A Comprehensive Summary of U.S. AID Forestry-Related Assistance to Developing countries"; AID/ST/FNR/F; 1/82, p. 56.

(3) consecutive year food allocation levels contingent on satisfactory performance.* As reflected in the program summaries, of all the African countries receiving Title I assistance, two countries -- Madagascar and Somalia -- are supporting activities in forestry/fuelwood and soil conservation measures.**

## TITLE III DEVELOPMENT PROGRAM ASSISTANCE

Title III is a multi-year agreement financed under Title I but amended to authorize conversion of the Title I loan to a grant through the "full loan forgiveness" clause. Under this agreement commodities and/or sales proceeds are used to implement agreed upon development activities and are to be distinguished from Title I Self-Help Measures. There are relatively few Title III agreements worldwide due to the increased monitoring and evaluation required. In the Africa region there are presently two Title III programs in Sudan and Senegal that are designed to support sectoral and overall economic policy reforms; both programs support activities in reforestation, soil conservation and allied environmental measures.

## TITLE II DIRECT DISTRIBUTION PROGRAMS

For the most part, but not entirely, Title II is a grant program for specifically targeted groups: maternal-child health centers, school feeding programs, food for work projects and for emergency and disaster relief. These programs are administered by U.S. private voluntary organizations (PVOs), the World Food Program, and by government-to-government programs. Under the provisions of Title II Section 206, after distribution to needy individuals, recipient countries may sell PL-480 grant commodities and apply the local currency sales proceeds to projects which address the causes of the need for food assistance. However, activities in forestry/fuelwood and environment are more likely to be supported through the Food for Work programs administered by PVOs and the World Food Program.

### Private Voluntary Agencies: FFW

Some of the agricultural commodities administered through PVOs are used as remuneration for labor in development related projects. In Africa, in fiscal 1983, Food for Work Programs (FFW) are administered by the Catholic Relief Services.*** CRS sponsored projects with a forestry/fuelwood and/or natural resources component

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*For a detailed description see Africa Bureau Food Aid Policy Programming Guidance, July, 1982.

**Note that there are other U.S. Title I assistance programs in Africa but they have not been included as they do not support activities in the areas relevant to this study, i.e., energy, forestry/fuelwood and natural resources.

***The other PVO with a FFW program in Africa in FY83 is the Seventh Day Adventist World Service (SAWS) but its activities are not related to the areas of concern to this study.

are described in this report. Specifics of activities as to number of hectares, density of plantations and overall cost of programs are difficult to determine as program proposals are described in general terms. It should be noted that the dollar value of commodities programmed in FY83 as of July 1, are the figures reflected in the program summaries.*

World Food Program: FFW

A variety of programs are administered by the UN/FAO World Food Program to which the United States and eleven other major donors pledge food, transportation and monetary contributions. The Food for Work Program activities in which food is used as remuneration for work in forestry/fuelwood and natural resources are reported in the ensuing program summaries. Information categories include: Country/Project No. & Title; total cost to the World Food Program; duration of the project and the U.S. contribution in FY83 as of 7/83. Conclusions cannot be made as to AID's total contribution to the WFP as activities reported are limited to Work for Food Programs directed at forestry/fuelwood and natural resources as of July, 1983.

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 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."**

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 at the end of the section.

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*Interagency Staff Committee Reports, FY83 Public Law 480 Title II Programmed Quantities as of July 11, 1983.

**FY84 ABS, FVA/PVC; p. 5.

FOOD FOR PEACE & VOLUNTARY ASSISTANCE (PL480) PROJECTS

| | Angola | Benin | Botswana | Burundi | Cameroon | Cape Verde | Central African Republic | Chad | Comoros | Congo | Djibouti | Equatorial Guinea | Ethiopia | Gabon | Gambia | Ghana | Guinea | Guinea-Bissau | Ivory Coast | Kenya | Lesotho | Liberia | Madagascar | Malawi | Mali | Mauritania | Mauritius | Mozambique | Namibia | Niger | Nigeria | Rwanda | Sao Tome/Principe | Senegal | Seychelles | Sierra Leone | Somalia | Sudan | Swaziland | Tanzania | Togo | Uganda | Upper Volta | Zaire | Zambia | Zimbabwe |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Title II FFW/Catholic Relief Services ( 82) | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Title II Section 206 Food Aid ( 83) | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Title II FFW/Catholic Relief Services ( 84) | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Title II FFW/Catholic Relief Services ( 85) | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Title II FFW/World Food Program ( 85) | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Title II FFW/Catholic Relief Services ( 86) | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | |
| Title II FFW/World Food Program ( 86) | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | |
| Title I Self-Help Measure ( 87) | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | |
| Title II FFW/Catholic Relief Services ( 87) | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | |
| Title II FFW/World Food Program ( 87) | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | |
| Title II FFW/World Food Program ( 88) | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | |
| Title II FFW/World Food Program ( 89) | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | |
| Title II FFW/World Food Program ( 90) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | |
| Title III Development Program Assistance ( 91) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | |
| Title II FFW/Catholic Relief Services ( 92) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | |
| Title II FFW World Food Program ( 92) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | |

FOOD FOR PEACE & VOLUNTARY ASSISTANCE (PL480) PROJECTS (Continued)

| | Angola | Benin | Botswana | Burundi | Cameroon | Cape Verde | Central African Republic | Chad | Comoros | Congo | Djibouti | Equatorial Guinea | Ethiopia | Gabon | Gambia | Ghana | Guinea | Guinea-Bissau | Ivory Coast | Kenya | Lesotho | Liberia | Madagascar | Malawi | Mali | Mauritania | Mauritius | Mozambique | Namibia | Niger | Nigeria | Rwanda | Sao Tome/Principe | Senegal | Seychelles | Sierra Leone | Somalia | Sudan | Swaziland | Tanzania | Togo | Uganda | Upper Volta | Zaire | Zambia | Zimbabwe |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Title II FWW/Catholic Relief Services (93) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | |
| Title I Self-Help Measure (94) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | |
| Title II FFW/World Food Program (94) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | |
| Title II FFW/World Food Program (95) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | |
| Title III Development Program Assistance (95) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | |
| Title II FFW/Catholic Relief Services (96) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | |
| Title II FFW/World Food Program (97) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | |
| Title II FFW/World Food Program (98) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | |
| Title II FFW/Catholic Relief Services (98) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | |
| Title II FFW/World Food Program (99) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | |
| FVA/PVC Matching Grants Program CARE (100) | | | | X | | | | | | | | | | | | | | | | | | | | X | | | | | X | | | | | | | | | | | | X | | | | | |

PL 480 TITLE II FOOD FOR WORK THROUGH PVO FY83

| Country | Private Voluntary Agency | Value of Commodities as of 7/11/83 ($000) | Activities |
|---|---|---|---|
| Burundi | Catholic Relief Services | 302.8 | This Food for Work Program has a sub-activity in which commodities are to be used as remuneration for labor in small reforestation projects, such as land clearing, tree planting and soil conservation measures. No specific figures are available, at this time, with respect to total number of hectares or density of tree plantations. |

## TITLE II SECTION 206 FOOD AID

The Cape Verde Section 206 program is the only one in Africa with significant conservation forestry components. A mid-term evaluation of this program is scheduled for October, 1983.

Cape Verde received Title II Emergency Food Aid from FY77 to 1981. Revenues from food aid sales financed a large labor-intensive rural public works program in reforestation and environmental rehabilitation. During this period, 95,000 trees were planted (55,000 in FY80 and 40,000 in FY81) and many soil and water conservation measures and hydro-geological surveys were undertaken. Cape Verde has had a three year Section 206 Food for Development Program since FY82 in lieu of recurrent emergency food aid programming. The program funds the following activities:

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 prgrams around the country).

Soils and Water Conservation, Tarrafal

Extension of 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.

## PL 480 TITLE II FOOD FOR WORK THROUGH PVO FY83

| Country | Private Voluntary Agency | Value of Commodities as of 7/11/83 ($000) | Activities |
|---|---|---|---|
| Djibouti | Catholic Relief Services | 308.4 | This Food for Work Program has a sub-activity in which commodities are to be used as remuneration for labor for the establishment of a tree nursery (seedlings) in the Ali Sabieh district using refugee labor. Forestry projects and construction of water catchment basins begun in 1982 are to be continued in FY83. |

PL 480 TITLE II FOOD FOR WORK THROUGH PVO FY83

| Country | Private Voluntary Agency | Value of Commodities as of 7/11/83 ($000) | Activities |
|---|---|---|---|
| Kenya | Catholic Relief Services | 491.4 | This Food for Work Program has a sub-activity in which commodities are to be used as remuneration for labor for the terracing of semi-arid lands in Northern Kenya and planting of fruit trees in the districts of Kilifi, Marsabit and Kitui. Planting of hardwood trees and soil conservation projects are continuing from previous years in the Kwale district. |

U.S. PL 480 TITLE II CONTRIBUTION TO WORLD FOOD PROGRAM: FOOD FOR WORK FY83

| Country/Project No./Title | | | Total Cost to WFP | Duration Five Years | U.S. Contribution through 7/83 ($000) |
|---|---|---|---|---|---|
| Kenya | 2589 | Rural Development & Settlement in Arid and Semi-Arid Areas | $5,512,300 | 1983-88 | $350.6 |

Activity:

Assistance to three sub-projects: Bura Project, for reforestation activities; Bura Irrigation Settlement Project, establishment of 4,500 hectares of afforestation plantations for building poles and firewood, a tree nursery, planting of shade and amenity trees, and establishment of a forestry research station; Margarini Land Settlement Project, tree planting and soil conservation. Arid Region Irrigation Development Projects, six irrigation schemes developed with a soil conservation and reforestation program in the six schemes. Baringo Semi-Arid Areas Pilot Project, forestry nursery for seedlings production of selected species for planting in soil conservation areas.

## PL 480 TITLE II FOOD FOR WORK THROUGH PVO FY83

| Country | Private Voluntary Agency | Value of Commodities as of 7/11/83 ($000) | Activities |
|---|---|---|---|
| Lesotho | Catholic Relief Services | 1,730.2 | This Food for Work Program has a sub-activity in which commodities are to be used as remuneration for labor for soil conservation and tree planting activities. |

## U.S. PL 480 TITLE II CONTRIBUTION TO WORLD FOOD PROGRAM: FOOD FOR WORK FY83

| Country/Project No./Title | Total Cost to WFP | Duration | U.S. Contribution through 7/83 ($000) |
|---|---|---|---|
| Lesotho 352 (Exp. VI) Roads, Soil and Water Conservation and forestry Development | $14,921,000 | Three years 1983-86 | $104.3 |

Includes forest plantation development of fruit trees and seedlings and nurseries. Woodlot establishment, replanting failed areas, replacing eucalyptus with conifers. Development of national forestry service and training of local professional staff. Constructing biological conservation methods and watershed stabilization (Thaba Tseka, the Basotho Pony Project and the Hololo Valley Project).

## PL 480 TITLE I SELF-MEASURE FY83

| Country | Program Cost ($ millions)* | Self-Help Measure |
|---|---|---|
| Madagascar | 3 | Self-Help measure to be financed with local currency generated by sale of commodities include increase support for micro-hydological projects executed with the participation of communities at the Fokonolona levels. A minimum of 150 micro-hydrological projects are to be completed within 12 months. |

*Excludes cost of ocean freight.

## U.S. PL 480 TITLE II FOOD FOR WORK THROUGH PVO FY83

| Country | Private Voluntary Organization | Value of Commodities as of 7/11/83 ($000) | Activities |
|---|---|---|---|
| Madagascar | Catholic Relief Services | 28 | This Food for Work Program has a sub-activity in which commodities are to be used as remuneration for labor in reforestation activities, principally tree planting and soil conservation measures. |

## U.S. PL 480 TITLE II FOOD FOR WORK CONTRIBUTION TO WORLD FOOD PROGRAM

Country/Project No./Title

Madagascar 2661 Forestry and Regional Development

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Activity:

Assistance to seven sub-projects: Reforestation of the Mangoro Valley, the Quinquina plantation in Beorana, and Eucalutpus plantation in Mahela for a total of 18,000 hectares of pine and 14,000 hectares of eucalyptus. Includes maintenance of forestry training center in Fianarantosoa and Morondava, management of forestry resources in upper Matsiatra and establishment of pilot project for rehabilitation of degraded land.

U.S. PL 480 TITLE II CONTRIBUTION TO WORLD FOOD PROGRAM: FOOD FOR WORK FY83

| Country/Project No./Title | | | Total Cost to WFP | Duration | U.S. Contribution through 7/83 ($000) |
|---|---|---|---|---|---|
| Malawi | 2145 (Exp II) | Forestry Development in Viphya and Chambe | $2,571,200 | Three years 1983-1986 plus 9 mo. ext. | $126.9 |

Activity:

Project emphasis has shifted from expansion and development of forest resources for export-oriented pulp mill to conservation and maintenance of resources. Assistance to: Chambe Basin in the southern region for harvesting 500 hectares of pine plantation; construction of a 15 Kilometer forest access road linking the Viphya plantation with the main road network (1,000 workers for 210 days x 3 years); maintenance of the Viphya plantation (2,500 workers for 365 days x 3 years).

U.S. PL 480 TITLE II CONTRIBUTION TO WORLD FOOD PROGRAM: FOOD FOR WORK FY83

| Country/Project No./Title | | | Total Cost to WFP | Duration | U.S. Contribution through 7/83 ($000) |
|---|---|---|---|---|---|
| Mali | 2231 (Exp | Multipurpose Project for the Development of Rural and Natural Resources | $31,166,900 | Three years 1983-86 | $1,585 |

Activity:

Includes assistance for a forestry resources sub-project. In the regions of Bamako, Mopti and Segou: clearing and planting 1,750 hectares; management and opening up of firebreaks 1,700 km; opening up of roads 200 km; forest lodges, 45; production of: plants 9 million; charcoal 1,000 tons; firewood 220,000 steres (one cubic meter); building poles 30,000; kapok 2,000 cubic meters. (Total of 1,248,300 man-days).

U.S. PL 480 TITLE II CONTRIBUTION TO WORLD FOOD PROGRAM: FOOD FOR WORK FY8_

| Country/Project No./Title | | | Total Cost to WFP | Duration | U.S. Contribution through 7/83 ($000) |
|---|---|---|---|---|---|
| Niger | 2646 | Multipurpose Rural Development (Pilot) | $2,131,300 | One Year 1983-84 | $751.2 |

Activity:

Multipurpose project includes planting of green belts, 700 hectares; regeneration of natural vegetation, 480 hectares of Gao trees and 120 hectares of Acacia Albida; reforestation in the Bouza district planting of 20 kms of windbreaks of 8 hectares of village woodlots; community reforestation program 30 hectares as an experiment to combat desertification and achieve optimum agro-sylvo-pastoral equilibrium; bush fire control works, 1,400 kms of firebreaks (12 meters wide) in each of seven areas.

## PL 480 TITLE III FY 83

| Country | Program Cost ($ millions) | Activities Financed |
|---|---|---|
| Senegal | 7 | Agreement was signed on May, 1980 to provide seven million dollars of rice annually for a three year period (1980-82) for a total of 21 million dollars. A one year extension was approved for FY83 for an additional seven million dollars bringing the program total to 28 million dollars. Under this agreement the government of Senegal agrees to use local currencies generated by the sale of commodities to fund the following developmental projects:* |

| | ($000) | | ($000) |
|---|---|---|---|
| Environmental Rehabilitation Study | 230 | Reforestation of Saline Soils | 230 |
| Hydrogeological Study (Sine-Saloum) | 1,000 | Village Woodlots Development | 1,030 |
| **Dune Stabilization | 720 | Bandia Forest Maintenance | 175 |
| Land Regeneration Fund | 320 | Energy Efficient Woodstoves | 360 |
| Community Reforestation | 600 | Charcoal Production Training | 315 |
| | | Total | 4,840 |



*The Senegal program was last evaluated in October-November 1982.
**The Sand Dune Stabilization project received six million dollars of the 21 million generated by the original Title III program (1980-82).

PL 480 TITLE II FOOD FOR WORK THROUGH PVO FY83

| Country | Private Voluntary Organization | Value of Commodities as of 7/11/83 ($000) | Activities |
|---|---|---|---|
| Senegal | Catholic Relief Services | 291.0 | This Food for Work Program under the auspices of CRS has a sub-activity in which commodities are to be used as remuneration for labor in land terracing and soil conservation schemes. |

U.S. PL 480 TITLE II CONTRIBUTION TO WORLD FOOD PROGRAM: FOOD FOR WORK FY83

| Country/Project No./Title | | Total Cost to WFP | Duration | U.S. Contribution through 7/83 ($000) |
|---|---|---|---|---|
| Senegal 2236 (Exp. II) | Conservation and Development of Natural Vegetation | $6,105,000 | Three years 1980-83 | $624.3 |

Activity:

Plantation of acacia abida 200 hectares and creation of windbreaks 1,000 hectares; village woodlots 700 hectares, firecontrol and fire-breaks; nursery cultivation and 2,000 hectares of eucalyptus, acacia australensis and local fruit trees; 90 hectares interior dune fixation and 600 hectares soil regeneration (plantation).

| | | | | |
|---|---|---|---|---|
| Senegal 2230 (Exp.) | Integrated Agricultural Development in the Sine Saloum area | $3,581,500 | Five Years (Ext.) 1975 -83 | $624.3 |

Activity:

Includes assistance f · the establishment of windbreaks and eucalyptus tree planting; 10,000 hectares, to reduce soil erosion; establishment of woodlots and soil fer_ ilization; and construction of village seed stores.

PL 480 TITLE II FOOD FOR WORK THROUGH PVO FY83

| Country | Private Voluntary Organization | Value of Commodities as of 7/11/83 ($000) | Activities |
|---|---|---|---|
| Sierra Leone | Catholic Relief Services | 86.3 | This Food for Work Program has a sub-activity in which commodities have are to be used as remuneration for labor in land terracing and soil conservation. Nursery and tree planting activities are also included. At this time, specifics on actual or planned hectares are not available. |

PL 480 TITLE I SELF-HELP MEASURE FY83

| Country | Program Cost ($ millions)* | Self-Help Measure |
|---|---|---|
| Somalia | 15 | Self-Help measure to be financed with local currency generated by sale of commodities includes continuation of a sand dune stabilization program to control encroachment on farm lands. Number of hectares targeted for stabilization in 1983 is 400. |

*Excludes cost of ocean freight.



U.S. PL 480 TITLE II CONTRIBUTION TO WORLD FOOD PROGRAM: FOOD FOR WORK FY83

| Country/Project No./Title | | | Total Cost to WFP | Duration | U.S. Contribution through 7/83 ($000) |
|---|---|---|---|---|---|
| Somalia | 719 (Exp. ) | Rangeland Development and Reforestation | $19,313,000 | Four years 1979-83 | $624.3 |

Activity:

Includes protection of forest to allow for natural regeneration of seedlings, 100 $km^2$; plantations for wood for local construction and charcoal fuel, 2,800 hectares; tsetse control program; and plantation for stabilization of coastal sand dunes, 1,600 hectares.

## U.S. PL 480 TITLE II CONTRIBUTION TO WORLD FOOD PROGRAM: FOOD FOR WORK FY83

| Country/Project No./Title | Total Cost to WFP | Duration | U.S. Contribution through 7/83 ($000) |
|---|---|---|---|
| Sudan 2665 Restocking of the Gum Belt | $6,106,200 | Five Years 1983-88 | $111.2 |

Activity:

Assistance for planting of 82,400 feddans over 34,600 hectares of Acacia Senegal trees over a five year period and establishment of gum collection centers at the village level.

## PL 480 TITLE III FY83

| Country | Program Cost ($ millions) | Activities Financed |
|---|---|---|
| Sudan | 20 | Agreement was signed on December 22, 1979 for a total of 100 million dollars for the procurement of wheat on the most concessional terms over a period of five years (1979-84). Under this agreement the GOS agrees to fund policy studies and local costs of ongoing and specifically approved new development projects with the local currencies generated by the sale of Title III wheat. One such project is the Renewable Energy Project, No. 650-0041; approximate life of project cost in U.S. millions is 1.476. The project is primarily directed at reducing the consumption of wood through its more efficient utilization, as well as through the substitution of other renewable energies for wood. Efforts to increase the supplies of wood available for village energy purposes (as through small-scale reforestation efforts) will also be promoted. The project will also be concerned with developing alternative sources of energy for rural areas and with means to reduce labor and/or money expended in performance of work at the village level.* (The Federal Republic of Germany Renewable Energy Project will complement this project's purpose and goals.) |

*The latest evaluation of the Sudan Title III program was conducted October 2 - 17, 1982.

PL 480 TITLE II FOOD FOR WORK THROUGH PVO FY83

| Country | Private Voluntary Organization | Value of Commodities as of 7/11/83 ($000) | Activities |
|---|---|---|---|
| Tanzania | Catholic Relief Services | 78.4 | This Food for Work Program has a sub-activity in which commodities are to be used as remuneration for refugee labor in reforestation in the Kibono, Kigoma and Kasulu districts. Total reforestation for FY83 is estimated at: land clearing for farming 7,200 acres; land clearing for tsetse control 8,000 acres; and an additional 487 acres for unspecified reforestation schemes. |

U.S. PL 480 TITLE II CONTRIBUTION TO WORLD FOOD PROGRAM: FOOD FOR WORK FY83

| Country/Project No./Title | | | Total Cost to WFP | Duration | U.S. Contribution through 7/83 ($000) |
|---|---|---|---|---|---|
| Uganda | 2642Q | Multipurpose Rural Development in Karamoja Region | $1,384,200 | One Year 1983 | Commodities not yet programmed |

Activity:

Sub-project in Forestry Resources Development with emphasis on tree plantations and soil preservation; rehabilitation of the Moroto nursery and establishment of nine more throughout Karamoja; four plantations are to be rehabilitated and extended incooperation with schools. Controlled production of charcoal is to be introduced. (About 360,000 man-days for first year of operation.)

## U.S. PL 480 TITLE II CONTRIBUTION TO WORLD FOOD PROGRAM: FOOD FOR WORK FY83

| Country/Project No./Title | Total Cost to WFP | Duration | U.S. Contribution through 7/83 ($000) |
|---|---|---|---|
| Upper Volta 2239 Multipurpose Rural Development (Exp.) | $33,293,000 | Five Years 1980-85 | $1,349 |

Activity:

Multipurpose project includes reforestation sub-project, strengthening water resources and erosion control works; establishment of village woodlots, nurseries and maintenance of plantations.

## PL 480 TITLE II FOOD FOR WORK THROUGH PVO FY83

| Country | Private Voluntary Organization | Value of Commodities as of 7/11/83 ($000) | Activities |
|---|---|---|---|
| Upper Volta | Catholic Relief Services | 191.4 | This program has an extensive sub-activity in reforestation, specifically in tree planting of neem, cassia, eucalyptus, nere and flamboyants. Remuneration for labor is in the form of commodities. |

## U.S. PL 480 TITLE II CONTRIBUTION TO WORLD FOOD PROGRAM: FOOD FOR WORK FY83

| Country/Project No./Title | Total Cost to WFP | Duration | U.S. Contribution through 7/83 ($000) |
|---|---|---|---|
| Zambia 2612 Assistance to Forestry | $1,784,100 | Four Years 1983-87 | Commodities not yet programmed |

**Activity:**

Assistance is for 12,500 workers and their families in the Forestry Department's Industrial Plantations for the planting of 1,000 hectares per year of pine and eucalyptus in centers of industry within the copperbelt, Ndola, Kitwe and Kalulushi. Also includes production of fuelwood, charcoal and building materials and establishment of village woodlots, forestry plantations and rehabilitation of deforested areas around cities to help assure availability of fuelwood and charcoal to increasing urban populations.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PVC Centrally Funded 938-0216 | SD | --- | --- | 583 | 955 | 1,160 | --- | --- | --- | --- | --- | --- | 2,698 AID<br>2,698 CARE | Active |
| Renewable Natural Resources | | | | | | | | | | | | | | |

LENGTH OF PROJECT/PACD:

1981-1984

CONTRACTOR

Cooperative American Relief Everywhere (CARE), 660 First Avenue, New York, New York 10016, Tim Aston, (212) 686-3110.

CONTACT:

Food for Voluntary Cooperation, PVC, Department of State, Washington, D.C. 20520

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.

SUMMARY:

Through a coordinated program of host government-sponsored activities, community-supported projects, private initiatives and individual effects 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 thorough 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 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 November 1983).
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 1982).
Uganda--design activities for a project in Uganda are nearing completion.

STATUS:

In Africa the Renewable Natural Resources program has projects underway in three countries: Cameroon; Mali; and Niger (3). Design activities are nearing completion for a project in Uganda.

Cameroon - Community Forestation

This officially began in the early part of FY83 with the signing of an agreement with Government of Cameroon agencies: the National Office of Forest Regeneration (ONAREF) and Community Development (CD). The project supports two central ONAREF managed nurseries at Mokolo and Mogode which produce a variety of fuelwood, timber and fruit species. Four small village-managed nurseries have also been

Cameroon - Community Forestation (Continued)

established which contribute seedlings to the project. The total nursery production in FY83 was 86,300 seedlings.

Mali - Village Agroforestry

The project proposal was completed and approved by November, 1983. The project officially began on June 10, 1983. Activities during the year were limited to planning and procurement. The intent of the project is to establish three village-managed nurseries and one central, project-managed nursery in the county of Koro in Mali's Fifth Region, Mopti. The nurseries will produce indigenous hardwood tree species for live fencing.

Niger

Beginning in FY84 the Keita and Bousa projects will be merged into a single project to be known as the Tahoua Reforestation Project. This project will include all CARE reforestation activities in the Department of Tahoua which incudes the arrondissements of Keita and Bousa.

During FY83 the Government of Niger's Service of Water and Forest assumed a larger role in project administration. Approximately one-third of local operational costs are managed by the GON counterparts. Given the strength of CARE's reforestaTion activities in Niger, CARE initiated a third project in the Department of Maradi.

Bousa Reforestation

CARE and the GON Service of Water and Forest entered into an agreement in 1974 to undertake a forestry project to counter the effects of erosion and declining soil productivity. The first windbreaks were planted in the maggia valley in 1975. Since then, efforts aimed at dune stabiiization, riverbank protection and free distribution of seedlings to local populations have expanded the project's scope and impact. CARE has five nurseries operating in the Bousa arrondisement. The yoyal number of seedlings outplanted or distributed to community members reached 99.6% of the targeted amount. Of the 30 km of windbreaks planted in the Northern part of the valley (Karaye), 50% of the trees survived. The southern valley windbreak sites (Taboye) had a good survival rate and will require only minimal replacement plantings. Dune stabilization efforts in Yegalalane exceeded plans. Under the entire project a total 114,630 seedlings were outplanted. The nursery at Tama was established during FY83 and the first seedlings were produced during the final trimester. Total nursery seedling production equalled 94,200.

Keita Reforestation

The Keita project has undertaken activities including, windbreaks, woodlots, and live fencing. It operates in two arrondissements - Keita and Gadamata, each of which has a centralized nursery.

Reforestation efforts began in both areas in 1980. A total of 75,030 seedlings were outplanted during FY83. Total seedingl production equalled 54,400.

Maradi Agroforestry

During FY83 efforts are being concentrated in the Aguie arrondissement at two sites - Gazaoua and Assaya, each of which has a centralized nursery. Total seedling production for the year equalled 34,500. Twelve small farmer-managed nurseries were started in Assaya. No outplanting was scheduled to take place during FY83. Planned activities include windbreak establishment, sale of seedlings for private woodlots, distribution of seedlings to the public weal (school yards, dispensary and market shade trees) and private

## IV. Africa Bureau Regional Projects

### A. Data Sources and Definitions

This section describes the Africa Bureau regional projects which encompass the Sahel specific and the Africa regionals. The former typically address concerns common to the Sahelian region and may operate in one or more of the following eight countries: Mauritania, Cape Verde Islands, Chad, Upper Volta, Niger, The Gambia, and Mali. The focus of these projects have been the reversal of the paralyzing conditions occasioned by the great Sahelian drought of 1968-1974. In the case of the Africa regionals,* project activities are designed with an Africa-wide perspective, while taking into consideration specific LDC constraints, and may be operative in one or more countries within the Africa region.

Due to the regional approach fundamental to these projects, they are presented in this section of the report as a group. The first grouping consists of the Sahel regional projects which have in turn been organized by project thrust, i.e., energy, forestry and natural resources. Within these sectors the projects are sequenced by project number in ascending order. Sources and definitions explicating the various informational categories found in the data summary sheets correspond to those in the section on bilateral projects. The user of this report is referred to that section. A matrix listing the Sahel Regional projects precedes the data summary sheets, as is the case for the Africa Regional projects. (These matrices have been included to provide ready access to project title, number, source of funding, and countries impacted by project activities. The country specific activities, including studies, training, workshops or other interventions, may be determined by referring to the appropriate "project status" and/or Africa specific information category of the data summary sheets. It should be noted that the project status and the matrix are not intended to reflect the totality of project activities and total countries impacted during of the life of project, except in a few cases such as the training programs, as this is beyond the scope of this study. They do, however, reflect activities conducted within the last year.

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*For purposes of this report, "Africa" is defined by the countries covered by AID's Africa Bureau.

AFRICA BUREAU SAHEL REGIONAL PROJECTS

| | Angola | Benin | Botswana | Burundi | Cameroon | Cape Verde | Central African Republic | Chad | Comoros | Congo | Djibouti | Equatorial Guinea | Ethiopia | Gabon | Gambia | Ghana | Guinea | Guinea-Bissau | Ivory Coast | Kenya | Lesotho | Liberia | Madagascar | Malawi | Mali | Mauritania | Mauritius | Mozambique | Namibia | Niger | Nigeria | Rwanda | Sao Tome/Principe | Senegal | Seychelles | Sierra Leone | Somalia | Sudan | Swaziland | Tanzania | Togo | Uganda | Upper Volta | Zaire | Zambia | Zimbabwe |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 625-0911 Vita Agreement Woodstove (104) | | | | | X | | X | | | | | | | X | | | | | | | | | | X | X | | | | X | | | | X | | | | | | | | X | | | | |
| 625-0937.03 (AIP) Renewable Energy (106) | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 625-0937.07 (AIP) Renewable Energy (108) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | |
| 625-0911 CILSS Ecol. (110) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | |
| 625-0915 Niger River Basin Dev. Plng.II (111) | | X | | | X | | X | | | | | | | | | X | | X | | | | | | X | | | | | X | X | | | | | | | | | | | X | | | | |
| 625-0937 (AIP) Village Reforestation (113) | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | |
| 625-0012 Gambia River Basin Development (114) | | | | | | | | | | | | | | X | | X | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | |
| 625-0261 OMVS Integrated Dev. (116) | | | | | | | | | | | | | | | | | | | | | | | | X | X | | | | | | | | | X | | | | | | | | | | | | |
| 625-0917 Water Data Network Mgt. I (118) | | | | | X | | X | | | | | | | X | | | | | | | | | | X | X | | | | X | | | | X | | | | | | | | X | | | | |
| 625-0929 NAS Adv. Com. on the Sahel (120) | | | | | X | | X | | | | | | | X | | | | | | | | | | X | X | | | | X | | | | X | | | | | | | | X | | | | |
| 625-0940 Sahel Water Data Network Mgt.II (122) | | | | | X | | X | | | | | | | X | | | | | | | | | | X | X | | | | X | | | | X | | | | | | | | X | | | | |
| 625-0944 Niger River Basin Planning II (124) | | X | | | X | | X | | | | | | | | | X | | X | | | | | | X | | | | | X | X | | | | | | | | | | | X | | | | |

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sahel Regional 625-0911 | SH | — | 194 | — | 100 | 100 | 100 | 484 | — | 10 | — | — | 494* | Active |

VITA Agreement/Woodstove Project*

LENGTH OF PROJECT/PACD:

1980 - 9/30/84

CONTRACTOR

VITA, Volunteers in Technical Assistance Inc. 1815 North Lynn St. Su. 200, P.O. Box 12438 Arlington, Va. 22209. (703) 276-1800.

CONTACT:

Energy Advisor, Upper Volta (ID), Department of State, Washington, D.C. 20520

PURPOSE:

To assist the CILSS (Permanent Interstate Committee Against the Sahel Drought) in the efficient coordination of appropriate technology activities, particularly the development and testing of woodstoves.

SUMMARY:

The project, a sub-activity 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).

AID-FINANCED INPUTS:

AID will provide funds for VITA to finance:

1. The Regional Technical Coordinator for Fuel-Conserving Stoves Development;
2. A host country technical counterpart

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.

STATUS:

An agreement was signed in September, 1980, for VITA to provide a technical coordinator to work with the CILSS regional sociological coordinator. An extension of this agreement allowed VITA to assign a second two-year technician and to continue technical coordination of improved stove development in the Sahel.

In the first two years, three promising stove prototypes were developed, and laboratory and field testing was underway in the six participating countries. Training was provided in national and regional workshops, and six issues of the French language woodstove newsletter Flamme were published. The technical coordinator made presentations in several forums (see Project Documents and Reports) and consulted with other organizations in stove design, evaluation, planning, and related technology development. A series of technical reports and a draft manual on stove efficiency testing were issued. Beginning in mid 1982 an intensive laboratory test series was began in collaboration with the Voltaic Institute of Energy, the Mali Solar Energy laboratory, the Center of Renewable Energy (CERER) in

Senegal, and other test centers in the now eight participating countries. International stove groups including Eindhoven (the Netherlands), Bois de Feu (France), two German groups, AIDR (Belgium), and ITDG (U.K.) collaborated in testing and technical development. Two stove conferences were held (December 1982 and April 1983) and the technical coordinator attended a meeting of international stove testing experts (December 1982). Two technical reports were published as of June, 1983.

DOCUMENTS AND REPORTS:

Wood, T. "Aspects Techniques et Pratique des Foyers Ameliores" (Dec. 80).

Wood, T. "Improved Woodstoves in the Sahel: A Critical Assessment" (Dec. 81).

Wood, T. "Woodstove Dissemination in the Sahel: Case Studies and a Few Suggestions" (Mar. '82).

Wood, T. Technical report series B1-B-5 (1981-82).

Downey, J. Stove Testing Procedures (draft) (May '82).

Baldwin, S. Lab Tests of Fired Clay Stoves, the Economics of Improved Stoves, and Steady State Heat Loss from Massive Stoves (Oct. '82).

Baldwin S. Lab Tests of Fired Clay and Metal One-pot Chimneyless Stoves (Feb. '83).

*The precise project title is Sahel Regional Aid Coordination nd 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 Secretaria 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).

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sahel Regional 625-0937.03 (AIP) | SH | — | 500 | — | — | — | — | 21 | 85 | — | 317 | 76 | 500 | Active |

Renewable Energy

LENGTH OF PROJECT/PACD: 1980 - 8/31/83

CONTRACTOR: —

FIELD CONTACT: Energy Advisor, Cape Verde (ID) Department of State, Washington, D.C. 20520

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.

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 U.N. 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.

STATUS:

The project was authorized on February 26, 1980. Technical assistance is in progress. Procurement of commodities, including machines for generation of electricity, is behind schedule. As of the second quarter FY83 orders had been placed and installation of machines was planned for the third quarter of the same year. A study concerning practical applications of solar technologies likely to encourage economic development has been conducted.

Technical assistance in solar energy arrived in Cape Verde in April 1983. Approximately 40 water pumping windmills have been installed and are in operation under this joint Dutch -U.S. AID project and prior projects. Training of six local mechanics for other islands is underway. Activities planned for third quarter FY83 include: revision of scope of work for technical assistance in solar energy; move to new workshop; begin training two machinists; offer two alternative energy courses for engineers; installation of seven additional windmills and maintenance; continue recording windmill performance measurements.

DOCUMENTS AND REPORTS:

PID: 6/79.
Project Paper: 12/79.
Blake, S.: "Wind Energy Resources in the Cape Verde Islands"; Oskaloose, K.N. 1979.
An evaluation is planned for the first quarter of 1984 to determine cost effectiveness of wind and solar energy prototypes.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sahel Regional 625-0937.07 (AIP)* | SH | — | 300 | — | 300 | — | — | 126 | 36 | 170 | 118 | 150 | 600 | Active |

Renewable Energy

LENGTH OF PROJECT/PACD:

1980 - 12/31/83

CONTRACTOR

FIELD CONTACT:

Energy Advisor, Senegal (ID) Department of State, Washington, D.C. 20520

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.

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.

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 ACTVITIES:

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.

*Formerly number 685-0238.

AID-FINANCED INPUTS:

1. Short-term technical assistance from a charcoal production specialist, a stove design specialist, and U.S. 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.

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.

STATUS:

The project was authorized on October 15, 1979, and is close to the planned schedule. Progress has been made in several areas. Training and Charcoal production: over 100 charcoal makers have been trained to construct the "Casamance Kiln" which is reported to have increased production by 34%. Cookstoves: over 500 villagers have been trained in construction of cookstoves and an estimated 1,000 have been disseminated to village homes. Fuel efficiency has been estimated at 25-30%. Solar Dryers: solar fish dryers have been constructed, lab and field tested in several villages. A report on development of solar dryers has been completed and submitted to USAID. The economic study reports negative findings for the solar dryer component and positive findings for the cookstoves. A users attitude survey is almost complete for the cookstoves program. Planned activities include: review of solar dryers; follow-up of the charcoal component; and purchase of vehicles for CERER. The project is in the process of closing out in the next few months.

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, O.R. 4/80.
Evaluation and Second Year Strategy: Aprovecho Institute: 3/81.
Ulinski, C.: "Senegal's Ban Ak Suuf Cookstoves; AID/DAKAR: 1981.
Ulinski, C.: "Evaluation of ITA Solar Fish Dryers", 1981.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sahel Regional 625-0911 | SH | — | — | — | 224 | — | 100 | 800 | — | — | — | — | 800* | Active |

CILSS Ecologist*

LENGTH OF PROJECT/PACD:

1980 - 1983

CONTRACTOR

Personal Services Contract

FIELD CONTACT:

Forestry Advisor, General Development Office, Upper Volta (ID) Department of State, Washington, D.C. 20520

PURPOSE:

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

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.

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.

STATUS:

A forester served in this position from 1978 to 1980. During this time, he provided technical assistance in the development and management of natural resource projects focusing on environmental aspects of programs. A contract to replace him with an ecologist was signed by AID/W on December 30, 1981. In January, 1982, the contractor arrived in Upper Volta. He has developed a forestry/fuelwood computer model which seeks to demonstrate the effect of the assumptions made in planning future activities.

DOCUMENTS AND REPORTS:

Contract: 10/81.

*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 Shahel Secretariat and the FAO. Total project funding is $12,274,000 of which an estimated $800,000 goes to forestry and ecology activities. The figures noted above reflect the contract agreement and not the overall project.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sahel Regional 625-0915 | SD | 1,411 | — | 500 | — | — | — | 360 | 705 | 155 | 61 | 130 | 1,911* | Active |

Niger River Basin Development Planning (Phase II)

LENGTH OF PROJECT/PACD:

1979 - 12/31/85

CONTRACTOR

U.S. Army Corps of Engineers Vicksburg, Mississippi, 39180.

FIELD CONTACT:

Forestry General Development Officer, Niger (ID) Department of State, Washington, D.C. 20520

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.

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 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 U.S., 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.

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.

STATUS:

The project was approved in May, 1977, but progress has been slow. A $500,000 amendment was authorized on September 4, 1981, to allow the Army Corps of Engineers to do a River Basin Systems Analysis. The Chief of Engineers (COE) of project arrived January 7, 1983. He has met with governmental officials and representatives of regional organizations that will be cooperating on the Niger Basin Development planning effort. Contracts have been awarded to complete the geomorphic analysis and the collection/analysis of field data for development of the mathematical model. The project's CPM diagram has been jointly revised (COE/USAID/NBA) for the purpose of merging some second phase activities (625-0944) with this first phase project. Mechanisms are being sought to start activities (e.g., obtaining sedimentation data, cross section data). More recent activities include: aerial reconnaissance of Niger River; initiation of contract work; development of training plan; and full workplan

for LOP and implementation schedule as defined by Project Paper. An issue requiring resolution involves reaching agreement on the overall training plan by USAID and the Executive Secretary of the NBA. The plan should ideally detail the process for selection of participants and their placement within the NBA structure after training is completed.

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.




*Reflects only forestry component.

**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).

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sahel Regional 625-0937 (AIP) | SH | — | 495 | — | — | 160 | — | 50 | 22 | 32 | 101 | 290 | 495 | Active |

Village Reforestation

LENGTH OF PROJECT/PACD:

1980 - 9/30/85

CONTRACTOR

FIELD CONTACT:

Forestry Advisor, General Development Officer, Mali
(ID) Department of State, Washington, D.C. 20520

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.

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 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.

STATUS:

The project was authorized on September 18, 1980. The project site was visited in the first quarter of 1982 by AID/W officials. The project implementation is proceeding as planned and nurseries are producing the targeted amount of seedlings. The number of woodlots and other interventions are slightly under target and in terms of surface area about half of what was expected. Village participation remains high and the Forestry Service supervision and collaboration remains excellent. Increased emphasis is being placed on planning, recurrent costs and finishing infrastructure. The financial management system is in place. Steps are being taken to increase the number of nursery and woodstove activities, well construction and training programs. Plans for future consideration include requesting additional funds and conducting feasibility study for expansion of certain activities:

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 (936-5711)

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sahel Regional 625-0012 | SH | — | — | 4,000 | 5,512 | 530 | 3,000 | 3,200 | 11,044 | 156 | — | 400 | 14,800 | Active |
| Gambia River Basin Development | | | | | | | | | | | | | | |

LENGTH OF PROJECT/PACD:

6/81 - 9/30/86

CONTRACTOR

Development Assistance Corp. (TA) Paris - Mark Hurd Co., (Photography 1 mapping); University of Ann Arbor, Michigan. 48104.(socio-economic, environmental studies).

FIELD CONTACT:

River Basin Development Office, Senegal (ID), Department of State, Washington, D.C. 20520

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.

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 U.S. 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 U.S. 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

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.

STATUS:

The project was authorized on May 27, 1981. The low and high altitude aerial photography of the Basin has been completed by Mark Hurd, Inc. The geodectic survey of the Basin is in its initial stages. Phase I work-plans for environmental and socio-economic studies have been prepared by the University of Michigan. The socio-economic and environmental studies contract has been awarded to the University of Michigan, and the teams have begun work in the field. A Project Paper Amendment of $1.4 million has been authorized to extend these studies into Guinea.

DOCUMENTS AND REPORTS:

Project Paper: 5/81.
UNDP Multi-Disciplinary Multi-Donor Reports, New York:
(1) Draft Action Plan; 12/79;
(2) "Development of the Gambia River Basin" (2 vols), 5/80;

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.

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

(3) Preliminary Pre-Investment Action Plan for Senegal and the Gambia, 11/80;

(4) Preliminary Pre-Investment Action Plan for Senegal and the Gambia, 11/80;

(5) Preliminary Pre-Investment Action Plan for Guinea, 2/82.

Project Paper Amendment, 6/83.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sahel Regional 625-0261 | SH | — | — | — | — | — | 6,300 | — | — | — | — | — | 6,300 | Planned |
| OMVS Integrated Development* | | | | | | | | | | | | | | |

LENGTH OF PROJECT/PACD:

1984 - 1990

CONTRACTOR

—

FIELD CONTACT:

River Basin Development Office, Senegal (ID), Department of State, Washington, D.C. 20520

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.

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 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 progess, 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

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. ±5,600 ha. of small irrigated perimeters rehabilitated or constructed;
2. ±200 ha. of experimental livestock feedling/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.

STATUS:

The PID was approved on November 27, 1980; a PID addendum containing a sociological documentation was approved in January, 1981. The final Project Paper was submitted in January, 1983, and is undergoing review in Washington. Initial funding is anticipated for FY84.

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).

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.

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*Organisation pour la Mise en Valeur du Fleuve Senegal, composed of Senegal, Mali and Mauritania.

Planned Project Summary Sheet; FY83 CP; Annex I.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sahel Regional 625-0917 | SH FN | 2,665 | 1,313 | — | — | — | — | 2,100 | — | 1,267 | 208 | 2,693 | 6,268 | Active |

Water Data Network Management I

**LENGTH OF PROJECT/PACD:**

5/76 - 9/30/82

**CONTRACTOR**

PASA with National Oceanic and Atmospheric Administration (NOAA), National Weather Service, Overseas Operation Division W/OM3X1, 8060 13th St. Rm. 1325, Silver Spring, Maryland 20910. (301) 427-7784. Richard I. Crouthamel.

**FIELD CONTACT:**

Natural Resources, General Development Officer, Niger (ID) Department of State, Washington, D.C. 20520

**PURPOSE:**

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

**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

**AID-FINANCED INPUTS:**

1. Technical advisor for installation and maintenance of equipment and instruments, data processing specialist;
2. U.S. 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.

**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 60 Sahelians yearly in data processing, agricultural applications, etc. The generator building has been completed and two 125 KVA generators and an Uninterruptable Power Supply installed. The warehouse for

($265,000), France ($155,000), and West Germany ($100,000)*. The World Meteorological Organization of the U.N. is the executing agent for the project.

OTHER DONOR ACTIVITIES:

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

*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).

expendables storage has been completed. Nine Sahelians have furnished U.S. training and are on-site in Niamey and other locations; eleven are currently studying. Two U.S technical experts are on-site. Data Processing and telecommunications is fully operational in Senegal, the Gambia, Mali and Niger, transmitting data to each other and the regional center. The building in Upper Volta to house that system is nearly completed and the telecommunications equipment for Cape Verde is being ordered.

DOCUMENTS AND REPORTS:

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

Project Paper: 4/24/76.

Evaluations: 3/78; 3/80.

"Programme planning and identification of needs for the operational phase 1983-1986" - Report of the mission of the Co-ordinating and Advisory Committee of Donors (CAC) organized by WMO (July - October 1982).

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sahel Regional 625-0929 | SH | — | — | 285 | — | — | — | 250 | 35 | — | — | — | 285 | Active |
| NAS Advisory Committee on the Sahel | | | | | | | | | | | | | | |

**LENGTH OF PROJECT/PACD:**

1981 - 1983

**CONTRACTOR**

National Academy of Sciences (NAS), 2101 Constitution Ave. N.W., Washington, D.C. 20418. (202) 334-2000.

**FIELD CONTACT:**

Natural Resources, Sahel West Africa Regional Program or Desk Officer, Department of State, Washington, D.C. 20523.

**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-sylvopastoral systems.

**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 trails 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).

**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.

**STATUS:**

The grant was signed on July 24, 1981, and was completed on June 30, 1983. During this period of time, species have been tested at the following project sites: Cape Verde (Flamengos Saltos Valley); Mali (Bandiagara, Fatama); Mauritania (Boutilimit, Nouakchott, Selibabi); Niger (Guesselbondi, Tanout District); Senegal (Bandia, St. Louis). Studies of "The Human Impact on Sahelian Eco Systems" and "Long-Term Bio-climatic Change in the Sahel" have been completed and will be distributed in August, 1983.

**DOCUMENTS AND REPORTS:**

Action Memorandum: 7/24/81.
NAS Memoranda: 4/12/82; 5/3/82.
End of Contract Statement: 1983.

OTHER DONOR ACTIVITIES:

Two Swiss and one Lutheran World Service project will implement project-related seed trails. The FAO is conducting seed trails 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.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sahel Regional 625-0940 | SH | — | — | — | 3,529 | — | 1,000 | 1,500 | 210 | 1,075 | 215 | 4,000 | 7,000 | Active |

Sahel Water Data Network Management II

**LENGTH OF PROJECT/PACD:**

1982 - 9/30/87

**CONTRACTOR**

PASA with National Oceanic and Atmospheric Administration (NOAA), National Weather Service, Overseas Operation Division W/OM3X1, 8060 13th St., Rm. 1325, Silver Spring, Maryland 20910. (301) 427-7784 Richard I. Crouthamel.

**FIELD CONTACT:**

Natural Resources, General Development Officer, Niger (ID) Department of State, Washington, D.C. 20520

**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.

**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 U.N. is the execut-

**AID-FINANCED INPUTS:**

1. Technical assistance;
2. 40 person-years of U.S. 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;
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.

**STATUS:**

In April, 1981, a multidisciplinary team was organized to prepare the 1982-86 integrated program. The AID project was authorized on February 16, 1982. Phase II activities, as designed by this project, are intended to extend the project goals of 625-0917 (Phase II). Effort to satisfy the remaining CP's (agreed upon operational and financial plans) continued during the quarter with conclusion of

ing 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.

expert meetings in Geneva 2/28 and a technical committee session in Niamey 3/24 to draft specific operational plan elements. Formal review and adoption of these meeting reports and the Bernard Report (Phase II Design Review/Integrated Systems Study) took place at the 19-23 April CAC meeting in Geneva. NOAA site inspections for all Sahel states were completed during the quarter. Recruitment of a specialist to carry out telecommunications study has been initiated. An issue requiring resolution concerns determination of the means for telecommunicating data between regional and national centers.

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.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sahel Regional 625-0944 | SH | — | — | — | 6,714 | — | — | 1,000 | 1,000 | 3,000 | 1,000 | 714 | 6,714* | Active |
| Niger River Basin Planning (Phase II)) | | | | | | | | | | | | | | |

LENGTH OF PROJECT/PACD:

1982 - 9/31/87

CONTRACTOR

U.S. Army Corps of Engineers, Vicksburg, Mississippi.

FIELD CONTACT:

Natural Resources, General Development Officer, Niger (ID) Department of State, Washington, D.C. 20520

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.

SUMMARY:

This project continues and enlarges on the Niger River Basin Planning Project 625-0915 currently underway. 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.

*Total LOP funding is $11.7 million. The $6.714 million reflects National Resources component only.

**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.

STATUS:

The project was authorized in 1982. A meeting was held with the Executive Secretary of the NBA. NBA Planning Committee formed at the suggestion of USAID Project Officer has developed organizational chart reflecting planning unit and planning unit chief. Terms of reference have been developed in conjunction with UNDP for chief of planning unit position. Development of five year plan and budget is also underway. Interim chief of planning unit has been named and recruitment for a chief of planning unit has commenced. It is expected that conditions precedent to this project will be met by November 30, 1983. Project Officer has spent appreciable time working with NBA planning committee to assure that appropriate actions are being taken and data developed. An issue to be resolved concerns the cash flow problems of the NBA Executive Secretariat. USAID will need to verify that NBA will have adequate resources to hire personnel required within the next year to profit from the job training offered by the COE project.

DOCUMENTS AND REPORTS:

Project Paper: 4/82.

AFRICA BUREAU REGIONAL PROJECTS

| | Angola | Benin | Botswana | Burundi | Cameroon | Cape Verde | Central African Republic | Chad | Comoros | Congo | Djibouti | Equatorial Guinea | Ethiopia | Gabon | Gambia | Ghana | Guinea | Guinea-Bissau | Ivory Coast | Kenya | Lesotho | Liberia | Madagascar | Malawi | Mali | Mauritania | Mauritius | Mozambique | Namibia | Niger | Nigeria | Rwanda | Sao Tome/Principe | Senegal | Seychelles | Sierra Leone | Somalia | Sudan | Swaziland | Tanzania | Togo | Uganda | Upper Volta | Zaire | Zambia | Zimbabwe |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 698-0407.31 (IRT) Improved Rural Tech(126) | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 698-0407.33 (IRT) Improved Rural Tech. Farm Dryers (127) | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 698-0407.7 (IRT) Micro-Hydroelectric Activity (128) | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | |
| 698-0407.9 Rural Solar Tech. Activity (130) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | |
| 698-0410.22 (AIP) Renewable/Improved Trad. Energy (131) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | |
| 698-0410.35 Community Forestry School Tree Nursery (133) | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 698-0424 Energy Initiatives For Africa (134) | (Project in initial stages of Implementation) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 698-0414 Remote Sensing/East Africa (136) | | X | | | | | X | | | X | | X | | | | | | | X | X | | X | X | | | X | X | X | X | | X | | | | | X | X | X | X | | X | | | X | X | |
| 698-0420 Remote Sensing/West Africa (138) | X | | | | | | | | | | | | | X | X | X | X | | | | X | | | X | X | | | X | X | | X | | X | | | | | | | | X | | X | | | |
| 698-0427 Environmental Training & Resource Management (140) | | | | | X | | X | | | | | | | X | | | | X | | | | | X | X | | | X | | X | | X | | | | X | | X | | X | | | X | | | |
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| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Africa Regional 698-0407.31 (IRT) | SD | — | — | — | 95 | — | — | 40 | 5 | — | | 50 | 95 | Active |

Improved Rural Technology
(Charcoal Briquette Production)

LENGTH OF PROJECT/PACD:

1982 - 9/24/84

CONTRACTOR

Experience Inc., 1725 K Street, N.W., Suite 314
Washington, D.C. 20006. Raymond Manoff.
(202) 659-3864.

FIELD CONTACT:

Charles Gordon, AFR/RA, NS, Agency for International Development
Washington, D.C. 20523. (202) 632-9821

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 environments in Kenya.

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.

[illegible]

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 900 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.

STATUS:

A consultant from the Kenyan engineering firm of Gordon Melvin and Associates was hired to write Project Paper in May, 1982. Arrangements have been made to secure a contractor to procure commodities and provide technical services in the construction of the plant, initial operation, and determining market feasibility. Extension of the PACD is under consideration. In the near future the contract for commodities and technical services will be negotiated and the procurement of capital equipment and arrangements for transport to project site will be made.

DOCUMENTS AND REPORTS:

Activity Identification Cable: 11/81.
Project Paper: 1982.
Quarterly Implementation Reports.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Africa Regional 698-0407.33 (IRT) | SD | -- | -- | -- | 73 | -- | -- | 15 | -- | -- | 5 | 53 | 73 | Active |

Improved Rural Technology Farm Dryers

LENGTH OF PROJECT/PACD:

1982 - 4/30/85

CONTRACTOR

FIELD CONTACT:

Charles Gordon, AFR/RA, Rm. 4533 NS, Agency for International Development Washington, D.C. 20523. (202) 632-9821

PURPOSE:

To develop and test an inexpensive solar food dryer suitable for conditions in Burundi.

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, climatalogical 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 staff persons and a student assistant.

OTHER DONOR ACTIVITIES:

The project will be implemented in conjuction with the forthcoming FED-financed High-Altitude Food Production Project along the Zaire Nile crest, which with 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.

STATUS:

Pursuant to review of the project activity paper by USAID Burundi and REDSO/ESA, a Limited Scope Project Agreement was signed July 31, 1982. Planned activities include issuance of Initial Project Implementation Letters. Commodity procurement was initiated in February, 1983. Construction is scheduled to begin by September, 1983.

DOCUMENTS AND REPORTS:

Report on field visit by Experience Inc., Washington, D.C. 2/82.

Project Activity Paper 1982.
Limited Scope Project Agreement, 7/82.

| PROJECT NO. TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | ESTIMATED FY81 | FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Africa Regional 698-0407.7 (IRT) | FN | 50 | — | 20 | 25 | — | — | — | — | — | — | — | 95 | Active |

Micro-Hydroelectric Activity

LENGTH OF PROJECT/PACD:

1980 - 9/30/82*

CONTRACTOR

Experience Inc., 1725 K Street, N.W., Suite 314 Washington, D.C. 20006. Raymond Manoff. (202) 659-3964.

FIELD CONTACT:

Charles Gordon, AFR/RA, Rm. 4533 NS, Agency for International Development Washington, D.C. 20523. (202) 632-9821

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 in Liberia.

SUMMARY:

The project consists of four design and construction activities: (1) civil works, including a five 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 GOL 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.

STATUS:

The project was authorized in 1979 and is now about two years behind schedule. Factors contributing to the delay include a shortage of technical expertise, the abolition of the original implementing ministry and the experimental nature of the project which has led to considerable engineering redesign. The project has been amended twice, most recently in August, 1982. Inadvertently, the PACD of September 30, 1982, was not extended. The plant is over 95% complete. However, certain activities to complete the project cannot be undertaken until a source of engineering expertise is identified. Activities completed include: the construction of the base of the dame (evaluation of February, 1982, recommended it not be built to the full height pending engineering review); road work to the dam site and power house is complte; the turbine package is on site; and villagers have completed the civic works construction associated with the project. Planned activities involve: extension of PACD; identification of engineering expertise; identification of source of

expertise for long-term maintenance and operation of power plant; and continued construction. A major issue for eventual resolution requires determination of the relationship between the power plant and the Liberia Electricity Corporation (LEC) and whether it will assume responsibility for supplying technical expertise for project and future maintenance. Project was last evaluated in March, 1982.

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.


*PACD to be extended upon recommendation of USAID Engineer.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Africa Regional 698-0407.9 (IRT) | FN | -- | 50 | -- | 25 | -- | -- | -- | -- | -- | -- | -- | 75 | Active |
| Rural Solar Technology Activity | | | | | | | | | | | | | | |

LENGTH OF PROJECT/PACD:

6/80 - 6/30/83

CONTRACTOR

Experience Inc. (provided technical assistance in initial stages of project.) 1725 K Street, N.W. Suite 314 Washington, D.C. 20006. (202) 659-3864.

FIELD CONTACT:

Charles Gordon, AFR/TR, Rm., 4533, NS, Agency for International Development Washington, D.C. 20523. (202) 632-9821

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.

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.

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.

OTHER DONOR ACTIVITES:

The FED has financed the installation of two solar pumps.

AID-FINANCED INPUTS:

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

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.

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 $m^3$, 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. The project was evaluated in June, 1982. Additional activities have included extension of PACD to permit construction during the dry seasons, procurement of machines, and construction of facility and testing of solar dryers. Commodities have been received, construction phase is proceeding on schedule and soon the project is expected to close out its financial activity.

DOCUMENTS AND REPORTS:

Activity Paper; 1/11/80.
"Overview of the Togo Energy Situations"; 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.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 (Through) | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Africa Regional 698-0410.22 (AIP) | FN | 488 | — | — | — | — | — | 120 | 9 | 59 | 240 | 60 | 488 | Active |

Renewable/Improved Traditional Energy

**LENGTH OF PROJECT/PACD:**

5/79 - 12/31/83

**CONTRACTOR**

VITA - Volunteers in Technical Assistance, 1815 N. Lynn Street, Suite 200, Arlington, VA 22209 (703) 276-1800.

**FIELD CONTACT:**

Charles Gordon, AFR/RA, Rm. 4533, NS, Agency for International Development Washington, D.C. 20523. (202) 632-9821

**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.

**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; (5) strengthening of the CEAER research and testing facilities; (6) establishment of a Rural Energy Self-Help Fund for Rwandan public and private groups working in the energy sector; (7) establishment of project documentation and international information exchange mechanisms; (8) seminars and colloquia; and (9) 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.

**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 potential for meeting rural energy needs with renewable and improved traditional energy technologies.

**STATUS:**

The project was authorized on August 31, 1979, and extended to December 3, 1983, to allow completion of woodstove activities and the micro-hydro element. Short-term consultancies by an energy technologist and a survey expert have been provided by VITA. A woodstove expert was in the field for nine months and the micro-hydro consultants were there for a total of three person months. Consultants have focused on testing/installation/extension of technologies in rural communities. Plans and arrangements for seminars on renewable energy and the environment in Rwanda have been completed. A total of 60 improved woodstoves, to data, have been constructed and installed. One micro-hydro facility (the major remaining unfinished element of the project) is in the process of being renovated. A report on the woodstove activity has been completed and submitted to AID/W. Three CEAER researchers have

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



received short-term U.S. training. Prototype field testing has been completed for a solar water heater, a solar distiller, and a biogas digester. Continuing activites include: short-term training in the U.S. in solar energy; review of plans for extension of cooking stove technologies; and review of expenditure plans for the remainder of the project. Activities for the establishment of the Rural Energy Fund have not yet commenced. The project was last evaluated in April, 1982.

DOCUMENTS AND REPORTS:

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

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Africa Regional 698-0410.35 (AIP) | SD | -- | -- | 460 | -- | -- | -- | 354 | -- | 16 | 40 | 50 | 460 | Active |

Community Forestry
School Tree Nursery

LENGTH OF PROJECT/PACD:

1981 - 6/30/84

CONTRACTOR

Personal Services Contracts.

FIELD CONTACT:

Charles Gordon, AFR/RA, Rm., 4533, NS, Agency for International Development Washington, D.C. 20523. (202) 632-9821

PURPOSE:

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

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 $164,00 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 Koloulo Watershed Management project, which covers 500 $km^2$, 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.

STATUS:

The project was authorized on August 21, 1981. The project calls for 30 months of field level activity. Until arrival of a long-term forester, technical assistance was delayed until December, 1982. A request to REDSO for an extension of PACD to May 31, 1985, is pending approval. It is anticipted that the extension will be approved. To date, the project has trained three Guinean foresters, established two operational tree nurseries, and undertaken village training activities. Trees currently being transplanted to the group of village woodlots are of the Leuceanea, gmellina and cassia species. Both the mission and the GOG Water anf Forests Office are satisfied with project progress. A project evaluation is planned for October/November 1983.

DOCUMENTS AND REPORTS:

PID: 4/80.
Project Paper: 6/81.
Trip Report 3/17 - 21/82.

| PROJECT NO. TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Africa Regional 698-0424 | SD SH* | -- | -- | -- | -- | 2,635 | 3,000 | 5,000 | 7,000 | 3,000 | 1,500 | 1,000 | 17,500 | Active |
| Energy Initiatives for Africa | | | | | | | | | | | | | | |

LENGTH OF PROJECT/PACD:

1982 - 9/87

CONTRACTOR

Energy Development International, 1015 18th St., N.W. Suite 802, Washington, D.C. 20036. (Adrian Woody)

FIELD CONTACT:

Val Mahan AFR/RA, Rm., 4533, NS, Agency for International Development Washington, D.C. 20523. (202) 632-6951

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.

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 sub-projects 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 practioners, 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 funds. 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).

AID-FINANCED INPUTS:

1. Prime contractor technical assistance, and short-term consultants for early sub-project design and national energy assessments;
2. Allotment of sub-project funds;
3. Training;
4. Funds to establish a small library, 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.

STATUS:

Pursuant to authorization of the project in July, 1982, a contract was signed with Energy/Development International on September 30, 1982, to provide technical services to the project. The contractor opened its Nairobi office in late April, 1983, and the EDI East Africa Director has traveled to Rwanda, Lesotho, Swaziland, Malawi, Kenya, and REDSO. The Abidjan EIA office staff will arrive in early August, 1983. Contacts by the project manager have been made with missions in Senegal, Liberia, Togo and with REDSO officials. A new project manager was hired at the beginning of June, 1982 who will oversee

project activities in the U.S. and Africa, and will be located in Washington, D.C. planning policy develoment and technical assistance. Fourteen specific country energy profiles have been sent to the missions, with 21 remaining for distribution; cross-country energy assessments are underway in the following four major areas: (1) Energy Conservation. Terms of reference (scope of work) were approved by AID/W in mid June; (2) Intermediate Financial Institutions. A concept paper has been written and submitted to AID/W as well as a report on Development Banks and IFI's, and similar report for the Ivory Coast and neighboring countries; (3) Private Sector. Field reviews of private sector energy approaches will commence in August, 1983, pending mission approvals; (4) Agroforestry. Terms of reference for agroforestry assessments were submitted in March, 1983 and will be finalized in Mid August pending results of ICRAF (International Center for Research and Agroforestry, Nairobi) inventory. Upper Volta has made preliminary inquiries regarding a national energy assessment. A request has also been received from the USAID Mission in Senegal to delineate the role of energy in the agricultural sector study. Guidelines for the project have been disseminated to all Africa USAID Missions and are available in English and French. To date a grant request ($500,000) has been approved for a forestry project in Rwanda; and $205,000 has been obligated for a long-term energy planning advisor in Somalia; $250,000 has been approved for a long-term planning advisor in Liberia; and EDI has responded to inquiries regarding potential sub-activity project funding in nine instances. Training and Information Sharing. Training activities are awaiting establishment of the field offices. The information sharing component of the project will be further defined as project unfolds.

DOCUMENTS AND REPORTS:

PID: 11/14/80.
Project Paper: 4/29/82.

*Funds from a separate project account (625-0956) will finance Sahel sub-projects.

| PROJECT NO. TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Africa Regional 698-0414 Remote Sensing/ East Africa | FN | 750 | 540 | 550 | 1,932 | -- | -- | 2,145 | -- | 435 | -- | 1,192 | 3,772 | Active |

LENGTH OF PROJECT/PACD:

7/79 - 6/30/84

CONTRACTOR

Spectral Data Corp. 112 Parkway Dr. So. Hauppauge, N.Y. 11789; (516) 543-4441 S. Grantee: Regional Center for Services in Surveying, Mapping, and Remote Sensing

FIELD CONTACT:

Val Mahan, AFR/RA, NS, Agency for International Development Washington, D.C. 20523. (202) 632-6951

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.

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 counterparts, lab technicians, in long-term U.S. 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.

STATUS:

The facility has been established and is fully operational. The original Project Paper called for training 500 Africans in remote sensing. Over 270 have been trained in short courses and over 200 have attended seminars. (In-country and third-country training has been provided to trainees from 19 countries in natural resources, geology, hydrology and environmental monitoring.) Samples of projects staff members have worked on are: soil surveys of Gambia; forest and soil survey in Tanzania; geological mapping in Uganda; forest resources of Sudan and Uganda and a preliminary photo map of Swaziland. A file of LANDSAT imagery of the region has been established in accordance with the project paper. A 16 month extension of the project was recently approved to permit restructuring of the training program and to improve financial viability of the facility. The longer training period which is called for in the project paper amendment has been

implemented. The amendment also calls for improving the financial viability of the center by charging member states fees for services. The Spectral Data contract was amended to June 30, 1984. Specifications have been prepared for digital processing equipment. The photo laboratory has earned approximately $50,000 dollars during 1982. A proposal has been submitted to NASA for shuttle imaging radar in 1984. The facility conducted a workshop on Geological Interpretation of Remote Sensing Data in cooperation with UNESCO, and is planning to offer Phase II of a hydrology course and a long-term agriculture/rangeland course.

DOCUMENTS AND REPORTS:

Project Paper: 3/19/79.
Evaluations: 6/80; 10/81 (AID/REDSO/EA, ST/FNR).
REDSO Report 1983.
Trip Reports S&T/FNR March, 1983.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL | | | ESTIMATED | | | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (Through FY79) FY79 | FY80 | FY81 | FY82 | FY83 | FY84 | | | | | | | |
| Africa Regional 698-0420 | FN | 1,770 | 520 | 235 | -- | 500 | 1,200 | 2,000 | -- | 1,000 | -- | 2,025 | 5,525 | Active |
| Remote Sensing/ West Africa | | | | | | | | | | | | | | |

**LENGTH OF PROJECT/PACD:**

2/78 - 3/31/84

**CONTRACTOR**

Spectral Data Corporation, 112 Parkway Dr. Hauppauge, N.Y. 11789; (516) 543-4441 S. Grantee: Regional Center for Services in Surveying, Mapping, and Remote Sensing

**FIELD CONTACT:**

Val Mahan, AFR/RA, Rm. 4533, NS, Agency for International Development, Washington, D.C. 20523. (202) 632-9821.

**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.

**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 bilingual 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 U.S., France and Canada will coordinate contributions during Phase 1; 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.

**OTHER DONOR ACTIVITIES:**

There is a multi-donor remote sensing project in Senegal. As of June, 1983, an extension had been requested for an additional three years and dolars.

**AID-FINANCED INPUTS:**

1. U.S. 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.

**STATUS:**

The project was authorized on September 14, 1977 and the Center began operations in early 1978. Phase I goals have mostly been completed. The CRTO has been established as a legal, regional entity. The project paper target date for the legal establishment of the facility was June, 1978; this was accomplished in August of 1980. Fourteen African states are presently members. Although the center was to be financially viable by 1983, further financing will be required. The Netherlands has begun supporting the facility by providing technical training while at the same time requests have come in from some African countries for photo-lab training. No firm decision has been made concerning the construction of a French satellite receiving station. An evaluation conducted in March, 1983, recommended a three year extension and an additional 2 million dollars. A decision is expected in early 1984.

**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: 1977.
Project Paper: 1977.
Twenty one reports written by students on hydrogeology, soils and other topics.
CIDA evaluation: 6/80.
AID evaluations: 6/79; 3/83.

| PROJECT NO. TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Africa Regional 698-0427 Environmental Training & Resource Management | SD FN SH | — | 408 | 2,344 | — | 810 | 800 | 4,000 | 100 | 3,500 | — | — | 17,600 | Active |

LENGTH OF PROJECT/PACD:

8/80 - 9/30/85

CONTRACTOR

South - East Consortium for International Development (SECID) 400 E. Towne Dr. #207. Chappel Hill, New Jersey, 27514. Dr. Earle Buckley.

FIELD CONTACT:

Val Mahan, AFR/RA, Rm., 4533, NS, Agency for International Development Washington, D.C. 20523. (202) 632-6951.

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.

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 enviroment in Kenya.

AID-FINANCED INPUTS:

1. Funds for training and resource management program;
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 systems;
   (c) Kenya-district monitoring program, district resource profiles, natural resource planning;
   (d) Botswana-district data system and profiles, drought monitoring system, natural resource profiles.

STATUS:

ETMA activities in West Africa have consisted of training seminars and workshops in several countries on a variety of environmentally related subjects. These subjects are perceived as major issues by the African hosts and include environmental health, environmental impact assessment and monitoring, agroforestry, land-use planning, methods of environmental training, and environmental issues and awareness. By the end of 1983, eleven short-to medium-length seminars will have been completed in West Africa. Due to funding curtailments ETMA will no longer operate in West Africa after current commitments are met.

ETMA activities in East Africa consist of activities in both training and resource management. Thirteen seminars have been completed in East and Southern Africa and one more is scheduled before December, 1983. In addition, resource management programs continue in Sudan, Kenya, and Rwanda. ETMA's activities in Sudan focus on water resources and desertification, activities in Kenya center on land degradation and resource assessments, and ETMA's Rwanda activities are currently focused on land degradation. A new initiative in Rwanda is anticipated which will focus on resource management practices, computer modeling for resource management decision making, and integrated data compilation.

DOCUMENTS AND REPORTS:

PID: 7/79.
Project Paper: 3/80.
Training Manuals for seminars listed above.
"ETMA Annual Report". SECID, 12/31/81.
Evaluation: 6/82.
Evaluation planned for 6/84.

## V. Bureau for Science and Technology Projects

### A. Data Sources and Definitions

In addition to the Africa Bureau's bilateral and regionally funded projects, AID offers assistance to LDCs through its central bureaus, whose mission is to address problems of worldwide concern, through studies, human resources training, and other interventions in individual countries. In the sectors covered by Africa, Technical Resources, Special Development Program Division (AFR/TR/SDP), the Africa Bureau's assistance is augmented by the Bureau for Science and Technology (S&T) which includes the three Offices of: Energy (ST/EY); Forestry, Environment and Natural Resources (ST/FNR); and Multi-Sectoral Development (ST/MD). These offices support a variety of projects whose aim is to provide solutions to LDC constraints in the sectors of energy, forestry/ fuelwood and natural resources. Specifically, funding and technical assistance is provided for: workshops, conferences and seminars; studies, plans and policy recommendations designed to increase the capability of LDCs to manage their land, water and energy resources; academic and non-academic training to increase skilled manpower and institutional capability; and project activities to provide an empirical basis for developing solutions to problems confronting LDCs worldwide.*

The centrally funded project summaries comprising this section of the report are illustrative of activities made available to African countries through worldwide efforts supported by the S&T Bureau. Data summaries are organized in the same manner as the rest of the projects, i.e., bilaterals and regionals, with energy projects appearing first, followed by forestry and natural resources. Within sectors projects are arranged by number in ascending order. For the most part, sources and definitions provided for the bilateral and regional projects are applicable to this section, with the following exceptions:

AFRICA-SPECIFIC ACTIVITIES:

This category includes countries impacted by project.

STATUS:

Status is restricted to activities undertaken in the past year in African countries only, and may include studies, training, conferences, seminars or other forms of intervention.

LOP AUTHORIZATION/BY ACTIVITY:

Breakdown of the LOP by activity has not been provided for the centrally funded projects.

CONTACT:

In the case of the S&T Bureau, projects are administered centrally. The project officer's name and address at AID headquarters is provided.

*See FY85 ABS office narratives for a more extensive description.

S&T CENTRALLY FUNDED PROJECTS

| | Angola | Benin | Botswana | Burundi | Cameroon | Cape Verde | Central African Republic | Chad | Comoros | Congo | Djibouti | Equatorial Guinea | Ethiopia | Gabon | Gambia | Ghana | Guinea | Guinea-Bissau | Ivory Coast | Kenya | Lesotho | Liberia | Madagascar | Malawi | Mali | Mauritania | Mauritius | Mozambique | Namibia | Niger | Nigeria | Rwanda | Sao Tome/Principe | Senegal | Seychelles | Sierra Leone | Somalia | Sudan | Swaziland | Tanzania | Togo | Uganda | Upper Volta | Zaire | Zambia | Zimbabwe |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 931-1160 Energy Management Training (145) | | | | X | | X | | | | | | | X | | X | X | | | | X | | X | X | X | | | | | | X | X | | X | | | | X | | X | | | X | X | | |
| 936-5402 Managing Energy and Resource Efficient Cities (MEREC) (147) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 936-5701 Low Cost Energy Tech. for Rural Poor (148) | | | X | | X | | | | | | | | | | | X | | | | X | X | | | | X | | | | X | | X | | | | | X | X | | | X | | | X | | | X | |
| 636-5702 Energy Technical Service Support (150) | | | | | | | | | | | | | | | | | | | | | | X | | | X | | | | | | | | | X | | X | | X | | | X | | | | | | |
| 936-5709 Bio Energy Systems and Technology (151) | | | | | | | | | | | | | | | | | | | X | X | | | | | | | | | X | | | | | | | | X | | | | | | | | | | |
| 936-5710 Photovoltaic Tech. Program (153) | | | | | | | | | | | | | | | | | | | X | X | | X | | | | | | | | | | | | | | | | | | | | | | X | X | | X | |
| 936-5715 Small Decentralized Hydropower (155) | | | | X | | X | | | | | | | | | | | | | X | | X | X | | | | | | | | | X | | | | | X | X | | X | | | | X | | |
| 936-5716 Alternative Energy Training (157) | | | | X | | | | | | | | | | X | X | | | | X | | X | | X | X | X | | | | | X | X | | X | | X | X | | X | X | | | X | | | |
| 936-5724 Conventional Energy Tech. Asst. (159) | | X | | | | X | | | | | | | | X | X | X | X | | X | X | | X | | X | X | X | | | | X | X | | X | | X | | | X | | X | | | | | | |
| 936-5728 Energy Policy Dev. & Conservation (161) | | X | | | | X | | | | | | | | X | X | X | X | | X | | | X | | | X | X | | | | X | X | | X | | X | | | X | | X | | | | | | |
| 936-9997 Training in Conventional Energy (163) | | | | X | | | | | | | | | | | | | | | | X | | X | | | | | | | | | | X | | | | X | X | X | X | X | | | | | | |
| 936-5519 Forest Resources Management (165) | | X | X | | | | | | | | | | | | | | | | | X | | X | | | X | X | | | | X | | | X | | | | | | X | | | X | X | | | |
| 936-5545 Agro Forestry Res. & Training (167) | | | | | | | | | | | | | | X | | | | | | X | | | | | | | | | | | | | | | | X | X | | X | | X | | | | | |
| 936-1135 Human Settlement Natural Resource Analysis and Mgt. (169) | | | | | | | | | | | | | | | | | | | | X | X | | | | X | | | | | X | | | | | | | X | X | | | | | | | X | |
| 931-1209 Env. & Nat. Res. Inf. Base (171) | | | | X | | | | | | | | | | | X | | | | | X | | | | | | | | | | | X | | | | | X | | X | | X | | | | | |

S&T CENTRALLY FUNDED PROJECTS (Continued)

| | Angola | Benin | Botswana | Burundi | Cameroon | Cape Verde | Central African Republic | Chad | Comoros | Congo | Djibouti | Equatorial Guinea | Ethiopia | Gabon | Gambia | Ghana | Guinea | Guinea-Bissau | Ivory Coast | Kenya | Lesotho | Liberia | Madagascar | Malawi | Mali | Mauritania | Mauritius | Mozambique | Namibia | Niger | Nigeria | Rwanda | Sao Tome/Principe | Senegal | Seychelles | Sierra Leone | Somalia | Sudan | Swaziland | Tanzania | Togo | Uganda | Upper Volta | Zaire | Zambia | Zimbabwe |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 936-5301 Access to Land, Water & Nat. Res. (172) | | X | | X | | | | | | | | | | | | | | | | | X | | | | X | | | | | | | | | | | | | | | | | | | | |
| 936-5517 Environmental Planning Management (173) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 936-5518 Coastal Resources Mgt. (174) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Centrally Funded 931-1160 | SD | — | — | — | 2,368 | 725 | 800 | — | — | — | — | — | 5,150 | Active |

Energy Management Training

LENGTH OF PROJECT/PACD:

1977 - 1986

CONTRACTOR

Dr. David Jhirad, Deputy Director: Institute for Technology Policy in Development, State University of New York at Stony Brook, New York 11794. (516) 282-2403.

CONTACT:

Patricia Koshel, ST/EY, Rm. 508 SA-18, Agency for International Development, Washington, D.C. 20523. (703) 235-8918

PURPOSE:

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

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 U.S. and in-country;
2. Energy planning institutes strengthened.

*Host countries provide salaries of participants while attending the program.

AFRICA-SPECIFIC ACTIVITIES:

Of the 57 countries that have participated in the project, 15 have been African nations and a total of 68 participants have been trained to date.

STATUS:

The project was authorized in July, 1977, and is conducted by the State University of New York at Stony Brook under a Cooperative Agreement with A.I.D. Since its inception a total of 310 participants have been trained worldwide from 57 LDCs. Currently, the eight week sessions are providing training at the rate of 60 LDC officials per year. Following are the number of participants, country of origin, and employer prior to training.

| | | |
|---|---|---|
| Ghana | 1 | Information on employer not available. |
| The Gambia | 2 | Ministry of Economic Planning and Industrial Development. |
| Burundi | 3 | Ministry of Energy and Mines; National Refining Co. Ltd. |
| Kenya | 7 | National Council for Science and Technology; Ministry of Energy. |
| Liberia | 5 | Ministry of Land and Mines; Ministry of Planning and Economic Affairs; Liberia Electricity Corp.; Ministry for Administration. |
| Malawi | 3 | Office of the President & Cabinet; Economic Planning Division; Ministry of Trade and Industry. |
| Madagascar | 2 | Employer information not available. |
| Nigeria | 8 | Federal Ministry of Economic Development; Nigerian National Petroleum Corporation; Center for Energy Research and Development. |
| Cape Verde | 1 | National Institute of Technological Investigations. |

| | | |
|---|---|---|
| Rwanda | 2 | National Bureau of Research Studies. |
| Senegal | 2 | Ministry of Industrial Development and Works; Ministry of Mineral and Water Resources. |
| Sudan | 13 | Ministry of Energy and Mining; Ministry of National Planning; National Energy Administration; Petroleum Products Pipelines Public Corp.; General Petroleum Corporation. |
| Tanzania | 11 | Ministry of Energy, Water and Minerals Petroleum Development Corp.; Rufiji Basin Development Authority; Tanzania-Italian Petroleum Refining Co.; President's Office; Tanzania Electric Supply Co., Ltd. |
| Zambia | 6 | Electricity Supply Corporation, Ltd.; Ideni Petroleum Refinery Co., Ltd. |
| Zaire | 2 | Presidential Research Department, Ministry of Energy. |
| Total | 68 | |

DOCUMENTS AND REPORTS:

Project Paper: 1977
Evaluation by International Energy Associates, Ltd. September, 1982.



CENTRALLY FUNDED

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (Through FY82) | | | | | | | | | |
| Centrally Funded 936-5402 | SD | -- | -- | -- | 550 | 470 | 400 | -- | -- | -- | -- | -- | 1,530 (2,300 planned) | Active |

Managing Energy and Resource Efficient Cities (MEREC)

**LENGTH OF PROJECT/PACD:**

1982 - 1987

**CONTRACTOR**

PASA with Tennessee Valley Authority (TVA). Office of Economic and Community Development, TVA, 248 Summer Place Bldg. Knoxville, Tennessee 37902. Mr. James Gober, (615) 632-6682.

**CONTACT:**

Alan Carroll, ST/MD, Rm. 606, SA-18, Agency for International Development, Washington, D.C. 20523. (703) 235-8957

**PURPOSE:**

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

**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 (e.g., 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 MEREC 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;
4. Travel for evaluation

**MAJOR OUTPUTS:**

1. Revised and expanded field guides;
2. Field demonstrations;
3. Case studies;
4. Technical brochures;
5. Information and training network;
6. Self-sustaining association;
7. Evaluation.

**AFRICA-SPECIFIC ACTIVITIES:**

Indications are that possibilities exist for the Africa Region as a participant in this study. To date it is not one of the regions identified for demonstration projects.

**STATUS:**

The project is being carried out, so far, only in Asia (Tacloban, Philippines). A second demonstration site is being selected in the Near East Region. A third demonstration in a region as yet undefined is scheduled to begin in FY84.

**DOCUMENTS AND REPORTS:**

Project Paper: 5/82
MEREC Brochure 1983. ST/MD/RRD, AID, Washington, D.C. and
MEREC Evaluation Handbook

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (Through FY81) | | | | | | | | | | |
| Centrally Funded 936-5701 | FN | -- | -- | 3,239 | 800 | 1,000 | 400 | -- | -- | -- | -- | -- | 6,039 | Active |
| Low Cost Energy Technology for Rural Poor | | | | | | | | | | | | | | |

**LENGTH OF PROJECT/PACD:**

1978 - 1984*

**CONTRACTOR**

Volunteers in Technical Assistance (VITA), P.O. Box 12438, Arlington, VA 22209 (703) 276-1800
John M. Downey/Paula Gubbins

**CONTACT:**

Eric Peterson, ST/EY, Rm. 720, SA-18, Agency for International Development, Washington, D.C. 20523. (703) 235-8920

**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).

**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;

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

**AFRICA-SPECIFIC ACTIVITIES:**

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

***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 and elemination of much of the publications component. Between October 1, 1979 and March 31, 1981, 1,102 requests for technical assistance and information were answered from African governmental agencies, schools, and universities, PVOs, businesses, etc. As of June 30, 1982, the following small projects had been funed: Upper Volta (Kaya Woodstoves, $1,522; Woodstove Training/Dissemination, $3,723); Zimbabwe (Fact Finding/EDNA $3,929; Silveira House, $16,500; Spiral Tube Water Wheel/Blair Research Laboratory, $2,000 Bulawayo Exposition, $2,522); Guinea (Documentation Center Training, $15,103); Niger (Solar Fence/CARE, $3,750); Mali (Wind Irrigation Project, $9,000; Woodstoves, $2,200); Kenya (Wanyoyoro Women's Project, $1,467); Lesotho (Solar Oven/Thaba Tseka, $3,600); Somalia (ICR, Windmills, $10,000); Consultancies have included: Africa Regional (technical analysts 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 wind-pumping system and evaluation of 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, assessment of water pumping windmills), 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), Mali (1),

Kenya (1), Somalia (1), Tanzania (1) and a delegation to the U.N. Conference on New and Renewable Sources of Energy in Nairobi (August, 1981).

DOCUMENTS AND REPORTS:

Project Paper; 6/79.
VITA Quarterly Reports; VITA; Rosslyn, VA; Nos. 1-14
Eighteen Month Review documents; AID; Washington, D.C.; 3/81.
Wyatt, A., and Baldwin, S.: "Wind Energy Activities in Africa";
VITA; 1982.
Gaudgaon Village Sailwing Windmill, 1982.
Renewable Energy Dictionary, 1982.
Solar Bibliography, 1981.
Wind Power Bibliography, 1981.
Woodstoves Bibliography, 1983.
Energy Bulletin, 1979-1982 (13 issues).
Energy Fact Sheet, 1980 (12 issues).
Special issues of VITA News.
Wood Conserving Cook Stoves: A Design Guide, 1980. (E,F,S,A).
Improved Woodstoves: Users Needs and Expectations in Upper Volta.
Peat Burning Stoves for Domestic Use.

CENTRALLY FUNDED

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (Through FY82) | | | | | | | | | |
| Centrally Funded 936-5702 | SD | — | — | — | 1,041 | 245 | 300 | — | — | — | — | — | Continuing | Active |
| Energy Technical Service Support | | | | | | | | | | | | | | |

**LENGTH OF PROJECT/PACD:**

1978 - Continuing

**CONTRACTOR**

Department of Energy (DOE) RSSA, 1000 Independence Ave. S.W. Washington, D.C. 20585. Robert Jackson; (202) 252-6118; National Laboratories administered by DOE and National Academy of Sciences, Washington D.C.

**CONTACT:**

Ray Roan ST/EY, Room 508, SA-18, Agency for International Development, Washington, D.C. 20523. (703) 235-8918

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**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.

**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:**

See below.

**STATUS:**

The project was originally authorized in August, 1978. In January, 1983, the Department of Energy (Brookhaven National Laboratory, Long Island) held a seminar in Togo on "Energy Conservation and Management in West Africa", and one consultant from Argonne National Laboratory participated in the Africa Renewable Energy Evaluation, 1982. Other activities in Africa have included the following: Sudan: assistance provided to the Sudanese Petroleum Administration in the design of an energy management training program; Senegal: observation tour of the Bakel Solar Pump (one consultant from Sandia Laboratory to observe tests of a ThermoElectron turbine at SOFRETES, in France); Liberia: assessment of transport energy needs; Mali: two consultants from the Solar Energy Research Institute (SERI) for work on Mali Renewable Energy Project (688-0217); ECOWAS Conference: Funding for National Academy of Sciences participation in said conference on "Energy for Survival," held in Freetown, Sierra Leone, November 2-6, 1981.

**DOCUMENTS AND REPORTS:**

No Project Paper for this project.

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (Through FY81) | | | | | | | | | | |
| Centrally Funded 936-5709 | FN | -- | -- | 2,710 | 1,000 | 900 | 1.4 | -- | -- | -- | -- | -- | 8,710 | Active |
| Bioenergy Systems and Technology | | | | | | | | | | | | | | |

LEIGTH OF PROJECT/PACD:

1979 - 1987

CONTRACTOR

PASA with Tennessee Valley Authority (TVA), 248 Summer Place Bldg. Knoxville, Tennessee 37902. (615) 632-6682

CONTACT:

W. Paul Weatherly Energy ST/EY, Agency for International Development, Washington, D.C. 20523. (703) 235-8902

PURPOSE:

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

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, project development, and workshops are provided to interested missions and regional offices.

STATUS:

The project was authorized in October, 1979. Current activity in Africa is concentrated on opportunities for improving capabilities of individual country and regional organizations to identify energy needs to which bioenergy technologies are suited and to mobilize means of managing bienergy systems. Major regional workshops are planned in Sudan and Cairo in 1984. Countries receiving Technical assistance have included Niger, Sudan and Kenya.

Also, under the auspices of this project is the Bionergy User Network which is being organized as an independent international body composed of developing countries having active bioenergy programs or those seriously considering initiating such programs. The primary purpose of this organization is to establish and maintain a forum within which developing country bioenergy program experiences and expertise can be shared. Financial assistance during the organizational phase is being provided by AID. Interest in creation of the Network developed at a workshop held in Manila during March, 1983, on "Bioenerg Approaches to National Development" at which 17 developing countries were represented. The participants from the program concluded that the establishment of a successful bioenergy program requires specific attention to system management concerns, which are broader than technological choices. Bioenergy system components such as program delivery, user access to credit financing, bioresource supply management, and pricing policy were viewed as subjects of essential importance to program success. Realizing that information about, and actual experience with, these bioenergy system components is quite limited, participants expressed the view that a mechanism was needed

by which existing information, experience and expertise could be shared. The discussions led to the concept of a user network, for which an organizing committee was selected by Manila workshop participants. The committee held its first meeting in Washington in August, 1983.

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)

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (Through FY81) | | | | | | | | | | |
| Centrally Funded 936-5710 | SD | -- | -- | 3,421 | -- | -- | 300 | -- | -- | -- | -- | -- | 3,421* | Active |
| Photovoltaic Technology Program | | | | | | | | | | | | | | |

LENGTH OF PROJECT/PACD:

1979 - 1985

CONTRACTOR

National Aeronautics and Space Administration, (NASA), Lewis Research Center, 2100 Brookpark Road, Cleveland, Ohio 44135 Bill Bifano (216) 294-6637.

CONTACT:

Eric Peterson, ST/EY, Rm. 720, SA-18, Agency for International Development, Washington, D.C. 20523. (703) 235-8920

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.

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. PV power supply for remote earth station installed and field-tested in Indonesia as part of ST/EY Rural Satellite Project;
4. Application studies determining cost and operation factors, etc.;
5. Host country officials and technicians trained;

AFRICA-SPECIFIC ACTIVITIES:

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

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 which NASA continued to backstop until June 30, 1983. Under the present PASA, NASA activities are concentrated on rural health systems and rural satellite systems. Under a contract with the Solarez Corp., PV medical systems were installed in Zimbabwe and Kenya (2 systems) in April/May 1983. In conjunction with the installations, technical seminars were presented for host country personnel. The seminar activity was implemented through a grant to the University of Michigan. Vaccine refrigerators have been installed in remote health centers in Zaire and Zimbabwe. Additional units are to be installed in Liberia, Upper Volta and the Ivory Coast in late 1983. A contract is about to be awarded for the development and deployment of a PV power supply for remote earth station applications, one in Indonesia and one possibly in Senegal. The project was evaluated in February and December, 1981.

DOCUMENTS AND REPORTS:

Project Paper: 1979

DOE/NASA/20485-15, NASA TM-83374, "DOE and AID Stand-Alone Photovoltaic Activites: Status Report", by William J. Bifano and

6. Consultancies completed.

Anthony F. Ratajczak; Une 1983.
NASA Management Reports on Photovoltaic Technology Project, 1983. NASA/Lewis Research Center; Cleveland, Ohio.

*At present, July, 1983, AID is in the process of determining whether to commit an additional $300,000 in late FY83 or early FY84 for the project's last year of activity. The additional funds are intended for educational activities using satellite transmission. Funds are for 1983 - 1985.

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (Through FY82) | | | | | | | | | | |
| Centrally Funded 936-5715 | FN | -- | -- | -- | 3,024 | 800 | 500 | -- | -- | -- | -- | -- | 5,500 | Active |
| Small Decentralized Hydropower | | | | | | | | | | | | | | |

LENGTH OF PROJECT/PACD:

1980 - 1986

CONTRACTOR

National Rural Electric Cooperative Association (NRECA), 1800 Massachusetts Avenue, N.W., Washington, D.C. 20036. (202) 857-9500 Bard Jackson.

CONTACT:

Eric Peterson, ST/EY, Rm. 120, SA-18, Agency for International Development, Washington, D.C. 20523. (703) 235-8920

PURPOSE:

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

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.

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.

STATUS:

The project was authorized in May, 1980, and Africa activities began in 1981. To date the following technical assistance activities have been provided:

| | | | |
|---|---|---|---|
| Burundi: | 11/82 | Two-man team to assess need for institution building for small hydro. | $12,000. |
| Cape Verde: | 11/81 | In-house desk study of hydro potential | $ 3,000. |
| Lesotho: | 11/82 | Two engineers to conduct country assessment for micro-hydro. | $12,000. |
| Liberia: | 2/82 | Two-man team to evaluate Peace Corps micro-hydro project (698.0407.07). | $10,000. |
| Rwanda: | 6/83 | Engineer assessed site for possible restoration. | $ 2,000. |
| | 11/81 | Two-man team for a detailed study of one site and an assessment of nine undeveloped sites. | $20,000. |
| Togo: | 6/83 | Economist to revise projected costs and benefits of two small hydro sites. | $3,000. |
| | 4/81 | Three-man team to conduct country assessment. | $50,000. |
| Sudan: | 5/82 | Country assessment. | $25,000. |
| Zaire: | 5/82 | Three-man team to assist with the preparation of a PID and survey. | $12,000. |

MAJOR OUTPUTS:

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

Workshops on small waterpower resources were held in Abidjan, Ivory Coast in March, 1982, and in Mbabane, Swaziland in June, 1983. A major project evaluation was conducted in early 1983. A workshop is planned in East Africa in late 1983.

DOCUMENTS AND REPORTS:

Project Paper: 8/79.

Jackson, Bard (Principal Engineer) and Johnson, Martin (President, The Johnson Co., Inc.); "Lesotho: Recommended Activities in Small Hydropower Development"; NRECA 12/82.

Jackson Bard, and Topik, J.; "Rwanda: Small Decentralized Hydropower"; NRECA, 11/81.

Inversin, Allen (Micro Hydro Engineer) and Zimmermann, Robert C.; "Burundi: Institutional Requirements and Technical Alternatives for a Small Hydropower program"; NRECA 2/83.

Clark, Paul J.; (Training and Information Specialist), "Togo: A preliminary Assessment of Small Hydropower potential"; NRECA 6/83.

Howe, J., and Omkar, S.; "Zaire: A Proposed Small Hydropower and Rural Electrification Project"; NRECA 3/81.

Lawrence, W. et. al.; "Togo: Small Decentralized Hydropower Study"; NRECA, 11/81. Rubin, D.; "Cape Verde: Assessment of Small Hydroelectric Potential in Cape Verde"; NRECA 11/81.

Inversion, A. and Lawrence, W.; "liberia: Evaluation of Yandohun Micro-Hydro Project"; 2/82.

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (Through FY82) | | | | | | | | | |
| Centrally Funded 936-5716 | SD FN | -- | -- | -- | 2,911 | 725 | 800 | -- | -- | -- | -- | -- | 3,900 | Active |

**Alternative Energy Training**

**LENGTH OF PROJECT/PACD:**

1979 - 1984

**CONTRACTOR**

University of Florida, Solar Energy and Energy Conversion Laboratory, Department of Mechanical Engineering, College of Engineering, 300 Weil Hall, Gainesville, Florida 32611. Martin Bush or Robert Pagano (904) 392-4674.

**CONTACT:**

Shirley Toth, ST/EY, Rm. 508, SA-18, Agency for International Development, Washington, D.C. 20523. (703) 235-8918

**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.

**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 (i.e., 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.

*Host countries provide salaries of participants while attending the program.

**AFRICA-SPECIFIC ACTIVITIES:**

Participants to be trained include officials and technicians from African countries. Seventeen African countries have participated to date.

**STATUS:**

The project was authorized in August, 1979, and is conducted by the University of Florida under a Cooperative Agreement with A.I.D. From 1980 to July 1983, seven 15 week training sessions have been held. During this period over 200 participants have been trained worldwide; of these, 64 have come from the Africa region. Following are the number of participants, country of origin, and employer prior to training:

| | | |
|---|---|---|
| Burundi | 2 | Ministry of Energy and Mines |
| Gambia | 3 | Ministry of Forestry and Dept. of Community Development |
| Ghana | 3 | Building and Road Research Institute, Floor Research Institute and Petroleum Department. |
| Kenya | 4 | Ministry of Energy |
| Liberia | 3 | Ministry of Lands and Mines |
| Malawi | 1 | Economic Planning Division |
| Mali | 1 | Employer information unavailable |
| Mauritania | 1 | Direction of Mines and Geology |
| Nigeria | 1 | Department of Mechanical Engineering |
| Rwanda | 6 | National Pedagogical Institute, Center for Applied Studies (CEAER), National University of Rwanda |

| | | |
|---|---|---|
| Senegal | 4 | Dakar University, Center for Renewable Energies Study and Research. |
| Sierra Leone | 2 | Department of Mechanical Engineering. |
| Somalia | 1 | Employer information unavailable. |
| Sudan | 24 | National Energy Administration. |
| Tanzania | 6 | Tanzania National Scientific Research. Council, University of Dar es Salaam. Arusha Appropriate Technology Project. Small Industries Development Organization, Capital Development Authority. |
| Togo | 1 | National Meteorological Services. |
| Zaire | 1 | Presidential Studies Office. |

The next training session is scheduled to being in September 1983.

DOCUMENTS AND REPORTS:

Project Paper: 1979

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (Through FY82) | | | | | | | | | | |
| Centrally Funded 936-5724 | SD ES | — | — | — | 5,617 | 1,750 | 3,100 | — | — | — | — | — | 15,750 | Active |

Conventional Energy Technical Assistance

**LENGTH OF PROJECT/PACD:**

1980 - 1987

**CONTRACTOR**

U.S. Geological Survey (USGS), 917 National Center, Reston, Virginia 22092, M. L. Bergin, (703) 860-6551; Bechtel National, Inc., San Francisco, California, 94105. (415) 768-6107; Arthur D. Little, Inc. Acorn Park, Cambridge, MA. 02140, (617) 864-5770; Development Sciences, Inc., Sagamore, Massachusetts, 02561. Morton Gorden, (617) 888-0101.

**CONTACT:**

Charlie Bliss, ST/EY, Rm. 512, SA-18, Agency for International Development, Washington, D.C. 20523. (703) 235-8902.

**PURPOSE:**

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

**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 (e.g., 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;

**AFRICA-SPECIFIC ACTIVITIES:**

A number of countries have been identified to receive assistance through this project.

**STATUS:**

The project was approved in September, 1980. Ten African countries responded to announcement of the project. In 1983, two reconnaissance visits were made to Malawi, one for the purpose of assessing the country's soil potential in markets and the need for an analytical laboratory. The other involved an explanatory assessment of petroleum and natural gas resources. A four person team from Bechtel visited Sudan in February, 1982, to identify commodities necessary to rehabilitate the Blue Nile Power Grid (BNG). Presently, commodities are being procured through the Commodities Import Program (CIP) with procurement, delivery, etc, contracted to Bechtel. An inventory and materials specialist is assisting the NEC. A final report produced by a Burns and Roe team is now available on the issues and problems involved in the transfer of coal slurry fuel technology to developing countries. 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 and thus reduce the country's high petroleum importation. The analysis of options to convert the refinery continues. At present, with Energy Initiatives in Africa (EIA) funding, the contractor is assisting the GOK in selecting a conversion option. Other activities funded by the project include: (1) a study of geology and hydrocarbon potential in ECOWAS (Economic Community of West African States) countries; and (2) participation

2. Geological data compilations;
3. Conventional energy workshops.

of several U.S. experts in the UNESCO/AID seminar on "Geothermal Power Development", Nairobi, June 15-22, 1982.

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, Burus and Roe.



CENTRALLY FUNDED

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (Through FY82) | | | | | | | | | |
| Centrally Funded 936-5728 | SD | — | — | — | 862 | 1,255 | 2,000 | — | — | — | — | — | 8,000 | Active |
| Energy Policy Development and Conservation | | | | | | | | | | | | | | |

**LENGTH OF PROJECT/PACD:**

1982 - 1987

**CONTRACTOR**

International Science & Technology Institute; Energy Development International; Energy Management Training Program, State University of New York, Stony Brook, N.Y. 11748. Energy Division, Oak Ridge National Laboratory.

**CONTACT:**

Patricia Koshel, ST/EY, Rm. 508E, SA-18, Agency for International Development, Washington, D.C. 20523. (703) 235-8918.

**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.

**SUMMARY:**

This project continues and expands upon efforts begun under Energy Policy and Planning (936-5703) 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.

**AFRICA-SPECIFIC ACTIVITIES:**

During FY83, a second phase of the Sudan energy planning assistance was funded jointly by ST/EY and AID/Khartoum. Several major activities are being undertaken including: Petroleum pricing studies, electricity tariff review, a study analyzing petroleum allocation and distribution procedures and recommendations for improving these procedures, a prefeasibility study for a mini-refinery at Kosti, and organizational studies for the National Energy Administration. In addition, the NEA is now working with other government and private organizations to prepare a formal national energy plan. In March, 1983, AID and the Economic Community West African States sponsored an energy conservation seminar which was attended by representatives from 14 West African countries. In FY83 ST/EY provided support for an energy planning project in Liberia. This builds on earlier work done by the Oak Ridge National Laboratory. ST/EY's provision of short term technical assistance compliments the services of a resident energy advisor provided under Energy Initiatives in Africa. This advisor will work with the Liberian National Energy Committee.

**DOCUMENTS AND REPORTS:**

Project Paper: 5/82.

"Investigation of Petroleum Supply and Distribution in Sudan;" Douglas MacDonald, E/DI Europe; June-1981, (revised Sept. 1981).

"Recommendations for the Short-Range (1981-1986) Reliability Improvement Programs; PEWC;" Shibu B. Dhar, ISTI-E/DI; Aug. 1981.

"Long-Range Electricity Futures for Sudan: Two Scenarios, 1982-2000." Shibu B. Dhar, ISTI-E/DI; Sept. 1981.

"An Examination of the Impact of Energy Supply Problems on Sudanese Industry and a Review of Energy Use and Energy Efficiency." Paul Thorne and Matthew Milukas, E/DI Europe and ISTI-E/DI; Nov., 1981.

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.

"A Comparison of Sudanese Export Performance with Key Petroleum Imports." Report presented to H.E. Dr. Sharif El-Tuhami. D.H. Bess and Paul Cough. Dec. 1981; ISTI-E/DI.



CENTRALLY FUNDED

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (Through FY82) | | | | | | | | | | |
| Centrally Funded 936-9997 | SD | — | — | — | 4,521 | 1,750 | 2,100 | — | — | — | — | — | 16,525 | Active |
| Training in Conventional Energy | | | | | | | | | | | | | | |

**LENGTH OF PROJECT/PACD:**

1980 - 1984

**CONTRACTOR**

Institute of International Education (IIE), 918 Sixteenth St., N.W. 8th FL., Washington, D.C. 20006. Lyle Priddy, (202) 775-5920.

**CONTACT:**

Pamela Baldwin, ST/EY, Rm. 800, SA-18, Agency for International Development, Washington, D.C. 20523. (703) 235-8918.

**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).

**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 U.S. 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 government's energy ministries, national oil companies, utilities, etc.

**AFRICA-SPECIFIC ACTIVITIES:**

See below for number of trainees by country and level of training.

**STATUS:**

The project was authorized in October, 1980. The number of participants trained from Africa countries to date are as follows:

| Country | Academic | Non-academic |
|---|---|---|
| Somalia | 1 | |
| Tanzania | 9 | 5 |
| Kenya | 6 | 7 |
| Sudan | 9 | 17 |
| Sierra Leone | 1 | 1 |
| Liberia | | 12 |
| Burundi | | 1 |
| Rwanda | | 1 |
| Togo | | 1 |
| Total | 26 | 45 |

Total African trainees: 71

Worldwide Statistics:

Total number of participating LDCs worldwide is 31. Actual and planned figures are as follows:

1982: 102 (37 academic and 65 non-academic)
1983: 128 (44,84 as of 7/83)
1984: 19 (all academic planned figure)
1985: 6 (all academic planned figure)

Total trained worldwide: 175 (43 academic and 132 non-academic.
Total with training completed worldwide: 74 as of 6/30/83 (6 academic and 68 non-academic.

**DOCUMENTS AND REPORTS:**

Project Paper: 1980.
Progress Report: IIE, Washington, D.C., 4/82 and 6/83.
Brochures in English, Spanish and French.



**CENTRALLY FUNDED**

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (Through FY82) | | | | | | | | | |
| Centrally Funded 936-5519 | FN SD | — | — | — | 3,196 | 1,150 | 2,200 | 7,821 | 6,500 | 2,500 | 1,500 | 1,500 | 19,821* | Active |

Forest Resources Management

LENGTH OF PROJECT/PACD:

1980 - 9/30/89

CONTRACTOR

RSSA with USDA Office of International Cooperation and Development, Forest Service, David Harcharik, P.O. Box 2417, Wash. D.C. 20013; (703) 235-2432. RSSA through Peace Corps, George Mahaffey, (202) 254-8890.

CONTACT:

Dan Deeley ST/FNR, Room 503, SA-18 Agency for International Development, Washington, D.C. 20523. (703) 235-2245.

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.

SUMMARY:

This 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 to provide technical programming and backstopping expertise to Peace Corps and to develop collaborative community based forestry projects that can be staffed by Peace Corps Volunteers.

AID-FINANCED INPUTS:

1. Personnel in Washington (up to 7) and field (up to 6);
2. Training;
3. Consultancies, studies, workshops and commodities.

MAJOR OUTPUTS:

1. Development of an International Forest Resources Experts Network;
2. Peace Corps/AID cooperative demonstration projects;
3. FSP/Peace Corps/AID cooperative demonstration projects;

AFRICA-SPECIFIC ACTIVITIES:

One FSP field staff member is based in Nairobi, in REDSO/EA. A second advisor will probably be placed in REDSO/WCA offices. One coordinator will be based in Washington. 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. The Forestry Support Program will provide technical assistance, reports, studies and training on a national and regional basis.

STATUS:

The project was authorized in August, 1980. Presently under consideration is an amendment requesting an extension in the life of project for 5 additional years, and an increase in funds of 3.7 million dollars (from 16 to 19.821 million).* As a result of the Amendment, the training component of the original project has been strengthened by providing for a training coordinator for host country nationals. The Amendment further provides for continuation of Forestry Support Program activities and investigation of AID/PC collaborative activities in PL 480 ($280,000). In addition, the Forestry Support Program will provide agency strategy implementation; initiation of agency forestry research; support for private forestry enterprise, strengthening of U.S. forestry institutions; and supporting linkages between agriculture and forestry.

Following the authorization of the project in 1980, the FSP was established in March, 1981. Jim Seyler started in Nairobi (REDSO/ESA) and Tim Resch in Washington, in August, 1981. FSP has developed well and now maintains an international forestry experts roster. Using this data base, it has been able to advise on the

4. Forestry training programs for Peace Corps volunteers and host country counterparts;
5. Workshops and conferences, general forestry and natural resourc training support for LDCs;
6. Technical assistance and information to mission and LDCs.

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*Reflects amended figures as Project Amendment Approval appears certain.

recruitment of over 75 short- and long-term AID assignments in Africa. In addition, FSP staff and consultants have provided short-term technical assistance to over 65 assignments. The FSP has directly participated in the design of forestry projects in numerous countries (40) worldwide representing approximately $150 million worth in new forestry projects. Studies of the potential for AID/Peace Corps/Host Country collaboration in forestry have been conducted by consultants in 11 African countries. These are: Benin, Botswana, Kenya, Liberia, Mauritania, Mali, Niger, Senegal, Tanzania, Upper Volta, and Zaire. A Peace Corps forestry workshop sponsored by this project was held in Mombasa, Kenya in May, 1982. In July, 1982, pre-service U.S. training was provided to 25 forestry volunteers going to Senegal (13) and Kenya (12).

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 study).
FSP progress Report: July, 1982.
Project Evaluation: September, 1982.
Project Amendment: June, 1983.
Numerous Field Trip reports concerning approximately 65 consultancies.

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Centrally Funded 936-5545 | FN | — | — | — | 1,000 | — | — | — | 100 | 200 | 500 | 200 | 1,000 | Active |

Agroforestry Research and Training

| LENGTH OF PROJECT/PACD. | CONTRACTOR | CONTACT: |
|---|---|---|
| 1/9/82 - 3/85 | International Council for Research in Agroforestry (ICRAF), P.O. Box 20677, Nairobi, Kenya. | Michael Benge, ST/FNR, Rm. 509, SA-18, Agency for International Development, Washington, D.C. 20523. (703) 235-2245. |

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.

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 disgnosis 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.

Cooperative elements include (1) developing diagnostic methodology including testing of same on Kenyan terms, designing diagnostic handbook and formulating methodological basis for outreach projects; (2) creation of a systems register and data bank; and (3) providing agroforestry training including curricula development in agroforestry research.

AID-FINANCED INPUTS:

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

AFRICA-SPECIFIC ACTIVITIES:

ICRAF will fulfill its mandate to promote, initiate and support agroforestry research in Africa and developing countries worldwide, 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.

STATUS:

The Project Identification Document (PID) was approved in March, 1982. The Project Paper was approved on June 24, 1982. The Cooperative Agreement between AID and ICRAF was negotiated October, 1982. An agroforestry short course in research has been planned and scheduled for October/November 1983 for Anglophone Africa. Countries expected to send participants for this training are, e.g., Somalia, Kenya, Sudan, Tanzania, Uganda and Gambia. A systems inventory is presently being designed by Dr. P.K.R. Nair in Nairobi.

DOCUMENTS AND REPORTS:

PID: 2/23/82.
Project Paper: 1982.
FY84 ABS Activity Data Sheet (ST/FNR).
Cooperative Agreement: August, 1982.
Quarterly Implementation Reports.

**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.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (Through FY82) | | | | | | | | | |
| Centrally Funded 936-1135 | FN | — | — | — | 2,344 | 400 | 400 | — | — | — | — | — | 5,364 | Active |

Human Settlement/Natural Resources Analysis and Mgt.

**LENGTH OF PROJECT/PACD:**

1978-1989

**CONTRACTOR**

Clark University, Department of Geography, 950 Main St., Worcester, Massachusetts, 01610. Gerald Karaska (617) 793-7711: Institute for Development Anthropology (IDA) 99 Collier St. Su. 302, P.O. Box 818 Binghamton, New York, 13902. Michael Horowitz (607) 798-2643.

**CONTACT:**

Marilyn Silberfein, ST/MD; Rm. 620F, SA-18, Agency for International Development, Washington, D.C. 20523. (703) 235-8860.

**PURPOSE:**

To strengthen LDC capacity in regional based natural resource analysis and management; new land settlement; understanding managing rural-urban linkages and dynamics.

**SUMMARY:**

This project focuses on a problem oriented approach to region based development, or implementation of region based sectoral projects.

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.

**AFRICA-SPECIFIC ACTIVITIES:**

Technical assistance and other services provided to African countries are specified below.

**STATUS:**

During the first three years, the project was implemented by the University of Wisconsin; principal activity in Africa was a marketing study in Kenya. In September, 1981, a new agreement was signed with Clark University. Clark/IDA activities include the following: (1) Zimbabwe (Sabi Valley). In 9/82, Clark/IDA submitted to AID and USAID/Zimbabwe the completed proposal for a project to determine the causes of environmental degradation and resource depletion in the Sabi Basin, Zimbabwe. Work is expected to begin following the creation of an Agricultural Investment Sector working group by the Ministry of Economic Planning and Development to oversee the project; (2) Zimbabwe (Sebungwe Region). Clark/IDA is presently assisting the Department of Land Management of the University of Zimbabwe faculty of Agriculture in providing information on local production systems for the Department of Land Management of the University of Zimbabwe faculty of Agriculture in providing information on local production systems for the Sebungwe regional plan. A Clark/IDA report, 8/82, analyzed the economic systems of the people of the northern part of the region as well as alternatives which might facilitste the co-existence of people, wildlife and national parks. During 1983, Clark/IDA will assist in designing research and development projects within the region; (3) Sudan. Clark/IDA will conduct a district resource inventory for the Kordofan Region of Sudan whose purpose will be to train a Sudanese regional ministerial team in: (a) developing an

MAJOR OUTPUTS:

1. Long-term field applications in sub-national planning and resource management;
2. Special studies manuals from Research Initiatives;
3. Information dissemination and workshops;
4. Short-term research and consulting services;
5. Training programs.

information base on human and physical resources in the district; (b) developing a district land use and resource management plan; and (c) developing specific interventions for improved resource management; (4) Somalia. In March-April, 1983, Clark/IDA conducted an assessment of Somalia's rate and nature of rural-urban migration; (5) Niger. A principal investigator for Clark/IDA visited Niger in August, 1982, to assess the area development implications of several USAID/Niger development programs. A major constraint identified was an effective rural development program in Niger. Recommendations centered on effective linkages between regional planning and forestry/land use planning, range and livestock development, etc.; (6) Mali. Design of the Manantali Resettlement Project. Project involves resettlement of 12,000 Malians in the nest five years by the construction of the Manatali Dam. Issues to be examined include: land tenure, sizes of villages, types of infrastructural and non-farm production investment; (7) Lesotho. Evaluation of the Southern Perimeter Roads Project by a Clark/IDA social scientist.

DOCUMENTS AND REPORTS:


Project Paper: 1978.

Lewis, Herb; Kerven, Carol; and Southerland, Nancy, 5/83; "Urbanization and Outmigration in Somalia".

Berry, Eileen; 3/83; "Area-Based Resource Analysis Framework for Project Design and Applied Research".

Scudder, Ted; 8/82; "Regional Planning for People, Parks and Wildlife in the Northern Portion of the Sebungwe Region of Zimbabwe".

Berry, Len; 4/83; "Concepts in Natural Resource Management: Planning or Regional Development: Lessons and Experiences".

Project Paper Amendment 1983.

Evaluation 1983.




CENTRALLY FUNDED

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Centrally Funded 931-1209 | SD | — | — | 1,790 | 700 | 200 | — | — | — | — | — | — | 2,990 | Active |

Environment and Natural Resources Expanded Information Base

LENGTH OF PROJECT/PACD:

1979-1984

CONTRACTOR

PASA with National Park Service, U.S. Department of the Interior, Washington, D.C. 20240

CONTACT:

Molly Kux, ST/EY, Rm. 508G, SA-18, Agency for International Development, Washington, D.C. 20523. (703) 235-2827.

PURPOSE:

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

SUMMARY:

The project consists of four major components; (1) preparation of state-of-the-art review papers (including a review of selected ecological problems in the humid tropics; methods for conducting natural resource surveys and environmental baseline studies, a study of legal, regulatory and institutional approaches to conservation/management of natural resources, and an assessment of renewable resource trends in East Africa); (2) development of case studies (focusing on integrated regional planning in Latin America, development of the humid tropics, coastal development in Asia and Africa, and rangeland management in Africa); (3) development of project design aids (for rangelands, coastal zones, and the humid tropics); (4) dissemination of the review papers, case studies and design aids through workshops and special publications; (5) train developing country trainers in natural resource management; (6) institutionalizing the natural resource curricula; (7) life-of-project review.

AID-FINANCED INPUTS:

1. Personnel (70 person-months);
2. Travel and other expenses.

MAJOR OUTPUTS:

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

AFRICA-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).

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. A case study on coastal resource management in Kenya will start in the fall of 1983. Assessments of resource trends in Africa (covering Kenya, Tanzania, Rwanda, Burundi, and Uganda) will be published in November, 1983. The rangelands review papers and design aids will be completed in August, 1984.

DOCUMENTS AND REPORTS:

Project Paper; 6/19/79.

"Natural Resource Technical Bulletin"; AID/NPS; Washington, D.C.; Nos. 1/1981, 2,3/1982, 4/1983.

"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 (included Ghana and Sudan; country reports will be available for each).

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (Through FY82) | | | | | | | | | |
| Centrally Funded 936-5301 | FN | — | — | — | 2,225 | 535 | 500 | — | — | — | — | — | 5,240 | Active |
| Access to Land, Water, and Natural Resources | | | | | | | | | | | | | | |

LENGTH OF PROJECT/PACD:

1979-1988

CONTRACTOR

University of Wisconsin Land Tenure Center (LTC), 1300 University Ave., Rm. 101C, Madison, Wisconsin 53706. Marian Brown, (608) 262-3657

CONTACT:

Thomas Mehan, ST/MD, Rm. 606 SA-18, Agency for International Development, Washington, D.C. 20523. (703) 235-8857.

PURPOSE:

To assist LDC governments address land tenure constraints to equitable and efficient use of land and aid in the development approaches for improving the rural poor's access to land and enhancing the landholding security of small operators.

SUMMARY:

The project aims to encourage and help LDC governments by short-term consulting on policies and programs to increase resource access, by carrying out applied research, by conducting workshops and seminars involving AID and LDC personnel and by disseminating information on land tenure related issues.

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 (70 person months);
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:

Consulting has been provided to several African countries. The change from traditional to modern tenure systems described in "Project Summary" will be effected with special consideration given to preservation of traditional rights (e.g., Liberia) and solution of the problem of communal overgrazing (the "tragedy of the commons" problem, e.g., Botswana).

STATUS:

This project was initiated in September, 1979, when a cooperative agreement was signed with the University of Wisconsin Land Tenure Center (LTC). Consultation has been carried out in thirteen countries since September 1979. Africa specific countries which have benefitted from this are: Botswana, Cameroon, Mauritania, and Liberia. In Botswana a major applied research effort is underway in conjunction with the Ministry of Local Government and Lands examining land tenure issues in urban access; local organizations and natural resource management; and access to land in communal areas. Cameroon was assisted with an analysis of the land tenure situation in the Mandara Mountains, the site of a proposed rural development project. Mauritania is planning a pilot program to examine land tenure issues which are serious constraints to agricultural development. A group of four Mauritanian students will be enrolling in a Masters program at the University of Wisconsin and will form the core group for the work on land tenure there.

DOCUMENTS AND REPORTS:

Project Paper; 9/78.
Dorner, 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.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Centrally Funded 936-5517<br>Environmental Planning Management | SD | — | — | — | 250 | 650 | 750 | — | — | — | — | — | 8,000* | Active |

LENGTH OF PROJECT/PACD:

1982-1988

CONTRACTOR

International Institute for Environment and Development (IIED) Joint Environmental Service with the IUCN.

CONTACT:

Molly Kux, ST/EY, Room 508, SA-18, Agency for International Development, Washington, D.C. 20523. (703) 235-2827.

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.

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 (e.g., development of a national or regional natural resources strategy closely related to a country's economic development planning process); and (3) provide informational analysis 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 to 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 have not been implemented in African countries.

STATUS:

The Project Paper was approved in May, 1982. Twenty two African Missions and both REDSOs responded to the PID, suggesting ways in which proposed technical services could be of use. This response, as well as other sources, have provided the basis for selecting pilot project sites.

PROJECT DOCUMENTS AND REPORTS:

PID: 3/81.
Project Paper: 3/82.

*4,350,000 FNR Funds and 3,650,000 Regional Bureau/Missions equals LOP of 8 million dollars.

| PROJECT NO. / TITLE: | APP. CAT. | OBLIGATIONS BY FISCAL YEAR ($000) ACTUAL FY79 | FY80 | FY81 | ESTIMATED FY82 | FY83 | FY84 | LOP AUTHORIZATION BY ACTIVITY ($000) TA | A&S | TR | T&D | DS | LOP | PROJECT STATUS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Centrally Funded 936-5518 | FN | — | — | — | — | 250 | 250 | — | — | — | — | — | 4,500 | Planned |

Coastal Resources Management

LENGTH OF PROJECT/PACD:

1984-1990

CONTRACTOR

To be determined

CONTACT:

Caldwell Hahn, ST/FNR, Rm. 506I SA-18, Agency for International Development, Washington, D.C. 20523. (703) 235-2827.

PURPOSE:

To improve the capacity of selected LDCs to plan and to manage the development of their coastal resources.

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:

1. Personnel (67 person months);
2. Training;
3. Research;
4. Travel and other expenses.

MAJOR OUTPUTS:

1. Planning tools for managers including maps of coastal resources;
2. Coastal Zone Management plans;
3. Revised policies, laws and regulations;
4. Increased capability to conduct and apply coastal research;
5. Better coordination among host county institutions responsible for various coastal resources.

AFRICA-SPECIFIC ACTIVITIES:

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

STATUS:

The PID was approved in March, 1983. The National Oceanic and Atmospheric Administration (NOAA) provided assistance in the design of the PID. The National Academy of Sciences conducted a comprehensive study as background for the PID preparation. Activities will be initiated in three countries in different geogjraphic regions sequentially in FY84, FY85, and FY86. The project will focus on the conflicts over use of resources such as mining of coral reefs for lime resulting in extensive coastal erosion, loss of mangrove forests and reduced fishery production. A resident advisor will be placed in the countries selected to work with appropriate Coast Conservation entities to develop plans for providing short-term technical advisors and for developing a cooperative research program which will focus on providing scientific data needed for management decisions. Five countries are presently being considered for the first pilot project. Selection of the second country may be either Latin America or Africa. It is anticipated that the third pilot project will be in either the Africa or Near East Region, and that it will start in approximately FY86. Currently, the project paper is being completed and selection of the first project site is underway based on visits to the field.

DOCUMENTS AND REPORTS:

ST/FNR: ABS, FY84, and FY85
PID: 3/83

HOST COUNTRY AND OTHER DONORS:

Appropriate country governments will contribute approximately 25% of the cost of the project including salaries of counterpart personnel, funding of participant training, part of the research costs, and administrative support. Additional contributions will be explored with UN organizations. Individual country contributions may vary.

Project Paper (anticipated completion date 12/83) NOAA providing design assistance.

CENTRALLY FUNDED

# APPENDIX A
# SUMMARY BUDGET TABLE
# BY SECTOR
# (REGIONAL AND BILATERAL PROJECTS)

Notes:

1. Decimals have been rounded to the nearest whole number in the totals.

2. Activity breakdowns are not always provided for planned projects, as these are likely to change substantially as the project budget becomes more definite.

3. "Other Projects with an Energy, Forestry/Fuelwood and Natural Resources Component" are not included in the summary budget table, in all cases, as it has not been possible to determine the exact funding for the relevant components. However, when funding estimates have been available they have been disaggregated by sector and are reflected in the budget summary table. Disaggregated figures are designated with an asterisk.

4. Note that FY83 and FY84 funding figures represent tentative estimates.

ENERGY, FORESTRY AND NATURAL RESOURCES
BUREAU FOR AFRICA
SUMMARY BUDGET TABLE[1]
($000)

| | FUNDING BY FISCAL YEAR | | | | | | LOP AUTHORIZATION REQUEST BY ACTIVITY | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | FY79 | FY80 | FY81 | FY82 | FY83 | FY84 | TA | A&S | TR | T&D | DS | LOP[2] |
| Authorized/Operational Energy Projects | 5,212 | 5,081 | 6,168 | 27,871 | 8,084 | 11,853 | 23,569 | 9,766 | 7,212 | 6,027 | 30,906 | 77,140 |
| Authorized/Operational Forestry/Fuelwood Projects | 5,090 | 9,035 | 7,197 | 2,144 | 11,210 | 146 | 12,289 | 1,328 | 4,678 | 2,318 | 14,179 | 55,629 |
| Authorized/Operational Natural Resources Projects | 16,436 | 14,341 | 17,272 | 22,407 | 12,672 | 10,907 | 36,252 | 14,879 | 13,999 | 4,892 | 32,653 | 94,935 |
| Subtotal | 26,738 | 28,457 | 30,637 | 52,422 | 31,966 | 22,906 | 72,110 | 25,973 | 25,889 | 13,237 | 77,738 | 227,704 |
| Planned Energy Projects | - | - | - | - | - | - | - | - | - | - | - | - |
| Planned Forestry/ Fuelwood Projects | - | - | - | - | - | 1,777 | - | - | - | - | - | 3,998 |
| Planned Natural Resources Projects | - | - | - | - | 4,900 | 6,300 | 5,126 | - | 4,904 | - | 7,470 | 23,800 |
| Subtotal | - | - | - | - | 4,900 | 8,077 | 5,126 | - | 4,904 | - | 7,470 | 27,798 |
| TOTAL[3] | 26,738 | 28,457 | 30,637 | 52,422 | 36,866 | 30,983 | 77,236 | 25,973 | 30,793 | 13,237 | 85,208 | 255,502[3] |

1. Includes some projects with an energy or natural resources component when information was available to disaggregate figures. (When information was not available, projects were grouped in "other" categories.
2. Numbers have been rounded, and may not add up to exact total.
3. Combined authorized/operational and planned totals.

1. AUTHORIZED/OPERATIONAL: ENERGY PROJECTS
($ in Thousands)

| Project No. | Country/Title | App. Cat. | LOP AUTHORIZATION/REQUEST BY ACTIVITY | | | | | | FUNDING BY FISCAL YEAR | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | TA | A&S | TR | T&D | DS | LOP | FY79 | FY80 | FY81 | FY82 | FY83 | FY84 |
| 633-0209 | Botswana Renewable Energy Technology | ES | 1,193 | 129 | 457 | 1,132 | 393 | 3,304 | - | 725 | 1,000 | 1,579 | 1,579 | - |
| 695-0103 | Burundi Alternative Energy Peat II | SD | 5,408 | - | 277 | - | 2,315 | 8,000 | - | 2,000 | 2,000 | 1,106 | 1,200 | 2,494 |
| 655-0005 | Cape Verde Sal Desalination & Power | SD HE SH | 766 | - | 180 | - | 6,644 | 7,790 | 900 | - | 900 | 600 | - | - |
| 503-0013 | Djibouti Energy Initiatives | ES | 780 | 942 | 35 | 1,720 | 523 | 4,000 | - | - | - | 4,000 | - | - |
| 615-0205 | Kenya Renewable Energy Development | SD | 1,114 | 266 | 146 | 322 | 322 | 2,170* | - | 1,312* | 1,318 | - | - | 2,059 |
| 632-0206 | Lesotho Renewable Energy Technology | SD | 617 | - | 110 | 650 | 223 | 1,600 | 1,600 | - | - | - | - | - |

*Disaggregated figure reflects energy-related component only, excludes fuelwood component. (See Forestry Projects.)

| Project No. | Country/Title | App. Cat. | LOP AUTHORIZATION/REQUEST BY ACTIVITY | | | | | | FUNDING BY FISCAL YEAR | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | TA | A&S | TR | T&D | DS | LOP | FY79 | FY80 | FY81 | FY82 | FY83 | FY84 |
| 688-0217 | Mali Renewable Energy | SH | 555 | 604 | 2,105 | - | 1,253 | 4,517 | 2,174 | - | 930 | 713 | 700 | - |
| 649-1122 | Somalia Woodstoves Project | MR | 102 | - | 200 | 25 | 25 | 352 | - | - | - | - | 352 | - |
| 655-0041 | Sudan Rural Renewable Energy Project | SD | 1,476 | 67 | 564 | 63 | 2,430 | 4,600 | - | - | - | 1,500 | - | 2,000 |
| 650-0059 | Sudan Energy Planning & Management | SD | 4,952 | 823 | 824 | - | 389 | 6,600 | - | - | - | 1,555 | 1,500 | 2,200 |
| 650-K603 | Sudan Commodity Import Program | ES | 800 | - | - | - | 15,400 | 16,200* | - | - | - | 16,200 | - | - |
| 625-0911 | Sahel Regional VITA Woodstoves | SH | 484 | - | 10 | - | - | 494 | - | 194 | - | 100 | 100 | *100 |
| 625-0937.03 (AIP) | Sahel Regional Renewable Energy | SH | 21 | 85 | - | 317 | 76 | 500 | - | 500 | - | - | - | - |

*Disaggregated figure reflects energy-related component only.

| Project No. | Country/Title | App. Cat. | LOP AUTHORIZATION/REQUEST BY ACTIVITY TA | A&S | TR | T&D | DS | LOP | FUNDING BY FISCAL YEAR FY79 | FY80 | FY81 | FY82 | FY83 | FY84 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 625-0937.07 (AIP) | Sahel Regional Renewable Energy | SH | 126 | 36 | 170 | 118 | 150 | 600 | - | 300 | - | 300 | - | - |
| 698-0407.31 | Africa Regional Charcoal Briquette Production (IRT) | SD | 40 | 5 | - | - | 50 | 95 | - | - | - | 95 | - | - |
| 698-0407.33 | Africa Regional Farm Dryers (IRT) | SD | 15 | - | - | 5 | 53 | 73 | - | - | - | 73 | - | - |
| 698-0407.7 | Africa Regional Micro-Hydroelectric Activity | FN | - | - | - | - | - | 95 | 50 | - | 20 | 25 | - | - |
| 698-0407.9 | Africa Regional Rural Solar Technology Activity | FN | - | - | - | - | - | 75 | - | 50 | - | 25 | - | - |
| 698-0410.22 | Africa Regional Renewable/Improved Traditional Energy | FN | 120 | 9 | 59 | 240 | 60 | 488 | 488 | - | - | - | - | - |
| 698-0424 | Africa Regional Energy Initiatives | SD<br>SH | 5,000 | 7,000 | 2,075 | 1,425 | 600 | 17,000* | - | - | - | - | 2,135* | 3,000* |
| ENERGY, SUBTOTAL | | | 23,569 | 9,766 | 7,212 | 6,027 | 30,906 | 77,140 | 5,212 | 5,081 | 6,168 | 27,871 | 8,084 | 11,853 |

*Disaggregated figure reflects energy component only.

2. AUTHORIZED/OPERATIONAL: OTHER PROJECTS WITH AN ENERGY COMPONENT
($ in Thousands)

| Project No. | Country/Title | App. Cat. | LOP AUTHORIZATION/REQUEST BY ACTIVITY TA | A&S | TR | T&D | DS | LOP | FUNDING BY FISCAL YEAR FY79 | FY80 | FY81 | FY82 | FY83 | FY84 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 650-K603 | Sudan Commodity Import Program | ES | - | - | - | - | - | 100,000* | - | - | - | - | - | - |
| OTHER PROJECTS, SUBTOTAL | | | - | - | - | - | - | 100,000 | - | - | - | - | - | - |

*Reflects total Grant Agreement. See project summary sheet for energy related expenditures.

1. AUTHORIZED/OPERATIONAL: FORESTRY/FUELWOOD PROJECTS
($ in Thousands)

| Project No. | Country/Title | App. Cat. | LOP AUTHORIZATION/REQUEST BY ACTIVITY TA | A&S | TR | T&D | DS | LOP | FUNDING BY FISCAL YEAR FY79 | FY80 | FY81 | FY82 | FY83 | FY84 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 695-0105 | Burundi Bururi Forest | FN | 246 | - | 68 | 87 | 743 | 1,144 | - | - | - | 1,144 | - | - |
| 615-1205 | Kenya Renewable Energy Development | SD | 1,030 | 133 | 223 | 622 | 622 | 2,630* | - | 2,630* | - | - | - | - |
| 685-0219 | Senegal Fuelwood Production | SH | 700 | 287 | 347 | - | 2,100 | 3,434 | 1,404 | 700 | 730 | 600 | - | - |
| 685-0224 | Senegal SODESP Livestock Production | SH | - | - | - | - | 146* | 146* | - | - | - | - | - | 146* |
| 685-0247 | Senegal Village Woodlots Firewood Production | SH | 63 | - | - | - | 48 | 211 | - | 211 | - | - | - | - |
| 649-0122 | Somalia CDS Forestry (Phase I) Refugee Reforestation | FD | 4,418 | - | 450 | 1,132 | - | 6,000 | - | - | - | - | 6,000 | - |
| 650-0064 | Sudan Eastern Reforestation | FD | 1,000 | - | 1,000 | - | 3,291 | 5,291 | - | - | - | - | 4,550 | - |

*Disaggregated figure reflects forestry/fuelwood component only.

| Project No. | Country/Title | App. Cat. | LOP AUTHORIZATION/REQUEST BY ACTIVITY TA | A&S | TR | T&D | DS | LOP | FUNDING BY FISCAL YEAR FY79 | FY80 | FY81 | FY82 | FY83 | FY84 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 650-0020 | Sudan Western Sudan Agricultural Research | FN | 300 | - | - | 200 | 800 | 1,300* | - | - | - 1,300* | - | - | - |
| 621-0143 | Tanzania ARUSHA Planning & Village Development | FN | 50 | - | - | - | 350 | 400* | - | - | - | 400* | - | - |
| 621-0160 | Tanzania Lutheran World Relief Village Environment Improvement | SD | 9 | - | - | - | 40 | 49 | - | - | 49 | - | - | - |
| 635-0205 | The Gambia Forestry Project | SH | 240 | 141 | 363 | - | 820 | 1,575 | 1,575 | - | - | - | - | - |
| 635-0203 | The Gambia Mixed Farming and Resource Management | SH | 700 | - | - | - | 2,000 | 2,700* | - | 2,000* | 700* | - | - | - |
| 686-0235 | Upper Volta Forestry Education and Development | SH | 2,570 | 40 | 1,999 | - | 1,349 | 5,958 | 700 | 1,800 | 3,458 | - | - | - |

*Disaggregated figure reflects forestry/fuelwood component only.

| Project No. | Country/Title | App. Cat. | LOP AUTHORIZATION/REQUEST BY ACTIVITY TA | A&S | TR | T&D | DS | LOP | FUNDING BY FISCAL YEAR FY79 | FY80 | FY81 | FY82 | FY83 | FY84 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 686-0221 | Upper Volta Agriculture Human Resources Development | SH | 146 | - | - | - | 800 | 946* | - | 946* | - | - | - | - |
| 686-0231 | Seguenega Integrated Rural Development | SH | 53 | - | - | - | 200 | 253* | - | 253* | - | - | - | - |
| 625-0915 | Sahel Regional Niger River Basin Development Planning (II) | SD | 360 | 705 | 155 | 61 | 130 | 1,911 | 1,411 | - | 500 | - | - | - |
| 698-0410.35 (AIP) | Africa Regional Community Forestry School Tree Nursery | SD | 354 | - | 16 | 40 | 50 | 460 | - | - | 460 | - | - | - |

*Disaggregated figure reflects forestry/fuelwood component only.

| Project No. | Country/Title | App. Cat. | LOP AUTHORIZATION/REQUEST BY ACTIVITY TA | A&S | TR | T&D | DS | LOP | FUNDING BY FISCAL YEAR FY79 | FY80 | FY81 | FY82 | FY83 | FY84 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 698-0424 | Africa Regional Energy Initiatives for Africa | SD SH | | | 25 | 75 | 400 | 500** | - | - | - | - | 500** | - |
| FORESTRY/FUELWOOD SUBTOTAL | | | 12,289 | 1,328 | 4,678 | 2,318 | 14,179 | 55,629 | 5,090 | 9,035 | 7,197 | 2,144 | 11,210 | 146 |
| 2. AUTHORIZED/OPERATIONAL: OTHER PROJECTS WITH A FORESTRY/COMPONENT ($ in Thousands) | | | | | | | | | | | | | | |
| 649-0108 | Somalia Central Rangelands Development | FN | 5,025 | 772 | 354 | - | 8,793 | 14,944 | 1,000 | 3,366 | 3,680 | 3,600 | 3,298 | - |
| 3. AUTHORIZED/OPERATIONAL: PLANNED FORESTRY/FUELWOOD PROJECTS ($ in Thousands) | | | | | | | | | | | | | | |
| 650-0020 | Sudan Western Sudan Agricultural Research | FN | 16,900 | 2,300 | 3,100 | 3,082 | 618 | 26,000* | - | - | 26,000* | - | - | - |
| OTHER PROJECTS SUBTOTAL | | | 21,925 | 3,072 | 3,454 | 3,082 | 9,411 | 40,944 | 1,000 | 3,366 | 29,680 | 3,600 | 3,298 | - |
| 635-0220 | The Gambia Agro-forestry Integration | SH | - | - | - | - | - | 3,998 | - | - | - | - | - | 1,777 |
| PLANNED PROJECTS SUBTOTAL | | | - | - | - | - | - | 3,998 | - | - | - | - | - | 1,777 |

*Forestry component is approximately 1.3 million of LOP. See forestry project for disaggregated figure.

**Disaggregated figures reflect forestry component only.

1. AUTHORIZED/OPERATIONAL: NATURAL RESOURCES PROJECTS
($ in Thousands)

| Project No. | Country/Title | App. Cat. | LOP AUTHORIZATION/REQUEST BY ACTIVITY TA | A&S | TR | T&D | DS | LOP | FUNDING BY FISCAL YEAR FY79 | FY80 | FY81 | FY82 | FY83 | FY84 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 655-0006 | Cape Verde Watershed Management | SH | 214 | 50 | 38 | 275 | 4,698 | 6,275 | 1,000 | 1,457 | 2,059 | 1,761 | - | 1,611 |
| 615-0172 | Kenya Arid and Semi-Arid Lands Development (Kitui) | FN | 7,409 | 600 | 1,000 | 1,154 | 2,837 | 13,000 | 4,179 | 2,000 | - | - | 6,822 | - |
| 688-0205 | Mali Land Use Inventory | SH | 2,866 | 544 | 214 | 328 | 1,370 | 5,222 | 2,869 | 4,000 | 1,725 | 228 | - | - |
| 683-0230 | Niger Forestry and Land-Use Planning | SH | 1,268 | 697 | 676 | 944 | - | 3,839 | - | 1,108 | 576 | - | 800 | 1,296 |
| 683-0240 | Niger Niamey Department Development II | SH | 2,725 | - | 474 | 767 | 9,616 | 1,358 | - | - | 5,704 | 332 | 2,500 | 1,900 |
| 683-0226 | Niger Rural Sector Human Resources Development | SH | 1,640 | - | 374 | - | 3,016 | 5,030 | 2,000 | 995 | 860 | 1,175 | - | - |
| 685-0233 | Senegal National Plan for Land-Use Development | SH | 1,036 | 599 | 95 | - | - | 2,000 | - | - | 1,000 | 1,000 | - | - |

| Project No. | Country/Title | App. Cat. | LOP AUTHORIZATION/REQUEST BY ACTIVITY TA | A&S | TR | T&D | DS | LOP | FUNDING BY FISCAL YEAR FY79 | FY80 | FY81 | FY82 | FY83 | FY84 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 635-0202 | The Gambia Soil & Water Management Unit | SH | 2,099 | - | 695 | - | 92 | 2,747 | 1,203 | - | 834 | - | 710 | - |
| 635-0203 | Mixed Farming & Resource Management | SH | - | - | - | - | - | 2,700* | - | 2,000* | 700* | - | - | - |
| 625-0911 | Sahel Regional CILSS Ecologist | SH | 800 | - | - | - | - | 800 | - | - | - | 224 | - | 100 |
| 625-0012 | Sahel Regional Gambia River Basin Development | SH | 3,200 | 11,044 | 156 | - | 400 | 14,800 | - | - | 4,000 | 5,512 | 530 | 3,000 |
| 625-0917 | Sahel Regional | SH FN | 2,100 | - | 1,267 | 208 | 2,693 | 6,268 | 2,665 | 1,313 | - | - | - | - |
| 625-0929 | Sahel Regional NAS Advisory Committee on the Sahel | SH | 250 | 35 | - | - | - | 285 | - | - | 285 | - | - | - |
| 625-0940 | Sahel Regional Water Data Network Management II | SH | 1,500 | 210 | 1,075 | 215 | 4,000 | 7,000 | - | - | - | 3,529 | - | 1,000 |

*Disaggregated figure reflects land resource management component only.

| Project No. | Country/Title | App. Cat. | LOP AUTHORIZATION/REQUEST BY ACTIVITY TA | A&S | TR | T&D | DS | LOP | FUNDING BY FISCAL YEAR FY79 | FY80 | FY81 | FY82 | FY83 | FY84 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 625-0944 | Sahel Regional Niger River Basin Planning (Phase II) | SH | 1,000 | 1,000 | 3,000 | 1,000 | 714 | 6,714* | - | - | - | 6,714 | - | - |
| 698-0414 | Africa Regional Remote Sensing/ East Africa | FN | 2,145 | - | 435 | - | 1,192 | 3,772 | 750 | 540 | 550 | 1,932 | - | - |
| 698-0420 | Africa Regional Remote Sensing/ West Africa | FN | 2,000 | - | 1,000 | - | 2,025 | 5,525 | 1,770 | 520 | 235 | - | 500 | 1,200 |
| 698-0427 | Africa Regional Environmental Training & Resource Management | SD FN SH | 4,000 | 100 | 3.500 | - | - | 7,600 | - | 408 | 2,344 | - | 810 | 800 |
| NATURAL RESOURCES SUBTOTAL | | | 36,252 | 14,879 | 13,999 | 4,892 | 32,653 | 94,935 | 16,436 | 14,341 | 17,272 | 22,407 | 12,672 | 10,907 |

*Disaggregated figure reflects natural resources component only.

2. AUTHORIZED/OPERATIONAL: OTHER PROJECTS WITH A NATURAL RESOURCES COMPONENT
($ in Thousands)

| Project No. | Country/Title | App. Cat. | LOP AUTHORIZATION/REQUEST BY ACTIVITY TA | A&S | TR | T&D | DS | LOP | FUNDING BY FISCAL YEAR FY79 | FY80 | FY81 | FY82 | FY83 | FY84 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 633-0077 | Botswana Rural Sector Grant | ES FN | 472 | 115 | 189 | - | 3,004 | 3,780 | - | 1,250 | 1,250 | 1,280 | 1,569 | 1,838 |
| 649-0108 | Somalia Central Rangelands Development | FN | 5,025 | 772 | 354 | - | 8,793 | 14,944 | 1,000 | 3,366 | 3,680 | 3,600 | 3,298 | - |
| 650-0020 | Sudan Western Sudan Agricultural Research | FN | 16,900 | 2,300 | 3,100 | 3,082 | 618 | 26,000 | - | - | - | 26,000 | - | - |
| 621-0143 | Tanzania Arusha Planning & Village Development | FN | 5,416 | - | 673 | 8,502 | - | 14,591* | - | - | - | 11,416 | 1,532 | 1,643 |
| 621-0160 | Lutheran World Relief Village Environment Improvement | SD | 32 | 10 | 18 | - | 439 | 499* | - | - | 499* | - | - | - |
| 635-0203 | The Gambia Mixed Farming & Resource Management | SH | 1,776 | 895 | 2,164 | - | 1,165 | 9,000* | 849 | 2,530 | 2,621 | - | 804 | 1,696 |

*Disaggregated figure reflects natural resources component only. See forestry projects for forestry component expenditures.

| Project No. | Country/Title | App. Cat. | LOP AUTHORIZATION/REQUEST BY ACTIV... TA | A&S | TR | T&D | DS | LOP | FUNDING BY FISCAL YEAR FY79 | FY80 | FY81 | FY82 | FY83 | FY84 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 686-0221 | Upper Volta Agricultural Human Resources Development | SH | 3,060 | - | 1,344 | - | 5,053 | 9,457 | - | 2,000 | - | - | - | - |
| 686-0231 | Seguenega Integrated Rural Development | SH | 2,620 | - | 175 | - | 2,161 | 4,956 | 1,000 | 1,000 | 1,356 | 1,600 | - | - |
| 685-0224 | SODESP Livestock Production | SH | 2,227 | - | 551 | 551 | 5,222 | 8,000 | 2,030 | 1,500 | 3,500 | - | - | 970 |
| OTHER PROJECTS SUBTOTAL | | | 37,528 | 4,092 | 8,568 | 12,135 | 26,455 | 81,227 | 4,879 | 11,646 | 12,906 | 43,896 | 7,203 | 6,147 |

3. AUTHORIZED/OPERATIONAL: PLANNED NATURAL RESOURCES PROJECTS
($ in Thousands)

| Project No. | Country/Title | App. Cat. | LOP AUTHORIZATION/REQUEST BY ACTIVITY TA | A&S | TR | T&D | DS | LOP | FUNDING BY FISCAL YEAR FY79 | FY80 | FY81 | FY82 | FY83 | FY84 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 683-0242 | Niger Integrated Livestock Production | SD | 5,126 | - | 4,904 | - | 7,470 | 17,500 | - | - | - | - | 4,900 | - |
| 625-0261 | Sa . Regional OMVS Integrated Development | SH | - | - | - | - | - | 6,300 | - | - | - | - | - | 6,300 |
| PLANNED PROJECTS SUBTOTAL | | | 5,126 | - | 4,904 | - | 7,470 | 23,800 | - | - | - | - | 4,900 | 6,300 |

## APPENDIX B
## USE OF TECHNOLOGIES BY COUNTRY

Notes:

1. This list is based on Appendix A, "Energy Activities Supported by the Africa Bureau" (Larson, 1981).

2. Technologies proposed for planned projects are also listed.

3. No distinction is made between technologies proposed and technologies in use in on-going projects; technologies proposed in the Project Paper and Project Status are listed.

4. Projects which have ended since last year's report (Reines, 1982) are designated with an asterisk and appear at the end of each technology grouping. Summaries for these projects are not included in this report.

| TECHNOLOGY | PROJECT | |
|---|---|---|
| 1. Pedal-powered grain grinding and/or dehaulling | 633-0209 | Botswana Renewable Energy Technology |
| | 632-0206 | Lesotho Renewable Energy |
| | 650-0041 | Sudan Renewable Energy |
| 2. Pedal-powered pumps for water | 625-0937.03 | Cape Verde Renewable Energy (AIP) |
| | 615-0205 | Kenya Renewable Energy Development |
| | *688-0202 | Mali Operation Mils |
| 3. Hand pumps for water | 633-0209 | Botswana Renewable Energy Technology |
| | 625-0937.03 | Cape Verde Renewable Energy (AIP) |
| | 615-0205 | Kenya Renewable Energy Development |
| | *698-0407.28 | Somalia AT Demonstration (IRT) |
| 4. Hydrams | 615-0205 | Kenya Renewable Energy Development |
| | *698-0407.16 | Swaziland RDA Outreach (IRT) |
| 5. Photovoltaic electricty production | 633-0209 | Botswana Renewable Energy Technology |
| | *682-0223 | Mauritania Alternative Energy |
| | *698-0407.22 | Tanzania Photovoltaic Energy (IRT) |
| | *698-0410.13 | Upper Volta Solar Energy Demonstration (AIP) |
| 6. Photovoltaic grain grinding | *688-0213 | Mali Action Ble |
| | *698-0410.13 | Upper Volta Solar Energy Demonstration (AIP) |
| 7. Photovoltaic radio | *698-0407 | Zaire Solar-Powered Radio (IRT) |
| 8. Photovoltaic pumps for irrigation and/or drinkir water | 633-0209 | Botswana Renewable Energy Technology |
| | 603-0013 | Djibouti Energy Initiatives |
| | 688-0217 | Mali Renewable Energy |
| | 698-0410.22 | Rwanda Renewable/Improved Traditional Energy (AIP |
| | 698-0410.13 | Upper Volta Solar Energy Demonstration (AIP) |
| | *688-0213 | Mali Action Ble |
| | *683-0039 | Niger Solar Energy |
| | *688-0202 | Mali Operation Mils |
| 9. Solar thermal pump for irrigation | *685-0208 | Senegal Bakel Crop Production |

| TECHNOLOGY | PROJECT | |
|---|---|---|
| 10. Passive solar heating and cooling | 633-0209 | Botswana Renewable Energy |
| | 625-0937.03 | Cape Verde Renewable Energy (AIP) |
| 11. Solar fish dryers | 625-0937.03 | Cape Verde Renewable Energy (AIP) |
| | 603-0013 | Djibouti Energy Initiatives |
| | 688-0217 | Mali Renewable Energy |
| | 625-0937.07 | Senegal Renewable Energy (AIP) |
| 12. Solar crop or grain dryers | 698-0407.33 | Burundi Farm Dryers (IRT) |
| | 625-0937.03 | Cape Verde Renewable Energy (AIP) |
| | 615-0205 | Kenya Renewable Energy Development |
| | 688-0217 | Mali Renewable Energy |
| | 698-0410.22 | Rwanda Renewable Energy (AIP) |
| | 698-0407.09 | Togo Rural Solar Energy (IRT) |
| | 683-0039 | Niger Solar Energy |
| | 698-0407.16 | Swaziland RDA Outreach (IRT) |
| 13. Solar cookers | 633-0209 | Botswana Renewable Energy Technology |
| | 625-0937.03 | Cape Verde Renewable Energy (AIP) |
| | 650-0041 | Sudan Renewable Energy |
| | 698-0407.09 | Togo Rural Solar Energy (IRT) |
| 14. Solar Greenhouses (growholes) | 632-0206 | Lesotho Renewable Energy Technology |
| | *698-0407.16 | Swaziland RDA Outreach (IRT) |
| 15. Solar stills | 625-0937.03 | Cape Verde Renewable Energy (AIP) |
| | 603-0013 | Djibouti Energy Initiatives |
| | 698-0407.09 | Togo Rural Solar Energy (IRT) |
| 16. Solar thermal refrigerators (primarily for village dispensaries) | *682-0223 | Mauritania Alternative Energy Niger Solar Energy |
| | *683-0235 | Niger Solar Energy |
| | *698-0407.22 | Tanzania Photovoltaic Energy (IRT) |
| 17. Solar water heaters | 633-0209 | Botswana Renewable Energy Technology |
| | 688-0217 | Mali Renewable Energy |
| | 698-0407.09 | Togo Rural Solar Energy (IRT) |
| | 698-0407.16 | Swaziland RDA Outreach (IRT) |

| TECHNOLOGY | PROJECT | |
|---|---|---|
| 18. Evaporative coolers | 633-0209 | Botswana Renewable Energy |
| 19. Windmills to pump water and/or generate electricity | 633-0209 | Botswana Renewable Energy Technology |
| | 625-0937.03 | Cape Verde Renewable Energy (AIP) |
| | 603-0013 | Djibouti Energy Initiatives |
| | 615-0205 | Kenya Renewable Energy Development |
| | 698-0410.22 | Rwanda Renewable Energy (AIP) |
| | 621-0160 | Tanzania LWR Village Environment Improvement (OPG) |
| | *602-0223 | Mauritania Alternative Energy |
| | 698-0407.28 | Somalia AT Demonstration (IRT) |
| 20. Mini-hydro | 698-0424 | AFR Regional Energy Initiatives for Africa |
| | 632-0206 | Lesotho Renewable Energy |
| | 698-0407.07 | Liberia Mini Hydro-Electric Activity (IRT) |
| | 698-0410.22 | Rwanda Renewable Energy (AIP) |
| | 650-0041 | Sudan Renewable Energy |
| 21. Hydropower | 655-0005 | Cape Verde Desalination & Power |
| | 650-0049 (K603) | Sudan Commodity Import Program |
| | 650-0059 | Sudan Energy Planning and Management |
| 22. Biogas | 625-0937.03 | Cape Verde Renewable Energy (AIP) |
| | 632-0206 | Lesotho Renewable Energy Technology |
| | 650-0041 | Sudan Renewable Energy |
| | 682-0223 | Mauritania Alternative Energy |
| | 698-0407.16 | Swaziland RDA Outreach (IRT) |
| 23. Biogas refrigerators for village dispensaries | 698-0410.22 | Rwanda Renewable Energy (AIP) |
| 24. Improved charcoal production | 615-0205 | Kenya Renewable Energy Development |
| | 625-0937 | Senegal Renewable Energy (AIP) |
| | 635-0235 | Forestry Educ. & Development |
| | 650-0041 | Sudan Renewable Energy |
| | 698-0407.25 | Uganda Charcoal Briquette Production (IRT) |
| | 698-0407.31 | Regional Improved Rural Technology (IRT) |

| TECHNOLOGY | PROJECT | |
|---|---|---|
| 25. Thatch insulation | 633-0209 | Botswana Renewable Energy Technology |
| | 632-0206 | 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 | AFR Regional Energy Initiatives for Africa |
| | 625-0911 | Sahel Regional VITA Woodstoves |
| | 633-0209 | Botswana Renewable Energy Technology |
| | 695-0105 | Burundi Bururi Forest |
| | 625-0937.03 | Cape Verde Renewable Energy (AIP) |
| | 635-0205 | The Gambia Forestry Project |
| | 615-0205 | Kenya Renewable Energy Development |
| | 632-0206 | Lesotho Renewable Energy Technology |
| | 688-0217 | Mali Renewable Energy |
| | 625-0937 | Mali Village Reforestation (AIP) |
| | 625-0937 | Senegal Renewable Energy (AIP) |
| | 649-0122 | Somalia CDA Forestry |
| | 650-0041 | Sudan Renewable Energy |
| | *698-0407.16 | Swaziland RDA Outreach (IRT) |
| | *625-0937 | Upper Volta Yatenga Agriforestry (AIP) |
| | *683-0235 | Niger Solar Energy |
| | *698-0410.22 | Rwanda Renewable Energy |
| 29. Agroforestry (includes windbreaks, live fencing etc.) | 698-0424 | AFR Regional Energy Initiatives for Africa |
| | 625-0929 | Sahel Regional NAS Advisory Committee |
| | 615-0205 | Kenya Renewable Energy Development |
| | 625-0937 | Mali Village Reforestation (AIP) |
| | 635-0220 | Agroforestry Integration |
| | 650-0020 | Western Sudan Agricultural Research |
| | 683-0230 | Niger Forestry and Land Use Planning |
| | 683-0240 | Integrated Livestock Production |
| | 685-0219 | Senegal Fuelwood Production |
| | 685-0247 | Senegal Village Woodlots |
| | 649-0122 | Somalia CDA Forestry |
| | 650-0064 | Sudan Eastern Reforestation |
| | 682-0201 | Mauritania Guidimaka IRD |

| TECHNOLOGY | PROJECT | |
|---|---|---|
| 29. Agroforestry (continued) | 698-0427 | Environmental Training & Resource Management |
| | *625-0937.08 | Upper Volta Yatenga Agriforestry (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 |
| | 633-0077 | Rural Sector Grant |
| | 698-0410.35 | Guinea Community Forestry School Tree Nursery (AIP) |
| | 615-0205 | Kenya Renewable Energy Development |
| | 625-0937 | Mali Village Reforestation (AIP) |
| | 683-0230 | Niger Forestry and Land Use Planning |
| | 685-0219 | Senegal Fuelwood Production |
| | 649-0122 | Somalia CDA Forestry |
| | 650-0064 | Sudan Eastern Reforestation (OPG) |
| | 686-0235 | Upper Volta Forestry Education and Development |
| | *682-0205 | Mauritania Renewable Resource Management |
| | *625-0937.08 | Upper Volta Village Forestry (AIP) |
| 31. Village Woodlots | 698-0424 | AFR Regional Energy Initiatives for Africa |
| | 698-0427 | Environmental Training & Resource Management |
| | 625-0261 | Sahel Regional OMVS Integrated Development |
| | 633-0209 | Botswana Renewable Energy Technology |
| | 635-0205 | The Gambia Reforestation |
| | 615-0205 | Kenya Renewable Energy Development |
| | 685-0224 | SODESP Livestock Production |
| | 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 |
| 33. Remote sensing and resource mapping, aerial photography | 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 |

| TECHNOLOGY | PROJECT | |
|---|---|---|
| 33. Remote (continued) | 683-0240 | Niger Niamey Department Development II |
| | 698-0427 | Environment Training and Resource Management |
| | 683-0202 | Niger Range and Livestock |
| | 685-0233 | Senegal National Plan for Land Use & Development |
| | 649-0168 | Somalia Central Rangelands Development |
| | 649-0108 | Central Rangelands Development |
| | 625-0944 | Niger River Basin Planning II |
| | 625-0911 | CILSS Ecologist |
| | 625-0915 | Niger River Basin Development Planning II |
| | 698-0427 | Environment Training and Resource Management |
| 34. Soil conservation measures (terracing, dams, desertification | 655-0006 | Cape Verde Watershed Management |
| | 615-0172 | Kenya Arid & Semi-Arid Lands Development |
| | 688-0205 | Mali Land Use Inventory |
| | 649-0122 | CDA Forestry (Phase 1) Refugee Reforestation |
| | 649-0108 | Somalia Central Rangelands Development |
| | 621-0143 | Arusha Planning & Village Development |
| | 621-0160 | Lutheran World Relief Village Environment Improvement |
| | 635-0202 | Soil and Water Management Unit |
| | 635-0203 | Mixed Farming & Resource Management |
| | 698-0410.35 | Community Forestry School Tree Nursery Program |
| | 685-0224 | SODESP Livestock Production |

## APPENDIX C

## LIST OF ACRONYMS

| | |
|---|---|
| ABEDA | Arab Bank for Economic Development in Africa |
| ABS | Annual Budget Submission (AID) |
| ABD | Arab Development Bank |
| AIP | Accelerated Impact Program (AIP) |
| 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 |
| EDA | 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 Europeens de Developpement/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 |


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