

**POSTHARVEST FOOD SYSTEMS
for the
CENTRAL AFRICAN REPUBLIC**

Submitted to:

Mr. Herbert Miller
Acting Mission Director
USAID
BP817
Yaounde, Cameroon

Submitted by:

Volunteers in Technical Assistance (VITA)
1813 North Lynn Street, Suite 200
Arlington, Virginia 22209 USA

July 1984

POSTHARVEST FOOD SYSTEMS IN THE CENTRAL AFRICAN REPUBLIC

I. SUMMARY.....	1
II. THE PROBLEM.....	2
III. THE PROJECT.....	4
1. Background.....	4
2. Conformity with CAR's Priority.....	5
3. Goals, Purposes and Strategies.....	5
4. Location.....	6
5. Beneficiaries.....	9
6. Project Management.....	10
- Administrative Framework.....	10
- Role of Africare.....	12
- Resource Team.....	12
- Home Office Support.....	13
7. Outputs.....	14
8. Inputs.....	16
- GOCAR.....	16
- Peace Corps.....	18
- VITA/USAID/Africare.....	18
IV. PROJECTED ACTIVITIES AND PLAN OF WORK IN FIRST PHASE	23
V. CANDIDATE HIGHLIGHTS.....	29
VI. BUDGET.....	32

APPENDICES

- I. Organization Capability Statements
- II. Candidate Resumes
- III. USAID Contracts and Other References

I. SUMMARY

Volunteers in Technical Assistance (VITA) and Africare propose a five-year Postharvest Food Systems Project to increase food availability in selected provinces of the Central African Republic (CAR) by reducing postharvest losses. The attached project design was prepared by a VITA/Africare field team in May 1984, drawing from the experiences of a previous FAO project and AID missions between 1979 and 1984. The design calls for a cooperative agreement between USAID and VITA, with Africare as subcontractor to VITA.

Several aspects of the agricultural sector in CAR are known. First, agricultural production has been stagnant, indeed apparently declining on a per capita basis. Secondly, the country suffers from cyclical food shortages primarily before the new harvest. This situation is aggravated in drought years. Thirdly, the physical environment of high humidity and rainfall support is a presumption of economically significant postharvest food losses.

The VITA/Africare postharvest food systems (PHFS) project is intended to increase the availability of food through decreasing postharvest food losses, and reducing labor required for food processing. The Project will undertake a thorough baseline study of present needs, resources, and practices, and simultaneously make a number of different technologies available to increase the small farmers' options for storage, drying, preparation, etc. Individual farmers or groups will choose and adapt the ones best suited to their specific needs. From the outset, the process of the PHFS activities will be to work directly with the farmers--both men and women--to understand their priorities and capabilities and to adapt technologies that reflect those concerns.

The first phase of the five-year PHFS Project will include:

- a baseline study on the food loss problem;
- initial technical interventions concentrated in the Paoua area;
- an assessment of the postharvest losses and the village setting in which they occur at five locations in both Ouham and Ouham-Pendé; and
- training for Government of the Central African Republic (GOCAR) extension agents from several agencies.

The second phase, years three and four, will draw on findings of the studies and experiences in Paoua to expand technical activities to the five target areas where the studies have

been completed. It is possible--in fact likely--that Project results will differ in Ouham and Ouham-Pendé due to cultural, agricultural, and dietary differences. These differences are expected and have been built into Project planning. The final year of the Project provides funding and technical assistance for a national program to transfer experience gained from this Project to other areas of the CAR.

VITA and Africare intend to field a five-person team to carry out this project:

- A project director, who will direct the project, maintain liaison with GOCAR and USAID, and handle details of accounting, logistics, and procurement.
- A grain storage specialist, who will remain throughout the Project.
- Two social scientists, who will initially carry out food loss assessments and gather social data. They will be trained in grain loss methodology by VITA before arrival at post. As the Project evolves, they will do extension work and train Central Africans who will replace them.
- A food processing specialist, who will be assisted by three Peace Corps volunteers. Their duties will focus on labor saving methods directed mainly at women, and they will assist in the grain loss reduction work.

The design team has arranged with the Ministry of Rural Development and the High Commission of Plan for the Agence Centrafricaine pour le développement de Ouham-Pendé (ACADOP) to be the principle cooperating agency for the first phase of the PHFS Project. Other agencies that will be involved in project training and extension include the Société Centre Africaine pour le Développement Agricole (SOCADA), the parastatal cotton agency that also is involved in food production, and the Community Development Organization, which currently has agents in the project area. GOCAR contributions to the Project include counterpart national staff, housing for the director, access to workshops and the garage at Paoua, and a donation of equipment left over from the FAO project.

The PHFS Project has been designed to take maximum advantage of VITA's system of volunteer expertise and existing data base. A VITA volunteer advisory panel will review and make recommendations on project activities. In addition, the Project will draw heavily on Africare's integrated rural development experience in Africa.

II. THE PROBLEM

The Central African Republic is one of the poorest countries in sub-Saharan Africa, with an average estimated \$300 per capita income that falls to \$200 in rural areas. Family cash incomes may be as low as \$100. Economic development, always difficult to achieve because of the country's distance from seaports and railroads, stagnated during the years of mismanagement under the Bokassa regime and the subsequent world recession. Between 1979 and 1981, the Gross Domestic Product (GDP) fell at an average rate of three percent per year from a positive growth rate during 1977-78 average at 3.5 percent per annum. There has been some improvement in recent years, with a two percent growth in GDP in 1983. The large services component of the GDP has been a major burden on the economy. It is getting larger and larger as migration from rural to urban areas accelerates and exacerbates income disparities between the rural poor and urban dwellers.

The current government, intending to redress this economic imbalance, launched the 1982-85 National Action Program, aimed at moving toward financial equilibrium, improving infrastructure, rehabilitating agriculture, and helping small farmers.

Food and Nutrition

Agriculture provides employment to some 80 percent of the population. Nonetheless, the rapid growth in the size of towns (the population of Bangui grew by 34 percent between 1975 and 1981), with a particularly high migration of younger people, means that the rural areas are finding it increasingly difficult to feed themselves as well as the townspeople. According to available information, food crop production declined significantly during the period of 1973-74 and 1977-78. There have been steady but modest increases since then; however, the 1982-83 production remained slightly lower than the 1973-74 production. With a population growing at an annual rate of 2.5 percent, per capita food availability has declined steadily. Estimates based on production and population figures show that per capita food production decreased from 255 kg in 1973-74 to 204 kg in 1982-83. If this rate of decline continues, the country will have a food problem approaching a crisis by the end of this decade, even in normal years. A crisis will certainly take place in years of drought.

Until recently, development activities in the agricultural sector have concentrated on industrial cash crops and small farmers have received little encouragement to grow more food. All but a few more prosperous ox-plow farmers continue to practice shifting hoe cultivation. Time and energy are two major constraints to increasing production. With the exodus of young men from the countryside, women in particular are

increasingly burdened. The many long hours of work in the fields are followed by laborious effort in postharvest processing. Infant mortality rates in the project target area are believed to be as high as 200 per 1000. Both in town and country, the population's nutritional status is substandard and farmers and their children are often reduced to one meal of cassava per day during the busy planting season prior to the next harvest. According to a UNDP/FAO 1977 nutrition survey, total calorie supply was equivalent to between 70 and 79 percent of the total requirement. According to a recent FAO assessment, productivity of farmers is reduced by 50 percent when the daily diet covers only 75 percent of the requirement. Child malnutrition in the Prefecture of Ouham in the project target area has been estimated by the Bossengoa Nutrition Center for children up to six years of age, as follows:

adequately nourished children:	40 percent
mildly malnourished children:	35 percent
severely malnourished children:	25 percent

The long hours worked by women make it difficult for them to prepare adequate meals for their children, even if the food should be available.

Postharvest Practices

Because of CAR's climate, food grains are grown, harvested, stored, and processed for food under warm, moist conditions. These, coupled with inadequate field and village drying and, especially, storage unprotected from rodents and insects, result in a serious potential for losses. The general load of losses is not known but there are extreme variations with the potential for losses as high as 20 percent. All of these factors and the present unpredictable levels of losses in a situation where the farmers and nation have inadequate reserves exacerbate the entire problem.

III. THE PROJECT

Background

In 1980, a decision was made to resume AID bilateral assistance to the CAR. Following that decision, a small multi-component rural development project that included fish ponds, rice cultivation, and beeswax production was implemented near the end of 1982. Postharvest Food Systems (PHFS) is the second project.

The Project has developed over a period of several years, starting with an initial FAO grain storage effort in the Paoua target area (1979-81). The FAO project was short in duration, only 18 months of activity, and had mixed results

from a technical point of view. It did, however, have considerable impact in sensitizing the rural population to the issue. Following a preliminary mission by AID specialists to Ouham and Ouham-Pendé in May-June 1983, the USAID Mission in Yaounde concluded that, in view of the absence of an AID representative in CAR, the proposed Project should be designed and executed by a PVO with agricultural and development experience.

An experienced manager of complex field projects, VITA was keenly interested in this one, for VITA has a long-standing concern about postharvest food systems. Its Small Farm Grain Storage, co-published with Peace Corps, is recognized as one of the best publications in the field. Africare, also, is committed to the concept of integrated development. VITA and Africare were chosen to carry out the task, and this project paper is the work of the VITA/Africare design team. The team was charged with designing the PHFS Project during the period of May 7 to June 7, 1984, in CAR and with the USAID Mission in Yaounde.

Conformity with CAR's Priority

The PHFS Project is in keeping with the Government's priorities, as specified in the 1983-1985 National Action Program, to help improve the living conditions of the rural poor and to reduce the high degree of regional income disparity. While much of current development assistance is concentrated in the industrial cash crop sector, a number of interventions are complementary to the USAID-supported projects. These include the FAO-funded food production project in Ombello M'Poko, the food production components of the World Bank support to SOCADA, and UNICEF/UNDP assistance to appropriate technology and community development activities. The PHFS Project will form one of the largest components in this area of assistance.

Goals, Purposes, and Strategies

The goals of the Project are to increase food availability in the CAR, to raise small farmers' incomes, and to contribute to an improvement in the nutritional status of the population.

The Project's purposes are to extend food storage and reduce postharvest food losses, both quantitatively and qualitatively, as well as to reduce labor in postharvest processing.

The strategy is based on the assumption that improvements in the postharvest system are possible without using levels of technology or materials not available locally. The Project's principle is one of working with farmers. It will place at their disposal a variety of techniques, developed as a result of two-way communication between project and farmers. The

range of innovations for storage, drying, processing, etc., will allow individuals or groups to choose those most appropriate to their needs and resources. Through this participatory approach, farmers will have made a major contribution to the identification of improvements: it is expected that this will encourage a spontaneous diffusion of innovation outwards from selected target villages.

Although institution-building is not a component of Project design, GOCAR agencies will be given every opportunity to work closely with the Project. In addition to providing direct training to Ministry of Rural Development officials seconded to the Project, a PHFS training and follow-up program for village level agents will be developed in collaboration with agencies such as SOCADA, ACADOP, and Community Development Department. This will also allow the project to reach indirectly many farmers in addition to those with whom it will be working directly (see figure 1).

The PHFS Project is divided into three phases:

- o A two-year initial phase devoted to a baseline study, the introduction of some simple technologies, and the orientation of village-level agents.
- o A two-year phase of full activities in all target zones, concentrating on training and extension with continued evaluation of new techniques.
- o A one-year phase to assist GOCAR in transferring the experience gained from the Project to other areas of the country.

Location

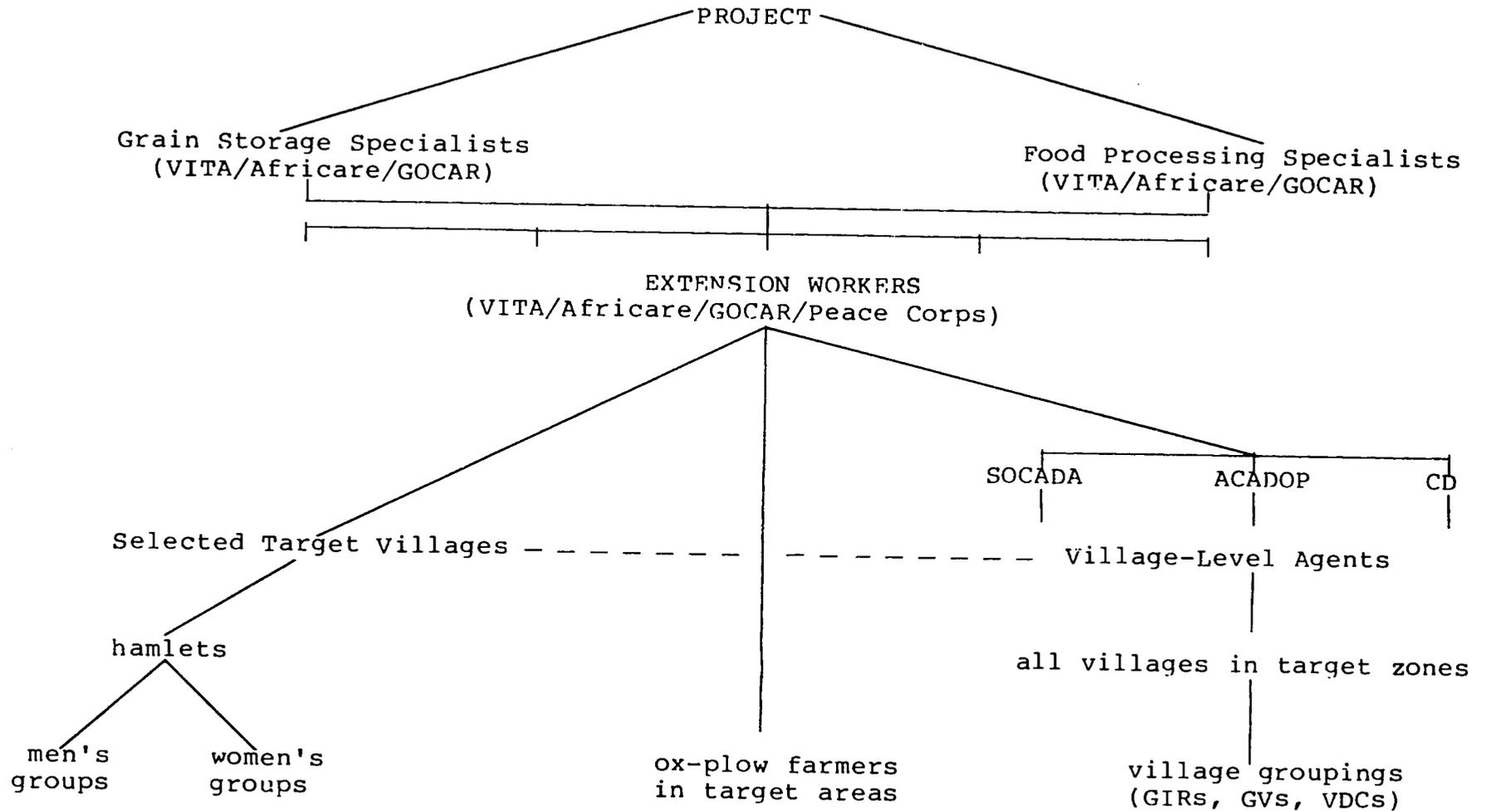
The Project target area comprises the prefectures of Ouham and Ouham-Pendé in the northwest of the country, bordering Cameroon and Chad. The area forms part of the "Cotton Zone," which stretches across the west and central savannah regions of the CAR. It is an extensive rolling plateau, with an average altitude of about 600 meters (figure 2).

The Cotton Zone has an intertropical climate with temperatures ranging between 18°C and 35°C (annual average 27°). The rainy season is well-defined (April/May to October). Annual rainfall ranges from 1,300 mm to the north to 1,700 mm in the south.

The people of Ouham and Ouham-Pendé practice shifting agriculture with some hunting, fishing, and gathering. In pre-colonial times they lived in small extended family units scattered through the bush and close to the fields they were currently farming. Today, most of them live in roadside villages with population sizes of between 200-500 people. The

Figure 1

PROJECT EXTENSION STRATEGY



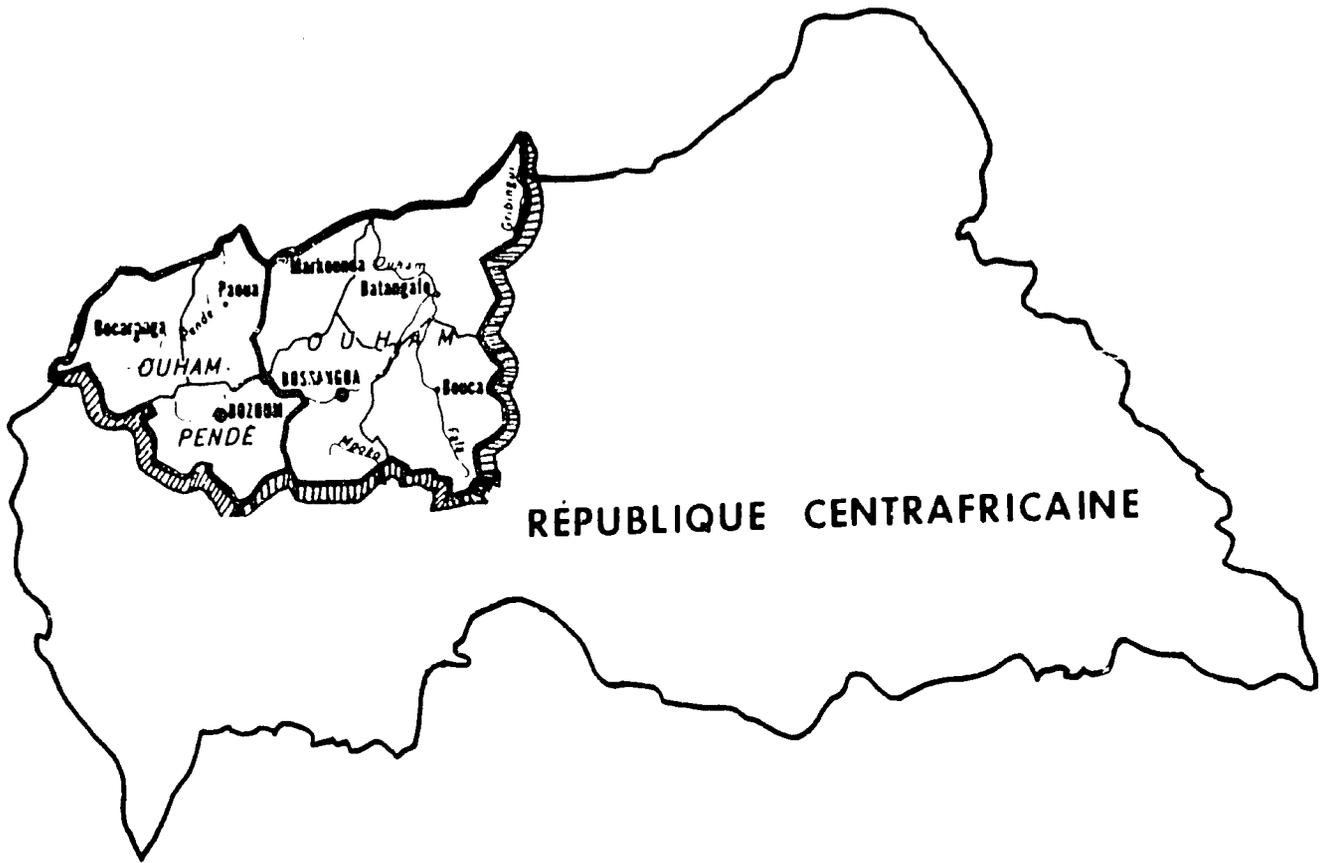


Figure 2
Project Target Area Map

larger villages are in fact collections of contiguous hamlets largely independent of one another. Each village has a government-recognized headman -- but often the most influential persons in the village are the most prosperous and dynamic farmers.

Cotton is the main cash crop of the area, grown by most farmers as the first crop in a three-to-four-year cycle of cultivation. In the second year, associated food crops are grown: sorghum/groundnuts/cassava/maize/beans, and in the third year (and sometimes a fourth) cassava continues to be harvested. More sorghum is grown in the northern part of the Project area, with maize becoming a more important crop further south, along with cassava. For the two prefectures, estimated annual production of the main food crop is 34,000 tons of sorghum, 94,000 tons cassava, 50,000 tons groundnuts, 11,000 tons of maize.

Main sources of cash income for small farmers other than cotton, are the sale of food produce, game and fish, honey and wax, wild plants and vegetables, and beer brewed from honey and sorghum. Men and women sell and buy as individuals not as a couple, but men take parts of the wives' proceeds. No statistical information is available about the relative importance of men's and women's incomes.

Beneficiaries

The population of the two prefectures is estimated at about half a million in 1984, 20 percent of the total population of the CAR. The Project will be working in five discrete target zones within this area, selected on the basis of known variations in environment, agricultural activity, postharvest practices, and cultural and linguistic groupings. The zones are, in fact, strips of all-weather roads along which the villages lie. The zones have been identified in relation to SOCADA's own plan of action, which involves dividing each of its administrative sectors into "intensive" or "extensive" zones of action. SOCADA is placing a greater number of field agents in the "intensive" zones and is, among other actions, placing greater stress of food production. The Project Zones One to Four (see map) are identical to three intensive zones of SOCADA, with SOCADA's Paoua zone divided into two Project zones because of cultural and agricultural differences between the areas north and south of Paoua town. The Project's fifth zone, the road from Nana Bakassa to Leré (the "boucle"), is only a part of SOCADA's larger intensive zone of action in the sector of "Bossanqoa Nord."

A specific profile of each zone will be developed during the course of the baseline study.

The numbers of people living in the zones can be calculated only approximately as only information about the numbers of

cotton planters is available. It is not clear whether this means all or most adult men and women, or simply "household heads." Taking this into account, estimates of the total population for the five zones range from 82,000 to 165,000.

POPULATION IN FIVE TARGET ZONES OF CAR

Name of Sector In Which Intensive Zone is Located	Total Population Size (estimated)	
(1) Bocaranga	24000	48000
(2)& (3) Paoua	21000	42000
(4) Bossangoa Sud	27000	54000
(5) Bossangoa North	10500	21000
Total	82500	165000

The Project will work directly with farmers in five villages in each zone, i.e. a total of 25 villages or about 12,000 people (including children). In addition, it will work with ox-plow farmers in the zones where ACADOP is working (about 1,400 men). Finally, the Project will reach a greater number of farmers indirectly, through training and follow-up support to village level agents in the target zones, as well as through spontaneous diffusion from farmer to farmer.

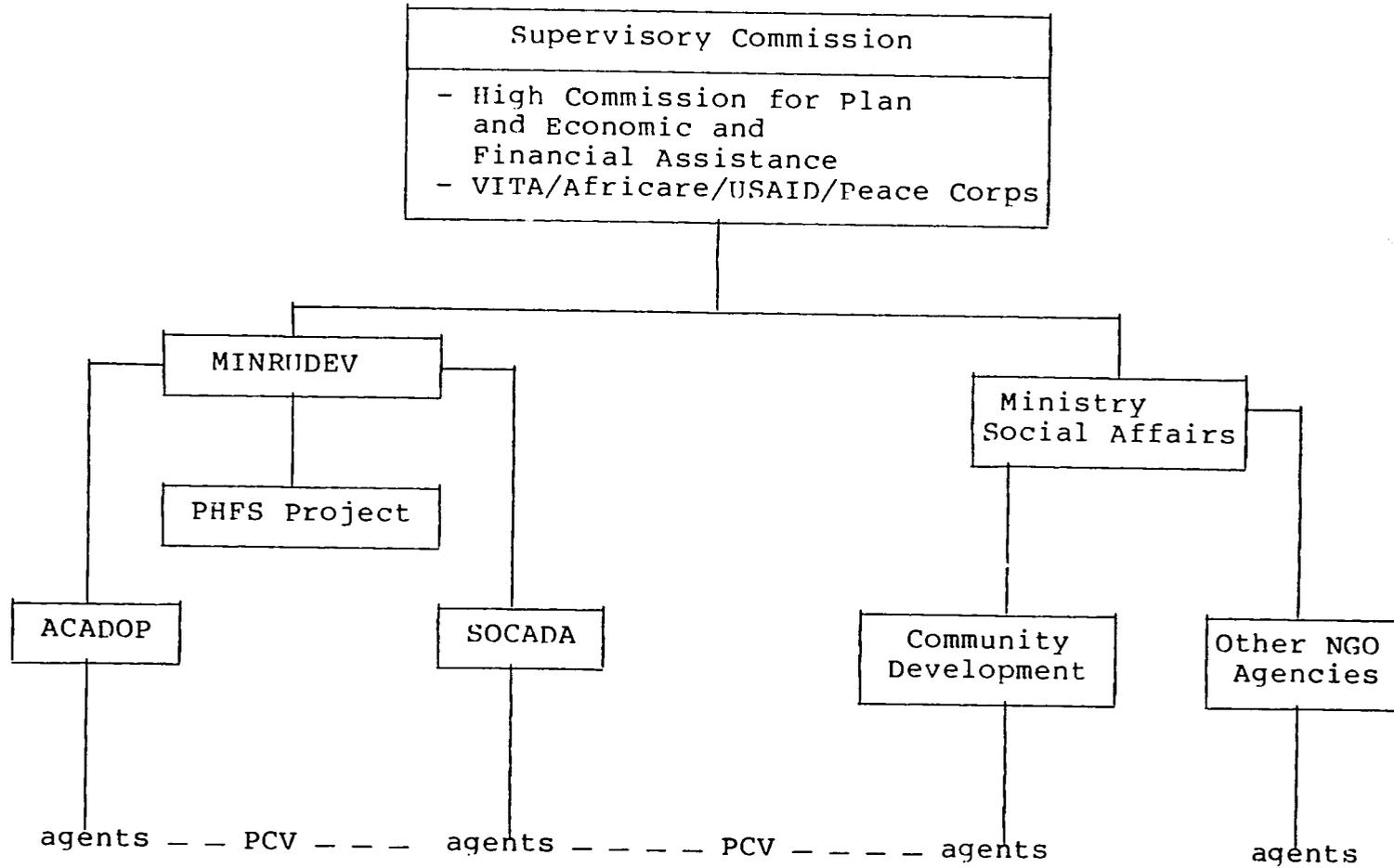
Project Management

Administrative Framework. Within the GOCAR administration, overall supervisory responsibility for the Project will rest with the High Commission for Plan and Economic and Financial Cooperation. VITA/Africare with USAID and Peace Corps will be the other members of a tripartite supervisory committee (figure 3). The Ministry of Rural Development will be the responsible technical ministry and it will appoint Central African specialists to be attached to the project. The project will be working primarily with institutions directly under the Ministry, ACADOP and SOCADA. ACADOP is responsible for an animal traction program and assorted community development activities in Ouham-Pendé, while SOCADA is a parastatal company with the mandate, throughout the Cotton Zone, to provide agricultural extension services for both cotton and food crops. Other GOCAR institutions, not attached to the Ministry of Rural Development, such as the Community Development Department, may also wish to benefit from the Project's activities. The tripartite committee will ensure proper coordination among these GOCAR institutions, Project personnel, and the High Commission for Plan.

In the initial phase of Project activity it is expected that the main GOCAR cooperating agency will be ACADOP, based at

Figure 3

ORGANIZATION CHART - PHFS PROJECT



Paoua in Ouham-Pendé. In the following phase extension activities will also be carried out in Ouham in cooperation with SOCADA.

Role of Africare. VITA, as the grantee, will assume overall managerial responsibility for the project and will handle all logistical, procurement and home office support operations. As subcontractor, Africare will contribute two team members--the food processing specialist and one extension specialist--who will work under the supervision of the VITA Project Director and be fully integrated into the team. Africare will participate further by planning Project activities, monitoring Project progress, participating in evaluations, and providing counsel from its own long experience in agricultural and rural development projects.

Resource Team. A number of institutions, world leaders in the area of postharvest food conservation, have agreed to lend their expertise to the VITA/Africare effort. This outstanding support team includes the Food and Feed Grain Institute of Kansas State University, the vertebrate pest management section of the Denver Wildlife Research Center, the Postharvest Institute for Perishables of the University of Idaho, the Tropical Development and Research Institute of London (formerly the Tropical Products Institute), the Non-Formal Education Center of Michigan State University, and the Farming Systems Support Project of the University of Florida. Team members will lend their expertise as needed--for technology development, orientation of field staff, supply of short-term consultants. Both the Kansas and Idaho Institutions, for example, train students from Africa, and the Wildlife Research Center has long experience with vertebrate pest management in Africa. Expertise from Michigan State University will be useful in developing non-formal training techniques in cooperation with local trainers. Other team members will participate as appropriate.

Home Office Support. The project staff based in CAR and short-term consultants will be backed up by the facilities and experienced project management, information resources, publications, and administrative staff of VITA. The VITA home office staff assigned to monitor and assist the CAR project is composed of well-seasoned administrators experienced in complex logistical planning and coordination for development projects in Africa. For the most part, the projects they administer are USAID-funded, and many of them involve collaboration with other PVOs. Some staff also have direct management and administrative experience with a collaborative VITA/USAID small grants program, which assisted entrepreneurs and others in developing countries in the production and dissemination of small-scale renewable energy technologies.

VITA's Director of Regional Operations for Africa will ensure ongoing institutional focus on project activities. A VITA Project Manager will provide important liaison between VITA and:

- o Africare
- o Cooperating organizations
- o Short- and long-term specialists
- o VITA Volunteers
- o USAID/Washington.

VITA editorial staff will fine edit major reports and the end-of-project summary for style and clarity, and help prepare training and dissemination materials.

Technical inquiry coordinators at VITA's home office will be active throughout the project, responding to requests for information from technology specialists and the field staff, as necessary. VITA's international staff of technical inquiry coordinators are experienced in their fields, generally bringing both formal education and technical experience in developing countries to their jobs. They turn daily to the resources of VITA's documentation center, one of the world's foremost collections on small- and medium-scale technologies for developing countries. VITA's inquiry service has extensive experience in dealing with farmers' technology information needs.

VITA inquiry coordinators and the rest of the VITA staff also are supported in their work by 4,400 "VITA Volunteers." This computerized roster of international experts in energy, agriculture, construction, and other fields has long been VITA's special resource, providing the organization with expert advice on practically any subject. VITA Volunteers assist VITA by serving on consultancies and technical panels, answering technical inquiries, writing how-to publications, and in many other ways.

As noted earlier, VITA brings to the CAR project considerable experience managing major overseas projects. Its overseas experts have worked to develop commercially viable, fuel-efficient cookstoves in the Sahel; renewable energy technologies in Rwanda; energy technologies and construction cooperatives for refugees in Somalia; energy policies and technologies in Djibouti, etc.

VITA administrative staff will perform support services such as arranging for procurement and shipping of equipment and materials; budgeting; air travel and visas for the short-term specialists; handling routine needs of short- and long-term

specialists, such as payment, personnel matters, and correspondence; and typing, word processing, photocopying, and other support to the Project Manager, as needed.

Outputs

The major results the PHFS Project expects to achieve are listed below. Part IV of this document outlines the activities and plan of work for the Project's first phase.

- o **Detailed information on the postharvest food systems in the project target areas.** The baseline study, building on the information acquired in the earlier FAO project, will provide the project with data on the location and quantification of postharvest grain losses, culturally and economically feasible interventions, and the determination of social and economic benefits.

The study is justified by the Project's emphasis on technical innovation in an unknown environment. Its wide scope of information will reduce the possibility of ineffective or even detrimental activities. The combination of on-farm testing, loss assessment, and other information will result in a complete storage and postharvest management system for project participants and other farmers in the Caltar zone of the CAR. From its findings, quantitative and qualitative indicators will be determined and used for measuring subsequent progress of the Project.

- o **Improved Village Technology.** These will be selected from as many as are feasible of the following; rodent control by rat guards, sanitation, improved drying techniques and drying areas; improved mechanical cleaning and grinding of grain; techniques to improve cassava processing; presses for cottonseed or groundnut oil; bird control during field drying; and insect control by improved drying, sanitation, cleaning, and storage. Here again, the FAO experiences will be useful. A target of 25 villages should have adapted these technologies by the Project's end. An indication of successful diffusion would be the appearance of certain techniques in villages other than the primary targets.
- o **Sustainable Training and Extension Programs.** Training and extension activities that are replicable in other parts of the country will be developed by the Project. The training and extension strategy will have two main components: (1) methods developed and implemented for direct communication with the farmers, both as individuals and in groups, and (2) methods for reaching the farmers through the provision of training and follow-up support to extension agents.

Concerning direct communication with the farmers, emphasis will be on the active involvement of farmers at all stages of activities, from loss assessment studies through to on-farm testing and evaluation. Appropriate audio-visual and educational methods will be developed and tested. Most of the target farmers are not only illiterate, they are not even familiar with posters, pictures, or other images. Communication is traditionally almost entirely through the spoken word and actual demonstration, and priority will be given to techniques involving these elements, such as instructive drama.

Village and hamlet-level workshops will be organized both for married couples and men and women farmers separately.

Regarding the training of extension agents, VITA and Africare will modify their own approach so as not to conflict too strongly with the way the agents are trained by their parent agencies. Short, subject-specific workshops will be held, on a zone by zone basis, two or three times each year and in collaboration with the agencies' own staff training services. After each workshop, follow-up visits will be made to ensure that the techniques and improvements being introduced are correctly demonstrated in the villages. Training workshops will be supported with video-tapes, slides, etc., and agents will be provided with manuals and posters to help them in the villages. Based on figures available for the number of village-level agents working in the five target zones, the total number of extension agents to be trained and supported by the Project would not be more than about 80. Most of this number will participate in introductory orientation workshops but half or more will probably drop out at this stage. A reasonable target for well-trained and participating agents would be between 20-30.

- o **A Monitoring and Evaluation System.** It is vital to a grassroots appropriate technology project not only to know the baseline situation but from there on to be aware of the quantity and quality of changes that are occurring. The basic technical tool for measuring changes in food loss levels will be the method developed initially for the loss assessment study. Simple indicators will also be developed for measuring the rate of diffusion of the improved techniques both within the target villages and in other pre-identified "control" villages. Guidelines will be developed for observing qualitative, non-measurable changes in the target villages as a result of project activities. The reaction of the farmers will be carefully followed, but at the same time, they, and the village agents, will be encouraged and assisted to become part of the

monitoring and evaluation system. For example, certain monitoring activities could be given to farmers' groups or village development committees. The participation of all will be designed into the system. The data, collected on a routine basis throughout the Project lifetime, will serve as a basis not only for continuous evaluation and probable modification of Project strategies, but also for an end-of-project evaluation.

- o **Official and public awareness of postharvest problems.** The interest and support of the various rural development agencies will be major contributing factors to effective project implementation and to the chances of PHFS activities continuing through institutionalized channels after the end of the project. In addition to ensuring a general understanding of the problems involved and the Project's activities in the post-harvest sector, special emphasis will be placed on providing information to the local authorities and to the supervisors of the village-level agents with whom the Project will be working. Informal half-day workshops will be organized and exploratory brochures and videotapes produced and regularly updated.
- o **A Technical Report.** VITA will prepare and publish a technical report at the end of the Project. It will be made available to people around the world who are concerned with postharvest food systems.
- o **Impact Evaluation 1995.** While the funds for such an evaluation are not included in the budget of the present Project, VITA and Africare will undertake, assuming availability of USAID funding, an impact evaluation five years after the end of the Project in order to assess the extent to which the techniques introduced by the Project have spread within the country as a whole. The findings of the evaluation will be published and made available to all those concerned with PHFS Project design and evaluation.
- o **A Program for Transferring PHFS Actions to other Parts of the CAR.** This will be the major output of the Project's third phase and will be developed from the studies and investigations made by Project-trained GOCAR personnel working in another selected region. This output might include a project document for submission to other donors.

Inputs

GOCAR

Personnel. Four specialists from the Ministry of Rural Development will be assigned to work as full-time members of the

Project team. Detailed job descriptions will be developed, but the main areas of activity for each one will be as follows:

1. Grain storage and handling specialist, based in Paoua and concerned with the identification and testing of improved storage techniques at the farmer level.
2. Food processing specialist, based in Paoua and concerned with the identification and testing of improved postharvest processing techniques. Ideally, this post would be filled by a woman with agricultural qualifications and some community development experience.
3. An extension specialist, based either in Paoua or Bocaranga, concerned with training village agents and villagers in improved postharvest techniques in the Prefecture of Ouham-Pendé.
4. An extension specialist, based either in Nana Bakassa or Bossangoa, concerned with the training of village agents and villagers in the Prefecture of Ouham.

Administrative personnel and support services will be provided by ACADOP, including the full-time secondment of an administrative officer plus typing and clerical assistance as needed.

Land. Land will be provided for building additional housing and office space at Paoua; included are water, sewage, and electrical hook-ups.

Buildings. A house for the use of Project staff, as well as warehouse space, will be made available on the ACADOP compound at Paoua.

Equipment. Laboratory equipment at Paoua donated to ACADOP by the FAO postharvest losses project.

Other Services. In addition, GOCAR will provide such other services as:

- o Utilization of the ACADOP radio network Bangui/Paoua/Bocaranga and the SOCADA radio links Bangui/Bossangoa/Nana Bakassa/Pendé.
- o Utilization of the audio-visual services of the Community Development Department, the Project paying only the cost of materials and artists' time.
- o Duty-free importation of all Project vehicles, equipment, and materials throughout the Project lifetime, as well as importation of expatriate staff personal effects, consumables, medicines, etc.

**Contribution of GOCAR estimated in US Dollars, in thousands
(total of five-year period)**

1. Personnel	80.0
2. Land and utilities correction	24.0
3. Buildings	40.0
4. Equipment	1.0
5. Radio network	4.5
6. Audio-visual services	<u>10.0</u>
TOTAL	159.5

Peace Corps

Volunteers. Peace Corps will provide three volunteers with qualifications either in agriculture or the social sciences. Two will be based in Paoua and one in Bossangoa. Each volunteer will contribute to the following activities:

- o postharvest loss assessment study
- o on-farm testing and demonstration of improved techniques
- o training workshops for village-level agents and for farmers' groups.

Training. French-language training for the volunteers will be provided in the United States and followed by a course in Bangui or Bukavu. Sango language training will be provided in a one-month's intensive course on arrival in Bangui.

A four-week technical training course will be conducted for the volunteers at Kansas State University on specific topics, such as insect and rodent control, grain storage, postharvest processing.

VITA/Africare/USAID

A budget is provided at the end of this section. The following description and justification of the major components is enumerated according to budget line items.

I. Personnel

A. Long-term professional

The salaries indicated in the budget are ceilings; actual salaries will be fixed on the basis of each person's previous qualifications and expenses.

1. Project Director. This person will be based in Bangui for the full term. The Project Director will be responsible for planning and scheduling Project activities, supervising Project personnel, and maintaining liaison with GOCAR and USAID officials. He will also develop and run administrative and logistic support systems, maintain project accounts, appoint and train local staff, and manage project equipment and materials.
2. Storage and Handling Specialist. This person will be appointed for phases I and II of the project and will also serve three months of the third transfer phase, returning for the final three months of that phase. He will be based in Paoua and will be responsible for overall management and direction of project activities; he will also contribute his specialist skills in the identification and introduction of appropriate improved PHFS technologies at the village level. He will be responsible for the execution of the village environmental component of the Baseline Study and for the design and overall supervision of the loss assessments study.
3. Food Processing Specialist. This person will be appointed for phases I and II of the project based at Paoua, the specialist will be concerned with identifying and introducing improved methods of postharvest processing, linked to better food conservation and nutrition. Because postharvest processing is the task of women, it would be desirable that a woman specialist be appointed to the post. This specialist will also collaborate in undertaking the village environmental study.
- 4 & 5. Extension Specialists. These two persons will arrive in CAR about April/May 1985. However, funds are allowed for these posts from the start of the Project in the event that highly suitable candidates will no longer be available at the later date. They will be based in zones one and five of the Project target area, each living in a selected village. Initially responsible for conducting the loss assessments study in their respective target zones, they will be primarily in charge of

developing and implementing appropriate training and extension strategies throughout the target area, supervising the work of the Peace Corps volunteers working in the other zones.

Note that all five specialists will be recruited without accompanying dependants.

B. Short-Term Consultants

The number of short-term consultants will be limited. The Project will seek to identify suitable qualified local consultants. However, expatriate consultant services will be specifically required for (a) a review of the baseline study prior to the start of the loss assessment component; (b) an evaluation of the Project's first phase; (c) an evaluation of the Project's second phase; and (d) design of a monitoring and evaluation system to support GOCAR in the transfer of improved PHFS systems to another region.

C. Local Staff

Two logistics officers will be based in Bangui and Paoua, the two clerk/typists in Paoua and one in Bangui. Drivers, messengers, and watchmen will be appointed as appropriate in the various project sites.

II. Allowances

A. Rent and Utilities

The sum allotted allows for the rental of a house in Bangui to serve as a home/office for the country representative. At Paoua and the other project sites, personnel will be living in GOCAR-provided lodging or in specially constructed or renovated housing.

III. Travel and Per Diem

Journey of GOCAR representative to Washington:

This travel will take place towards the end of the project's third phase and will allow GOCAR to discuss with VITA/Africare the final preparation of the strategy for the transfer of PHFS technologies to other parts of the country.

Travel of Project Director:

Funds will be available for a review meeting with VITA and Africare each year and for two trips per year to USAID/Yaoundé during the project's lifetime.

IV. Project Equipment and Supplies

- A. Construction: In addition to the GOCAR house, warehouse space, and laboratory being made available on the ACADOP compound at Paoua, the project will need a second (duplex) house, a small guest quarters, and office space. These buildings will conform in cost and quality with those already built at ACADOP with German financing. Suitable alternative accommodation in Paoua town is not available, although it is expected that Peace Corps will continue to rent a small house in the town. Funds are available for modest improvements, if required, for this PC house as well as the house to be rented by the third PCV in Bossangoa. Peace Corps will contribute \$125 per volunteer for ensuring the houses are secure. Other construction costs total \$10,000 for two simple houses for the extension specialists. Built of local materials, each house would be similar to the other houses in the village, but with improved security, fenced yard, a pit latrine, shower and kitchen, and screens on windows and doors.
- C. Technical equipment: expenditure will be fairly low as the Project intends to use only appropriate equipment for demonstration and teaching purposes. No farmers or villages will receive gifts of equipment but will be taught to make their own on the basis of project prototypes.
- D. Camping equipment: is required for the village environment component of the baseline study.
- E. Audio-visual equipment: will include a video teaching unit, a 35 mm camera, two Polaroid cameras and cassette recorders. Funds are allotted for any necessary replacements in the third year.
- F. Household furniture: will be made by local artisans. Electric and kerosene refrigerators and cooking stoves, however, will be imported duty free.
- G. Vehicles: The heavy expenditure for vehicles is required by the fact that the Project team will be working in five separate target zones. Motorbikes are not recommended, even for the PCVs, because of the hazardous road conditions and the frequent need to

carry training materials and equipment. A small 4WD covered vehicle, such as a Suzuki, will be made available to the extension specialists, the PCVs, and the Central African specialists working in the project. Larger 4WD station wagons, such as those made by Nissan, will be used primarily by the three senior expatriate members of the team and also for visiting consultants. The allocation of one vehicle per project team member means that all staff, expatriate and Central African, can achieve optimum performance in reaching farmers and villages at frequent intervals. The vehicles will be replaced after three years, ensuring that the GOCAR members of the Project team will be able to continue PHFS activities into the third, transfer phase.

- H. Communications-radio: The Project will use the radio links between Bocaranga, Paoua, and Bangui already established by ACADOP. However, short wave transmitters/receivers will be supplied to the team members working in the three outlying zones--one, four, and five.

V. Other Direct Costs

- B. Training and teaching materials will be developed and reproduced inside the country, with assistance as needed from VITA's editorial staff. In the preparation of manuals, posters, flip charts, etc., the Project will work with the services of the audio-visual section of the Community Development Department.
- D. Technical supplies and grain purchases. Grain purchases will be made in connection with on-farm trials and demonstrations.
- E. Interpretation services will be particularly needed at the start of the Project and will involve the temporary hiring of local people who can translate from a local language, such as Gbeya or Talé, into French. All project team personnel will be expected to speak fluent French and Sanqo and the extension specialists should subsequently become competent in the language of the zone in which they are working.
- F. Logistical support to GOCAR staff is a necessary budget component to ensure that the Central African specialists can travel on Project business within the target area. The per diem rates are calculated in accordance with those of Central African specialists working directly for ACADOP.

- G. Vehicle operation and maintenance costs have been calculated on the basis of figures provided by ACADOP. The project will continue to fund operating costs during the final, transfer phase.
- I. Extension and training costs are necessary for providing board and lodging for village level agents attending project workshops. some funds will also be used for the organization of orientation and briefing seminars for senior GOCAR officials in the target area, as well as for village-level workshops.
- J. Training costs for PCVs at Kansas State University (Note the budget must be amended to include this item).

It is proposed that each year two Central African specialists or village extension agent supervisors attend appropriate training courses at the regional crop storage and plant protection training centre in Yaoundé.

- VI. Volunteer Participation--VITA will contribute a significant amount of VITA Volunteer time to this Project for planning, advising, providing technical assistance and information, evaluating certain aspects of the Project as well as Project materials, and providing other services as needed.

IV. PROJECTED ACTIVITIES AND PLAN OF WORK IN FIRST PHASE

The two-year first phase will be limited in geographical area and will emphasize assessment of food losses and evaluation of the social setting in which they occur. The reason for this cautious approach is to avoid immediate administrative problems and to obtain a realistic view of food losses in the area. At this point the extent of these losses is unknown.

Assessment would take place in the five zones noted in Ouham and Ouham-Pendé. Specific technical interventions would be concentrated in the Paoua area during this phase.

Paoua has been chosen as the initial intervention point for the following reasons:

- o ACADOP, which is based in Paoua, is a logical Central African counterpart; its staff is in place and a number of village groups are already functioning. ACADOP investments in logistical support will reduce start up time and increase the amount of money available for technical activities.

- o The FAO project that operated in the area between 1979-81 appears to have made local farmers sensitive to the issue of grain losses. The design team was impressed with farmers' efforts to keep grain clean on their own and is convinced that they would be receptive to additional measures to reduce losses. Material left over from the FAO project will be available from ACADOP.

Major project activities during the first phase are listed below, followed by a bar-graph presentation (figure 4) of the plan of work as now conceived. This plan of work will be revised as necessary by the project director within three months of his arrival in the CAR. A field manual for use by Project staff is being prepared and submitted along with this proposal.

- o **Recruiting and orienting of VITA/Africare team:** Team members recruited by VITA and Africare will undergo an intensive training and orientation period prior to their arrival in the CAR. Training will emphasize the methodology to be used for information gathering as well as general country orientation. Upon arrival in Bangui, team members will participate in an intensive one-month course in Sango before commencing their duties.
- o **Developing administrative and logistical support:** This will be the task of the Project Director stationed in Bangui.
- o **Coordinating Project and Other Agency Activities:**
 - GOCAR institutions in Bangui, particularly the Ministry of Rural Development, the High Commission of Plan, SOCADA, and the Community Development Department: The project will assist the Ministry of Rural Development in designating and orienting the Central African cadres to be attached to the project. As discussed in the Inputs section of this paper, the Ministry of Rural Development will designate five Central African National experts to work as members of the project team. After a period of orientation, the team will develop specific job descriptions for each one.
 - GOCAR officials and institutions in the target area: The Project team will ensure that local authorities and rural development agencies be kept fully informed, from the start, as to the reasons for the project's presence.
 - Other development projects working in similar fields both in the target area and elsewhere in the country: Of particular interest are other grass roots

Figure 4

PLAN OF WORK

	1984				1985								1986											
	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A
PERSONNEL ACTIONS																								
Project Director Arrives Bangui	_____																							
Admin. Officer Arrives Bangui	_____																							
Processing Specialist Arrives Bangui	_____																							
Sango Course	_____																							
Project Team to Paoua Extension Specialist Training U.S.	_____																							
PCVs Training/U.S.	_____																							
PCVs Training/Bangui	_____																							
PCVs Operational	_____																							
Extension Specialist Language Training	_____																							
Extension Specialist Operational	_____																							
Technical Consultancy/ Baseline	_____																							
ADMIN/LOGISTIC ACTIONS																								
Equipment Procurement	_____																							
Home Rental Bangui	_____																							
Construction ACADOP Compound	_____																							
Construction Ext. Spec. Home	_____																							
TECHNICAL ACTIONS																								
Develop Work Plan/GOCAR	_____																							
Area Orient. On Site Selection	_____																							

	1984				1985					1986															
	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	
TECHNICAL ACTIONS CONT'D.																									
Workshop/Key Officials/ Village Agents				---	---																				
Village Study							-----	-----	-----	-----															
Loss Assessment Study																									
Workshop/Village Agents Plan of Actions/ Phase II											-----	-----	-----	-----											-----
REPORTS/EVALUATIONS																									
Progress Report to VITA																									
Review at VITA/U.S.																									
Progress Report																									
Evaluation Mission																									

projects such as the activities of the CREFS in the central part of the country, various programs of the Community Development Department and the IFAD-funded Ombello-Mpoko Project to the south of Ouham.

- Research and training institutes including the University Agricultural Faculty at Mbaïki, the Soumbé research station near Bossangoa and the crop protection regional training centre (CREPHY) in Yaoundé.
- o **Conducting the baseline study and evaluating its results:** Initial village orientation meetings will be organized with the help of local field agents from ACADOP, SOCADA or other agencies; questions and discussion will be encouraged. If necessary, additional follow-up meetings may be organized separately with the village women who would be too shy or pressured to speak or ask questions when men are present. Throughout the study period the investigations will continually check that the farmers are understanding the purpose of the research and investigators will be ever prepared to explain the project and its goals to anyone who asks. On completion of the study, the project team will report its principal findings to the participating villages and invite further discussion, comment, and suggestions about appropriate steps now to be taken. This reporting process will help farmers think more carefully about how they themselves can bring about improvements in their postharvest system.

The study will consist of four main components as follow:

- A village level study to learn about the interaction between environment, production, technology, and social organization and to pinpoint positive and negative factors with regard to the successful introduction of innovations. March to June 1985.
- A postharvest loss assessment study to identify the kinds and quantities of losses occurring and to ascertain the main points of difficulty in the existing postharvest system for each of the five zones. July 1985 to June 1986.
- An economic and marketing study, incorporating some data from the previous two studies but also collecting additional information from other sources about the farmers' participation in the cash economy.
- A study of other key factors including an evaluation of the region's absorptive capacity for sorghum grinding mills and an assessment of import needs (from Bangui to target area) and local merchant willingness/ability to assure supply. From time to time.

- o **Conducting introductory and orientation workshops for village-level agents:** These will provide the opportunity for a two-way exchange of ideas and will also provide information concerning the target zones and the villages to be selected for the baseline study and initial technical interventions.
- o **Identifying, and introducing innovations in Postharvest Technology:** Selected sites near Paoua will be used to introduce and monitor new technologies as outlined in the manual. Follow-up and evaluation of innovations made by the FAO project will also be done.
- o **Assessing various educational tools and strategies in promoting postharvest innovation:** The Project team will start by exploring the kinds of techniques currently being used in other grass roots projects in the target area and evaluate their effectiveness. Contact will also be made with the CD Department's audio-visual services concerning their possible involvement in the production of manuals and posters. Ideas and suggestions will be sought during the orientation and training workshops of the village level agents and, above all, the Project team will reflect on its own experience of village culture and attitudes, gained during the baseline study. Trial runs of various methods will be conducted in selected villages.
- o **Developing a monitoring and evaluation system:** The system should be in place by the end of the first phase, having been developed as an output of the baseline study.
- o **Fielding first phase evaluation mission:** This mission will be composed of representatives from GOCAR, VITA, Africare, and USAID and will be scheduled 24 months after the project has started. The mission will examine all aspects of the Project's strategy and activities so far but will especially concentrate on the following issues:
 - Functioning of the logistics and support system
 - Effective establishment of linkages
 - Timely recruitment of VITA, Africare, and GOCAR personnel
 - Findings and significance of the baseline study
 - The training and follow-up of village level extension workers
 - The participation of target farmers and their initial reaction to project activities.

- o **Drafting of a detailed implementation plan for the Project's second phase:** This will be written by the Project Director in consultation with all staff members and will be based on the recommendations of the evaluation mission.

V. CANDIDATE HIGHLIGHTS

Brief descriptions of the candidates identified to fill the PHFS Project team positions are included in this section. Complete resumes will be found in the Appendix.

Project Director

Alan T. Miller, VITA's candidate for Project Director, has a background of almost 20 years working in and for developing countries, primarily in West Africa. His extensive experience in working with government and villagers in rural development projects to introduce new technologies to address their problems and his solid project management skills and record make him an excellent project director candidate.

Miller is presently country representative in Niger for Euro-Action ACORD, an international consortium of private voluntary agencies. In that position, and as a regional representative previously, he has been responsible for developing projects, establishing organization offices in-country, overseeing project implementation, managing the input of various technical consultants, and maintaining close liaison between the members and management of the consortium and the host-country governments.

As technical projects coordinator and country director for Save the Children's Community Development Foundation in Cameroon, Miller's work built a nationwide program and launched a number of projects that served as models for expanded services, primarily in the areas of water supply, roads, housing, etc.

Miller was also the assistant director for Africa programs for Private Agencies Collaborating Together (PACT), where he identified and monitored project opportunities throughout Africa. In Niger he was the associate country director for the Peace Corps for rural development projects. In addition, as a Peace Corps volunteer in the mid-1960s he was the technical adviser to the Cameroon Handwork Cooperative, which became a model for artisans' cooperatives in Africa.

Miller holds a bachelor's degree in history and has done graduate work in African studies. He speaks fluent French. He is committed to the PHFS Project and will be available in September 1984.

Storage and Handling Specialists

VITA has two excellent candidates for the Food Storage and Handling Specialist position. As of the submission of this proposal, both are out of touch in Africa. From contacts made with families and spouses and from previous conversations, we believe both are highly interested in the project. We anticipate selecting one of them to be the food storage and handling specialist by July 25, 1984.

Francis N. Bolduc, who holds a master's degree in grain storage management from Kansas State University, was the director of an FAO project in Mali that aimed to improve storage facilities and introduce small mills and other equipment. He has also served as a short-term consultant to FAO food conservation projects in Zaire and the Congo. In addition, he was coordinator for grain storage activities in Benin as a Peace Corps volunteer. He speaks fluent French.

Roger Vinita is currently serving on a long-term consultancy for FAO in village-level grain storage in Mauritania, an area in which he has extensive experience. He has also worked as a grain storage specialist for USAID in Rwanda, and was for five years a Peace Corps grain storage expert in Dahomey. He holds an M.A. in food storage engineering and has completed his doctoral coursework in the area. He speaks fluent French.

Extension Specialists

One of the two extension specialists, Carl Lindblad, has been selected. The second specialist will be chosen from among the three candidates (Dorothy Bell, Alethea Rudd, and Benjamin Way) whose brief biodata follow.

Carl Lindblad is a recognized authority in food and grain conservation through community development extension and in postharvest loss prevention. He has ten years experience and has worked in 17 African countries. He has done extensive field work for FAO, Peace Corps, USAID, USDA, and others, and has published several books and articles on the assessment and prevention of grain losses. He is the co-author of Small Farm Grain Storage, published by VITA for the Peace Corps, and of Postharvest Grain Loss Assessment Methods. He holds a bachelor's degree in sociology and has done graduate work in the area of science, technology, and public policy. He is fluent in French. Lindblad is proposed by VITA to be the senior extension specialist and will be available to the Project in October 1984.

Benjamin S. Way has five years of experience in the Central African Republic, as a consultant to USAID and the Peace Corps and as a Peace Corps volunteer. His USAID consultancy included technical and administrative functions related to

four AID projects and assistance with the design of a new development strategy for the country. For Peace Corps, he was responsible for the operation of a fisheries training program, and as a volunteer he had served as extension agent and project manager for the inland fisheries project. He holds a B.S. degree in environmental resources management and will be awarded an M.S. degree in agricultural economics in December 1984. He speaks fluent French and Sango. Way is available to join the Project in December 1984.

Dorothy S. Bell was a Peace Corps consultant to the National Bureau of Nutrition for the CAR where she helped prepare a national nutrition survey that included applied research on food and nutrition, marketing surveys, food transformation studies, etc. She has also conducted research for Peace Corps' midwife program, studied projects involving women in Ouham-Pendé, and assessed the social soundness of proposed USAID projects in the area. She holds a master's degree in anthropology and is fluent in French and Sango.

Alethea S. Rudd is currently a consultant to the Hunger Action Center where she designs and conducts training programs and coordinates anti-hunger activities. She has also conducted a number of training programs for Peace Corps volunteers in such areas as forestry extension, vegetable and field crop production, and cross cultural communication. As a Peace Corps volunteer in Upper Volta she organized community development projects for rural women--wells, cooperative agriculture, health and nutrition education, etc. She holds a B.S. degree in agricultural extension and is fluent in French.

Food Processing Specialist

A Food Processing Specialist candidate with extensive training, experience in Africa, and fluent French will be proposed by July 31, 1984. VITA and Africare are currently reviewing candidates suggested by the leading food technology universities in the United States.

CAR POSTHARVEST FOOD SYSTEMS BUDGET

U.S. Dollar Expenditures (in thousands of dollars)

I. PERSONNEL	<u>Total</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Notes</u>
A. Salaries - Overseas Staff:							1
Project Director	158.86	34.00	36.04	38.20	40.49	10.12	
Storage and Handling Specialist	139.99	32.00	33.92	35.96	38.11		
Senior Extension Specialist	118.11	27.00	28.62	30.34	32.16		
Subtotal - Overseas Salaries	416.96	93.00	98.58	104.49	110.76	10.12	
B. Salaries - Local Staff:							
Logistics Officers (2)	59.40	24.60	10.50	11.60	12.70		
Clerk/Typists (2)	17.65	3.60	4.00	4.30	5.20	0.50	
Drivers (3)	25.60	5.40	6.00	6.50	7.20	0.50	
Messenger/Cleaners (2)	4.25	0.80	0.88	0.97	1.60		
Watchmen (15)	26.00	5.60	6.10	6.80	7.40	0.10	
Subtotal - Local Salaries	132.85	40.00	27.48	30.17	34.10	1.10	
C. Salaries - Home Office							
Project Manager (75%)	96.19	19.71	20.89	22.15	23.48	9.95	
Technical Adviser (5%)	7.57	1.34	1.42	1.51	1.60	1.70	
Administrative Assistant (75%)	50.88	10.43	11.05	11.72	12.42	5.27	
Africa Operations Director (10%)	23.37	5.00	5.30	5.62	5.65	1.80	
Editor (7%)	14.60	2.59	2.75	2.91	3.08	3.27	
Inquiry Coordinator	5.11	1.05	1.11	1.18	1.25	0.53	
Subtotal - Home Office Salaries	197.71	40.12	42.53	45.08	47.40	22.51	
D. Short-Term Consultants	38.00	15.00	8.00	6.00	4.00	5.00	2

U.S. Dollar Expenditures (in thousands of dollars)

	<u>Total</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Notes</u>
I. PERSONNEL - CONTINUED							
E. Fringe Benefits (32% of salaries)							3
Overseas Staff	133.43	29.76	31.55	33.44	35.44	3.24	
Home Office	63.27	12.84	13.61	14.43	15.19	7.20	
Subtotal - Fringe Benefits	196.70	42.60	45.16	47.87	50.63	10.44	
F. Occupancy (14% of home office salaries)	27.68	5.62	5.95	6.31	6.65	3.15	4
Subtotal - Personnel	1,009.90	236.33	227.59	239.92	253.62	52.33	
II. ALLOWANCES							
A. Post Differential (20% of base)	83.39	18.60	19.72	20.90	22.15	2.02	5
B. Temporary Lodging for Overseas Staff	7.00	4.50			2.50		6
C. Rent and Utilities							7
Bangui	79.09	13.00	14.30	15.73	17.03	19.03	
Project Sites	18.00	4.40	4.40	4.40	4.40	0.40	
Subtotal - Rent and Utilities	97.09	17.40	18.70	20.13	21.43	19.43	
D. Household Storage	10.00	2.25	2.25	2.25	2.25	1.00	8
E. Air Freight Household	40.68	20.33			13.76	6.60	9
F. Excess Baggage (Staff and Consultants)	2.40	0.40	0.20	0.80	0.60	0.40	10
G. DBA and Medivac Insurance	12.74	2.93	2.90	2.99	3.08	0.84	11

U.S. Dollar Expenditures (in thousands of dollars)

	<u>Total</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Notes</u>
II. ALLOWANCES - CONTINUED							
H. Medical, Passport, Visas, Etc. (Staff and Consultants)	7.90	1.70	1.70	1.90	1.90	0.70	
Subtotal - Allowances	261.20	68.11	45.46	48.97	67.67	31.00	
III. TRAVEL AND PER DIEM							
A. Travel							
Project Staff	52.10	16.50	9.00	14.00	9.00	3.60	12
Consultants	18.90	2.70	5.40	5.40	2.70	2.70	
GOCAR Representative to U.S.	3.00					3.00	
Subtotal - Travel	74.00	19.20	14.40	19.40	11.70	9.30	
B. Per Diem - U.S.							
Project Staff	7.25	2.90	0.53	2.25	0.83	0.75	13
Consultants	3.18	1.13	0.80	0.45	0.40	0.40	
GOCAR Representative	1.60					1.60	
Subtotal - U.S. Per Diem	12.03	4.03	1.33	2.70	1.23	2.75	
C. Per Diem - CAR/Cameroon							
Project Staff in Bangui	10.40	2.07	3.10	2.20	2.53	0.50	14
Consultants	7.85	3.08	1.70	1.21	0.84	1.02	
Project Staff in Yaounde	2.00	0.40	0.40	0.40	0.40	0.40	
Subtotal - CAR/Cameroon Per Diem	20.25	5.55	5.20	3.81	3.77	1.92	
Subtotal - Travel and Per Diem	106.27	28.77	20.93	25.91	16.70	13.97	

U.S. Dollar Expenditures (in thousands of dollars)

	<u>Total</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Notes</u>
IV. PROJECT EQUIPMENT AND SUPPLIES							
A. Construction	98.00	98.00					
B. Office Furnishings and Equipment	15.00	9.00	3.00	1.00	2.00		
C. Technical Equipment	17.00	8.00	3.00	3.00	3.00		
D. Camping Equipment	2.00	2.00					
E. Audio-visual Equipment	15.00	10.00		5.00			
F. House Furnishings	19.40	19.40					
G. Vehicles (CIF Bangui):							
3 4WD station wagons	75.00	45.00		30.00			
1 4WD pick-up	30.00	15.00		15.00			
10 Suzuki jeeps	108.00	60.00		48.00			
Subtotal - Vehicles	213.00	120.00		93.00			
H. Communications-Radio	6.00	6.00					
Subtotal - Equipment and Supplies	385.40	272.40	6.00	102.00	5.00	0.00	
I. Shipping	40.50	30.00	1.50	7.50	1.50		
Subtotal - Project Equipment and Supplies	425.90	302.40	7.50	109.50	6.50	0.00	
V. SUBCONTRACT	535.71	130.95	121.76	126.46	153.42	3.11	

U.S. Dollar Expenditures (in thousands of dollars)

	<u>Total</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Notes</u>
VI. OTHER DIRECT COSTS							
A. Telex, Telephone, Postage, Etc.	19.00	5.00	5.00	5.00	3.00	1.00	
B. Training and Teaching Materials	48.00	4.00	12.00	20.00	12.00		
C. Office Supplies	12.00	3.00	3.00	3.00	3.00		
D. Technical Supplies and Grain Purchases	7.00	1.50	1.50	1.50	1.50	1.00	
E. Translation Services	16.50	7.50	5.00	2.00	2.00		
F. Logistical Support to COCAR Project Staff	19.00	3.80	3.80	3.80	3.80	3.80	
G. Vehicle Operation and Maintenance Costs	349.60	80.50	80.50	80.50	80.50	27.60	
H. Housing and Office Maintenance	48.00	12.00	12.00	12.00	12.00		
I. Extension and Training Costs							
Kansas University Training Workshops GOCAR Officials in Project Area	3.0	1.5		1.5			
Workshops Village Agents in Project Area	2.50	0.50	0.50	0.50	0.50	0.50	
Workshops Villages	12.60	1.80	1.80	3.00	3.00	3.00	
Training Courses CREPHY Yaounde	5.00	1.00	1.00	1.00	1.00	1.00	
	20.00		5.00	5.00	5.00	5.00	
Subtotal - Extension and Training Costs	43.10	4.80	8.30	11.00	9.50	9.50	
Subtotal - Other Direct Costs	562.20	122.10	131.10	138.80	127.30	42.90	
VI. TOTAL DIRECT COSTS	2,901.19	888.66	554.44	689.55	625.21	143.31	

U.S. Dollar Expenditures (in thousands of dollars)

	<u>Total</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Notes</u>
VII. DIRECT COSTS LESS PROJECT EQUIPMENT AND SUBCONTRACT	1,939.58	455.31	425.18	453.59	465.29	140.20	
VIII. CONTINGENCY (7.0% of VII)	135.77	31.87	29.76	31.75	32.57	9.81	
IX. DIRECT COSTS LESS EQUIPMENT AND SUBCONTRACT, PLUS CONTINGENCY	2,075.35	487.18	454.95	485.35	497.86	150.02	
X. OVERHEAD (32% OF IX)	664.11	155.90	145.58	155.31	159.32	48.00	15
XI. TOTAL DIRECT COSTS, CONTINGENCY AND OVERHEAD	3,701.08	1,076.43	729.79	876.62	817.10	201.13	
XII. VITA CONTRIBUTION	189.10	54.70	37.40	45.20	41.50	10.30	16
XIII. AFRICARE CONTRIBUTION	31.60	8.80	6.60	6.60	4.80	4.80	17
XIV. TOTAL PROJECT COST	3,921.78	1,139.93	773.79	928.42	863.40	216.23	
XV. TOTAL USAID COST	3,701.08	1,076.43	729.79	876.62	817.10	201.13	

COST PROPOSAL NOTES

In addition to the cost proposal description provided in the Project proposal, the following notes are provided.

1. It is estimated that salaries will be increased 6% each year to reflect the rise in cost of living and merit increases. VITA policy provides for merit increases of between 3 percent and 8.5 percent dependent on annual performance ratings. The following annual salaries apply to overseas and home office staff:

Overseas Staff

Project Director \$34,000
Storage Specialist 32,000
Extension Specialist 27,000

Home Office Staff

Project Manager \$26,283
Technical Adviser 26,287
Administrative Assistant 13,902
Africa Operations Director
50,000
Editor 37,000
Inquiry Coordinator 20,966

2. Short-term consultant travel and per diem are budgeted as follows:

Year 1: One trip, 12 weeks
Year 2: Two trips, six weeks
Year 3: One trip, three weeks
Year 4: Two trips, three weeks
Year 5: One trip, four weeks

3. The VITA fringe benefit rate is computed at 32 percent of salaries based upon a review of VITA's 1983 financial statements and projections of current fiscal experience. The fringe benefit pool includes: health and life insurance, retirement plan, FICA, unemployment insurance, workmen's compensation, sick leave used, personal leave used, and holidays.

4. VITA charges all projects with a portion of rent in direct proportion to the salary charged by home office staff. Currently the occupancy charge is computed by applying 14 percent of salaries of headquarters-based staff.

5. Post differential for VITA overseas staff is calculated at 20 percent of their base salaries.

6. Temporary lodging is calculated for five staff 35 days upon arrival at \$45/day and nine days prior to departure at \$55/day.

7. It is estimated that rent and utilities will be increased 10 percent each year for the Project Director's house and

office to reflect the rise in utility costs. Housing/office and utility costs are estimated as follows:

	Year 1	Year 2	Year 3	Year 4	Year 5
Bangui	79.09	14.30	15.73	17.03	19.03
Project Sites	18.0	4.40	4.40	4.40	0.40

8. Household storage is calculated at \$750 per staff person per year.
9. For 1800 pounds per person, air freight is calculated at \$3.71 per pound for three staff persons and at \$3.54 for one staff person plus \$200 each for handling and service charges. Additional funds included in year 3 for one staff replacement.
10. Excess baggage is calculated at \$200 per staff person and \$200 per round trip on seven consultant trips.
11. DBA insurance is calculated at 2.25 percent of overseas VITA staff base salary and consultants' fee; \$500 is budgeted for Medivac insurance.
12. At \$2,500 per trip for three staff persons, travel the first year includes \$7,500 for overseas assignments and return travel and \$5,000 the third year for replacement or home leave travel for two staff persons. Additional trips are budgeted each year for in-country travel, travel to Yaoundé for Project Director for consultation, and home office travel to CAR.
13. U.S. per diem includes 10 days of orientation at the VITA home office for project staff prior to taking up posts in CAR and approximately seven days each year for project director consultation at the home office. Funds are also budgeted for orientation of replacement staff at the VITA home office, and for debriefing at project conclusion. Per diem rates used were \$75 over the life of the project.
14. CAR per diem is calculated at \$57/day in Bangui and \$37/day up country. Cameroon per diem calculated at \$68/day in Yaoundé.
15. The VITA provisional overhead rate of 32 percent is negotiated yearly between AID/Washington and VITA. Documentation for the previous year's rate of 31 percent and VITA's proposal to AID/Washington for a new provisional overhead rate are attached. Overhead is charged against all direct costs except materials and equipment and the Africare subcontract.
16. Anticipated VITA contributions: VITA Volunteers in over 250 specialized topics are computer categorized for easy

access to provide a rapid response to information requests. For the CAR Project, VITA Volunteers in areas including, but not limited to, storage techniques, vertebrate control, preservation techniques, and field extension are anticipated to be called upon to contribute their knowledge. The following budget estimates the contribution from each of these areas.

Anticipated VITA Volunteer Contributions
Days/Cost in thousands of dollars

	1	2	3	4	5
Storage Techniques at \$200/day	68/13.7	56/11.2	68/13.6	62/12.5	15/3.1
Vertebrate Control at \$200/day	68/13.7	47/11.2	68/13.6	62/12.5	15/3.1
Baseline Study at \$200/day	68/13.7				
Preservation at \$200/day	41/8.2	37.5/7.5	45/9.5	42/8.5	10/2.0
Field Extension at \$200/day	30/ <u>5.4</u>	42/ <u>7.5</u>	45/ <u>8.5</u>	42/ <u>8.0</u>	10/ <u>2.1</u>
Total	54.7	37.4	45.2	41.5	10.3

17. Anticipated Africare Contributions (in thousands of dollars)

	1	2	3	4	5
Conducting Orientation	4.0				
Regional and Operations Officer 12 days at \$200/day	2.4	2.4	2.4	2.4	2.4
Director for International Development 12 days at \$200/day	2.4	2.4	2.4	2.4	2.4
Travel - 2 round trips to CAR for site visits	—	<u>1.8</u>	<u>1.8</u>	—	—
Total	8.8	6.6	6.6	4.8	4.8

NEGOTIATED INDIRECT COST RATE AGREEMENT

Date May 26, 1982

SUBJECT: Indirect Cost Rates for Use in Cost Reimbursement Type Agreements With the Agency for International Development (AID)

REFERENCE: RIG/A/W Audit Report No. 82-46 dated February 22, 1982 and VITA letter dated April 27, 1982.

CONTRACTOR: Volunteers in Technical Assistance
or
3706 Rhode Island Avenue
GRANTEE: Mt. Rainier, MD 20822

PART I - NEGOTIATED INDIRECT COST RATES (%)

<u>Type</u>	<u>Effective Period</u>		<u>Overhead Rate</u>
	<u>From</u>	<u>Through</u>	
Final	1-1-79	12-31-79	24.21
Final	1-1-80	12-31-80	29.00
Provisional	1-1-81	Until amended	31.00

Base of Application

Total direct cost but excluding subgrants, furniture, equipment, computer hardware, and software, security, and renovation costs.

Acceptance of the rate(s) agreed to herein is predicated upon the conditions: (1) that no costs other than those incurred by the grantee/contractor were included in its indirect cost rate proposal and that such costs are legal obligations of the grantee/contractor; (2) that the same costs that have been treated as indirect costs have not been claimed as direct costs; (3) that similar types of costs have been accorded consistent treatment; and (4) that the information provided by the grantee/contractor which was used as the basis for acceptance of the rate(s) agreed to herein is not subsequently found to be materially incomplete or inaccurate.

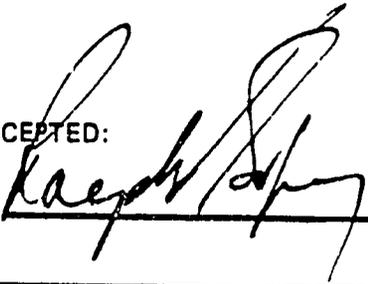
PART III - SPECIAL TERMS AND CONDITIONS

Pursuant to § 7-3.705 of the Agency for International Development Procurement Regulations (AIDPR), the negotiated indirect rates set forth in Part I of this Agreement are incorporated into AID Agreements shown below. This Agreement shall not change monetary ceiling, obligation, or specific cost allowance or disallowance provided for in the Contracts or Grants listed below or any Agreement between the parties.

<u>Contract/Grant Number</u>	<u>Amendment Number</u>	<u>Project Number</u>
AID/DSAN-CA-0182	16	936-5701
AID/DSAN-C-0020	7	931-0003
AID/SOD/PDC-G-0149	8	938-0157

ACCEPTED:

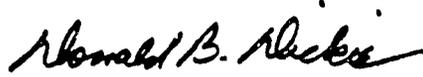
BY



Printed or Typed Name

Title

Date



Donald B. Dickie

CONTRACTING OFFICER
Overhead and Special Costs Branch
Services Operations Division
Office of Contract Management
Agency for International Development

cre

DISTRIBUTION:

<u>CM/ROD</u>		<u>CM/COD</u>		<u>CM/SOD</u>		<u>OTHER</u>	
AFR	x	AN	x	PDC	x	AAG/W	x PDC/PMS
NE		PE			x	CM/SD/SUP	x DS/DIU
LA		OTR			x	FM/PAD	x DS/EY
ASIA							



1983 Overhead Cost Proposal

Total expenses, per audited statements		\$3,368,952
Less:		
Awards and grants	\$121,335	
Publications servicing	37,393	
Building costs	339,639	
Project vehicles	34,839	
Prototype construction costs	94,749	
Furniture and fixtures	29,349	
Administrative costs	669,378	
Total adjustments		<u>1,326,682</u>
Total direct costs		<u>\$2,042,270</u>
Total administrative costs		\$ 818,831
Less:		
Bad debts	\$ 1,802	
Contract losses	3,920	
Depreciation on donated assets	8,368	
Adjustment for net occupancy expense	149,453	
Total adjustments		<u>163,543</u>
Total administrative costs		<u>\$ 655,288</u>

1983 Overhead Rate Calculation

$$\frac{\text{Administrative costs}}{\text{Total direct costs}} = \frac{655,288}{2,042,270} = 32.09\% \text{ or } 32\% \text{ overhead rate}$$

Phillipa P. Taylor
Director of Finance

Submitted April 10, 1984



ITEMIZATION OF OVERHEAD EXPENSES FOR CALENDAR YEAR 1983

Salaries	\$ 227,212
Employee Benefits	77,924
Sick Leave Used	28,976
Personal Leave Used	22,005
Legal and Accounting	15,000
Technical Consultants	27,633
Computer Services	12,318
Employee Training, Seminars	5,720
VITA Panels	342
Stationery and Office Supplies	14,482
Copier Expense	37,154
Telephone/Telex	40,226
Postage	16,124
Temporary Help	1,762
Publication Acquisitions	2,389
Delivery Service	4,258
Moving Expenses	96
Office Storage	1,580
Free Documents	46
Rent	34,776
Travel	38,198
Equipment Rental	1,123
Equipment Maintenance	3,407
Printing	7,590
Newsletter Expense	8,394
Recruitment Expense	312
Insurance Expense	499
Miscellaneous Expense	7,609
Depreciation and Amortization	17,025
Film Costs	608
Total Indirect Expenses	<u>\$ 655,288</u>

CAR POSTHARVEST FOOD SYSTEMS BUDGET (Africare)

U.S. Dollar Expenditures (in thousands of dollars)

	<u>Total</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Notes</u>
I. PERSONNEL							
A. Salaries-Overseas Staff:							1
Food Processing Specialist	131.24	30.00	31.80	33.71	35.73		
Extension Specialist	122.49	28.00	29.68	31.46	33.35		
Subtotal - Overseas Salaries	253.73	58.00	61.48	65.17	69.08	0.00	
B. Salaries-Home Office:							
Project Manager (5%)	12.04	2.41	2.55	2.70	2.86	1.52	
Secretary (5%)	3.77	0.75	0.80	0.85	0.90	0.48	
Subtotal - Home Office Salaries	15.81	3.16	3.35	3.55	3.76	1.99	
C. Short-Term Consultants	8.00		4.00		4.00		2
D. Fringe Benefits (24% of salaries)							3
Overseas Staff	60.89	13.92	14.76	15.64	16.58		
Home Office Staff	3.80	0.76	0.80	0.85	0.90	0.48	
Subtotal - Fringe Benefits	64.69	14.68	15.56	16.49	17.48	0.48	
Subtotal - Personnel	342.23	75.84	84.39	85.21	94.32	2.47	
II. ALLOWANCES AND COMMUNICATIONS							
A. Household Storage	6.00	1.50	1.50	1.50	1.50		4
B. Air Freight Household	34.50	13.80		6.90	13.80		5
C. Excess Baggage (Staff and Consultants)	1.00		0.20	0.20	0.60		6

U.S. Dollar Expenditures (in thousands of dollars)

	<u>Total</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Notes</u>
D. DBA and Medivac Insurance	7.89	1.81	1.97	1.97	2.14		7
E. Medical, Passport, Visa, etc. (Staff and Consultants)	4.40	1.00	1.20	1.00	1.20		
F. Telephone, Telex, etc.	1.90	0.40	0.45	0.50	0.55		
Subtotal - Allowances and Communications	55.69	18.51	5.32	12.07	19.79		

III. TRAVEL AND PER DIEM

A. Travel

Project Staff	15.00	7.50	2.50	2.50	2.50		8
Consultants	5.00		2.50		2.50		9
Subtotal - Travel	20.00	7.50	5.00	2.50	5.00		

B. Per Diem - U.S.

Project Staff	2.55	1.50		0.75	0.30		10
Consultants	0.80		0.40		0.40		
Subtotal - U.S. Per Diem	3.35	1.50	0.40	0.75	0.70		

C. Per Diem - CAR

Project Staff in Bangui	2.89	0.75	0.84		1.30		11
Consultants	1.68		0.84		0.84		12
Subtotal - Per Diem CAR	4.57	0.75	1.68		2.14		
Subtotal - Travel and Per Diem	27.92	9.75	7.08	3.25	7.84	0.00	

U.S. Dollar Expenditures (in thousands of dollars)

	<u>Total</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Notes</u>
IV. TOTAL DIRECT COSTS	425.84	104.09	96.79	100.53	121.96	2.47	
V. OVERHEAD (25.8%)	109.87	26.86	24.97	25.94	31.47	0.64	13
VI. TOTAL PROJECT COSTS	535.71	130.95	121.76	126.46	153.42	3.11	
VII. AFRICARE CONTRIBUTION	31.60	8.80	6.60	6.60	4.80	4.80	
VIII. TOTAL PROJECT COST	567.31	139.75	128.36	133.06	158.22	7.91	
IX. TOTAL USAID COST	535.71	130.95	121.76	126.46	153.42	3.11	

AFRICARE SUBCONTRACT COST PROPOSAL NOTES

1. It is estimated that overseas salaries will be increased 6 percent each year to reflect the rise in cost of living and merit increases. The following overseas salaries apply:

Food Processing Specialist	\$30,000
Extension Specialist	\$28,000

2. Short-term consultants are budgeted as follows:

Year 2:	One trip, three weeks
Year 4:	One trip, three weeks

3. The Africare fringe benefit rate is 24 percent of salaries.

4. Household storage is calculated at \$750 per person per year.

5. Air freight is calculated at 1,800 pounds per person, at \$3.71 per pound plus \$200 for service and delivery.

6. Excess baggage is calculated at \$400 for two consultant trips and \$600 for three overseas staff trips.

7. DBA insurance is calculated at 2.25 fee of overseas staff salary and consultant fee. Medivac insurance is estimated at \$500.

8. Project staff and Africare home office staff travel is calculated at \$2,500 per trip as follows:

Year 1:	\$5,000 Overseas Staff travel
	\$2,500 Home Office travel

Year 2: \$2,500 Home Office travel

Year 3: \$2,500 Overseas Staff Replacement Travel

Year 4: \$2,500 Home Office travel

9. For consultant travel and per diem see Item 2.

10. U.S. per diem is calculated at 10 days for project staff prior to taking up posts in CAR, 10 days in Year 3 for one replacement staff person, and two days each for two overseas staff members for debriefing in Year 4. Consultant per diem is calculated at five days per consultant trip.

11. Per diem in CAR is calculated for home office staff at 10 days in Year 1, 20 days in Year 2, and 25 days in Year 4. The rates used are \$57 in Bangui and \$37 up-country.

12. Per diem in CAR for consultants is calculated at 20 days for Year 2 and Year 4. The rates used are \$57 in Bangui and \$37 up-country.

13. The Africare approved provisional overhead rate is currently 25 percent.

NEGOTIATED INDIRECT COST RATE AGREEMENT

Date July 6, 1984

SUBJECT: Indirect Cost Rates for Use in Cost Reimbursement Type Agreements With the Agency for International Development (AID)

REFERENCE: Africare Proposal, dated May 1, 1984, and discussion with the Director of Finance and Administration, Africare on June 22, 1984

CONTRACTOR: Africare, 1601 Connecticut Ave., N.W., Washington, D.C. 20009

or
GRANTEE:

PART I - NEGOTIATED INDIRECT COST RATES (%)

<u>Type</u>	<u>From</u>	<u>Effective Period</u>	<u>Through</u>	<u>Overhead</u>
Provisional	May 1, 1981		Until Amended	25.8 (A)
Provisional	May 1, 1981		Until Amended	12.9 (B)

Base of Application

(A) Level I - Personnel, travel and allowance, training and other direct costs.

(B) Level II - Supplies, equipment and construction costs.

Acceptance of the rate(s) agreed to herein is predicated upon the conditions: (1) that no costs other than those incurred by the grantee/contractor were included in its indirect cost rate proposal and that such costs are legal obligations of the grantee/contractor (2) that the same costs that have been treated as indirect costs have not been claimed as direct costs; (3) that similar types of cost have been accorded consistent treatment; and (4) that the information provided by the grantee/contractor which was used as the basis for acceptance of the rate(s) agreed to herein is not subsequently found to be materially incomplete or inaccurate.

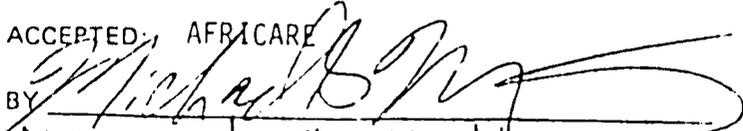
PART II - ITEMS NORMALLY TREATED AS DIRECT COSTS

PART III - SPECIAL TERMS AND CONDITIONS

Pursuant to 5 7-3.705 of the Agency for International Development Procurement Regulations (AIDPR), the negotiated indirect cost rates set forth in Part I of this Agreement are incorporated into AID Agreements shown below. This Agreement shall not change any monetary ceiling, obligation, or specific cost allowance or disallowance provided for in the Contracts or Grants listed below or any other Agreement between the parties.

<u>Contract/Grant Number</u>	<u>Amendment Number</u>	<u>Project Number</u>
AID-AFR-G-1468	8	690-0201
AID-AFR-G-1470	9	686-0231
AFR-0226-G-SS01062	6	682-0226
AFR-0204-G-00-1068	3	611-0204
AID-AFR-G-1690	6	685-0247
AFR-G-3071	2	698-0422
AFR-G-3067	1	698-0421
AFR-G-0443	2	698-0413

ACCEPTED: AFRICARE

BY 
Michael G. Miller

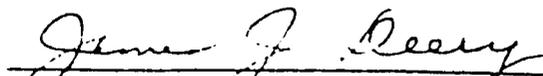
Printed or Typed Name

Director of Finance & Administration

Title

July 6, 1984

Date



CONTRACTING OFFICER
 Overhead and Special Costs Branch
 Services Operations Division
 Office of Contract Management
 Agency for International Development

JJD

DISTRIBUTION:

<u>CM/ROD</u>	<u>CM/COD</u>	<u>CM/SOD</u>	<u>OTHER</u>
X AFR	AN	PDC	AAG/W
NE	PE		CM/SD/SUP
LA	OTR		FM/PAD
ASIA			

APPENDIX I
ORGANIZATIONAL CAPABILITY STATEMENTS

Volunteers in Technical Assistance

Capability Statement

April 1983

**Volunteers in Technical Assistance, Inc. (VITA)
1815 North Lynn Street, Suite 200
Arlington, Virginia 22209 USA**

VOLUNTEERS IN TECHNICAL ASSISTANCE (VITA)

A small group of scientists, engineers, and business people with a sense of social responsibility created VITA in 1959. It has grown into a major private, voluntary organization that provides technical assistance to people and groups in more than 100 developing countries. VITA is registered as a 501(c)(3) nonprofit organization.

VITA serves as a link between the frontiers of science and technology and the gates of the village. It numbers among its ranks some of the world's leading professionals, people who share their time and skill to put science and technology to work for people in the world's poorest countries. VITA seeks practical ways to make such modern technologies as microcomputers, communications satellites, or remote sensing photography of direct benefit to the village. But it also helps people to use their own skills and resources in new and more efficient ways to provide food, water, energy, and shelter. It has worked with academics, inventors, entrepreneurs, governments, and development organizations to develop and diffuse many useful technologies.

The heart of VITA is its worldwide network of more than 4,000 engineers, business people, farmers, energy experts, and others who volunteer their know-how to help others. A professional staff works with these consultants to offer a wide range of services, including by-mail problem solving and technology design, on-site consulting, project planning, management, training, feasibility studies, and publications.

VITA offers services in most technical areas, but emphasizes technologies in these fields: renewable energy applications, agriculture and food processing, water supply and sanitation, housing and construction, and small business development. In addition, it is a leader in helping developing countries use modern communications technology to meet their practical information needs in these critical areas.

Resources

VITA brings together unique resources in an integrated system. Its professional staff is experienced in technical fields, business, computer technology, project planning, communications, and library science. More than 4,000 of its "VITA Volunteer" experts worldwide serve on field consultancies and technical panels, answer inquiries, and offer

many other services. VITA maintains one of the world's leading libraries on technologies of proven interest to developing countries. And it has published more than 100 books and manuals on these subjects. VITA also publishes VITA News, an important magazine on technology and development.

VITA's professional application of these resources has gained it wide recognition for scientific work. Its services have been recognized in the U.S. National Paper for the United Nations Conference on Science and Technology, in the Harvard Business Review, in various professional journals, and by government development agencies, corporations, and other PVOs. These services are explained below.

Technical Information Service

VITA's core function for more than 22 years has been to provide effective technical information in response to written inquiries from people in developing countries. It has responded to more than 43,000 inquiries from small businesses, foreign governments, foreign aid agencies, universities, and individuals. People ask questions on everything from designing a windmill rotor to managing a small business. A trained staff of experts answers each request, using information from VITA's Documentation Center, volunteer experts, and worldwide institutional contacts. During 1982, VITA answered 2,507 inquiries on energy, agriculture, crafts and industries, food and nutrition, construction, water resources, and other subjects.

Much of the material in VITA's extensive Documentation Center is on microfilm and unavailable elsewhere. The collection will soon be accessible through a computerized bibliographic data base. The library, which exchanges information regularly with more than 200 other institutions, has a classification system that has been adapted by numerous other information centers throughout the developing world.

Project Management

VITA effectively designs and manages major projects to help improve the quality of life of people in developing countries through the transfer of technologies that are environmentally benign, culturally acceptable, and economically sustainable. It provides fast action and efficient operation for development agencies, governments, corporations, and others.

Recent VITA efforts have included:

- * A major program to **develop and disseminate renewable energy technologies** in developing countries. The five year, multi-million dollar project has included a small grants program, field projects, new publications, and expanded information services. It is sponsored by the U.S. Agency for International Development (USAID).
- * Coordination of a multi-organizational effort in the Sahel region of Africa to design, test, and disseminate **improved wood-burning cookstoves**. VITA has sent full-time stove experts to West Africa, sponsored consultancies, conducted on-site workshops, published manuals, and arranged sociological studies. It supports stove activities in Thailand, Sri Lanka, the Caribbean, Zimbabwe, and elsewhere. Its work is supported by IBM Europe, USAID, the Dutch Government, African governments, and others.
- * Coordination of efforts to provide **technical assistance to refugees**. VITA experts in Thailand tested cooking fuels and stoves to help Cambodian refugees conserve firewood. In Somalia, VITA helped introduce efficient cooking stoves and create refugee cooperatives that use rammed earth presses to make building blocks. Its work has been supported by the U.N. High Commissioner for Refugees, Interchurch Response for the Horn of Africa, and USAID.
- * Development of **renewable energy technologies in Djibouti**. An expert VITA team is working with the government of this small East African nation to develop a national energy institute that will have both policy-making and research and development functions. The institute aims to reduce fossil fuel consumption and introduce renewable energy technologies. It is testing wind-powered pumps, photovoltaic cells, solar ponds and distillation units, low-cost housing methods, etc. The 4-1/2 year contract is with USAID.
- * A major effort in the Caribbean Basin to **disseminate wind energy technology** to pump water and generate electricity on islands and coastal areas. The initiative is supported by the Public Welfare Foundation, the Rockefeller Brothers Fund, Private Agencies Collaborating Together (PACT), the Pan American Development Foundation, the General Electric Foundation, and USAID.

- * A long-term program to develop **agricultural opportunities** for the Bay Islands of Honduras. The project, which is supported by PACT, Inc., emphasizes production, marketing, and effective application of information.

The Technology of Information

VITA is concerned not only with disseminating information on useful technologies, but with the technology of information transfer itself. It is adapting state-of-the-art communications technology to the practical information needs of developing areas.

VITA is computerizing abstracts and bibliographic data of its unique library holdings, and is microfilming much of the library collection for on-site use by information centers in developing countries. It was a major contributor to the DEVELOP Data Base on technology ideas, recently established by the Control Data Corporation. VITA teaches students from developing countries about computer information systems through its Information Resources Training Course, which is offered twice annually (see p. 7). It can also provide computer and information consulting services to Third World institutions. Its work has been supported by Control Data, the Apple Computer Company, and USAID.

In a related field, VITA has launched a pioneering program to use a low-earth orbit satellite to enable developing countries to transfer technical information. The project, which will use advanced digital communications equipment, will make rapid satellite communications more economical for developing areas. It is being organized in cooperation with the AMSAT voluntary group of ham radio operators.

Consultancies and Referrals

VITA responds to requests from development agencies, businesses, and others by providing the names and bio-data of consultants for specific assignments. Each person is screened carefully for interest and the right skills. Most names come from VITA's staff and roster of "VITA Volunteer" experts, which is computerized according to each person's skills and background.

VITA provided more than 225 on-site consultancies and consultant name referrals during 1981-1982. These consultants advised on housing construction in Zimbabwe, waste disposal in Colombia, enterprise development in Indonesia, and

dozens of other subjects. In addition, VITA helps groups fill long-term positions for specialized staff members in developing countries.

Support for Business and Enterprise

Development occurs most efficiently when individuals are free to make technology choices and related decisions in their own self-interest. VITA considers small enterprise development to be among its major goals. More than two-thirds of the technical inquiries to which it responds are from people hoping to start or improve products and businesses.

VITA provides these requesters with information on technical processes, marketing, and financing, as well as with other resources. For example, it recently helped a small Thai firm to make and sell rice husk fuel logs, an Egyptian company to improve poultry production, a Caribbean firm to expand wind-mill sales, and a Guatemalan group to manufacture solar water heaters.

VITA uses its information resources to assist firms in many ways. It can spot potential market demands in developing countries by analyzing its thousands of technical inquiries, as well as other information. And it is interested in specific technologies that will best meet these demands, or which will make efficient use of available skills, equipment, and capital resources.

VITA also serves as a liaison between U.S. companies and counterpart firms in developing countries. It can help establish distributorships, franchises, licensing arrangements, subcontracts, etc. For example, VITA represented several American firms during a trade mission to India sponsored by the Overseas Private Investment Corporation, helping to identify possible Indian distributors for innovative American products. It has been helping several U.S. solar firms to identify possible collaborators in developing countries. VITA also is a member of the board of the U.S. Export Council for Renewable Energy (ECRE).

Finally, VITA can help multinational firms and others to implement corporate social responsibility programs in countries where they have commercial interests.

VITA's technical expertise and understanding of the conditions in developing countries, as well as its many contacts, make it uniquely qualified to encourage business enterprise in these and other ways. Its business activities are sup-

ported by such corporations as General Electric, IBM, Exxon, Conoco, American Express, and others.

Technology Development, Training, and Studies

VITA works with local institutions on long-term efforts to develop and promote needed technologies. For example, VITA and the Mexican Instituto de Investigaciones Electricas (IIE) are testing improved low-cost windmills in Cuernavaca to generate electricity or pump water, a project supported by the General Electric Company and Sperry-New Holland. In the Caribbean, VITA and the Government of Montserrat are developing more efficient ways of producing and distributing charcoal, a project funded by the Caribbean Development Bank. Similarly, VITA worked with the Solar Energy Lab in Mali to develop renewable energy devices, with an industrial cooperative in Honduras to build a low-cost lime kiln, and with the International Institute for Tropical Agriculture in Nigeria to develop no-till farming tools.

VITA staff experts and volunteers also travel to developing countries for shorter periods to promote new technology ideas. They can plan and hold workshops (small-scale hydro-power in the Dominican Republic, rice production in Papua New Guinea, simple building block production methods in Kenya), provide hands-on training (ceramics production in Haiti, animal waste recycling in Egypt, workshop management in Mali), participate in technical conferences (biogas in Central America, agricultural machinery in China, renewable energy in Rwanda), and provide similar services.

In a related area, VITA prepares major studies of technologies or development issues for clients in the public or private sector. For example, it has studied stove testing methods for the National Academy of Sciences, charcoal production for the Caribbean Community Secretariat, commercial use of biogas for USAID/Morocco, and simple windmills in Thailand.

Project Surveys, Planning, and Evaluation

VITA helps other institutions survey program opportunities, plan specific projects, and evaluate completed efforts.

VITA has done major surveys for both the public and private sectors in developing countries. Its staff and volunteers can assess the range of technologies, needs, and development services available in a specific region. Recent VITA surveys have studied neighborhood development resources in Egypt,

private groups worldwide that are developing alternative technologies, and appropriate technology efforts in Guinea and Bolivia.

VITA also helps institutions plan specific projects. For example, it worked under contract to review possible projects for the World Bank headquarters in Washington, D.C. VITA helped the Presiding Bishop's Fund for World Relief in New York to design a project in Honduras. It also did a feasibility study for the Meals for Millions Foundation on a proposed project to organize small farmers in Ecuador to produce soybeans.

So, too, for evaluating completed projects. VITA staff experts joined World Bank teams to evaluate forestry projects in Niger and Tanzania, and a woodstoves project in Ethiopia. Another VITA staff member traveled to Colombia to evaluate a project for PACT, Inc. Other VITA evaluations studied an animal husbandry project in the Philippines, a poultry project in Kenya, a fish farming project in Tanzania, etc.

Technical Panels

VITA convenes expert panels to discuss and make recommendations about specific technologies or development problems. Several recent panels have dealt with ways that developing countries might apply modern technologies, such as computers, remote sensing, advanced poultry production methods, and high-tech agriculture. Other panels have studied little-used but promising crops, wood-burning cookstoves, charcoal briquetting, lime production, solar salt production, and torque-matching mechanisms for windmills. VITA is also concerned with the business side of technology development, and has held panels on enterprise development, marketing, and related subjects. In addition, panels have discussed technology options for Egypt, Zimbabwe, and other nations.

Information Services Training

VITA's Documentation Center offers a special training program that teaches individuals and groups how to establish and operate a specialized information-handling system. Students learn how to run a documentation center or library, develop library skills, disseminate information, and operate a skillsbank. The course also includes a component on computerized information systems. Previous students have come from 18 different countries. The course, which is given at VITA headquarters each April and October, is offered in French or Spanish, in addition to English.

VITA librarians and volunteer experts also travel to developing countries to help groups set up efficient documentation centers, libraries, outreach programs, and other services. For example, VITA has provided on-site training for information centers in Colombia, Upper Volta, and Papua New Guinea.

Publications

VITA has published nearly 100 manuals and technical bulletins on technologies that are useful for developing nations. Many of the publications derive from its own inquiries or projects, and a number were prepared under contract to other organizations. Among VITA's most popular publications have been titles on village technology, wind power, wood-burning cookstoves, fish farming, pumps, grain storage, renewable energy, and business subjects. Some books have been reprinted in French, Spanish, Arabic, or Portuguese.

Organizations commission VITA to prepare directories, bibliographies, and information packages on various subjects. VITA has prepared several directories of groups active in different fields, such as small-scale technology in Latin America or development in Africa. It has compiled annotated bibliographies of important books and publications on various development subjects, such as solar power, wind power, and agro-forestry. VITA technical experts also prepare handy information packages containing reprints of useful articles and booklets on different subjects, such as bamboo, charcoal briquetting, fish preservation, peanut processing, soap-making, solar cookers, wind electric power, etc.

VITA is the publisher of VITA News, a popular quarterly magazine that covers new technologies, international development, and related subjects. The magazine is read widely in both industrial and developing countries for its original reporting, how-to presentations, and readable format. The pages of VITA News also offer a unique advertising opportunity for products and services of interest to those living or working in developing countries. Rates are reasonable.

In addition, VITA produces and sells slide shows on wind power, fuel-conserving cookstoves, etc. It also maintains an extensive collection of color slides that illustrate technologies, projects, countries, etc. The photos can be used for slide shows, lectures, magazine articles, etc. Related to this, VITA's communications staff can prepare filmstrips, posters, slide shows, and other media for how-to presentations or teaching materials. VITA is also a leader in producing materials that can be understood easily by ordinary people in developing countries.

* * *

CAPABILITY STATEMENT

AFRICARE

Africare
1601 Connecticut Ave., N.W.
Washington, D.C. 20009 USA

February 1984



Africare

"Improving the quality of life in rural Africa through the development of water resources, increased food production and the delivery of health services."

1601 Connecticut Avenue, N.W. Washington, D.C. 20009
Telephone (202) 462-3614 • Telex 64239

July 17, 1984

Mr. Henry Norman
Executive Director
Volunteers In Technical
Assistance (VITA)
1815 North Lynn Street, Suite 200
Arlington, VA 22209-8438

Dear Henry:

I am pleased with the collaboration which Africare and VITA have had on the project design of the CAR/PHFS project.

Africare looks forward to collaborating with VITA in the implementation of the Post-Harvest Food Systems Project in the Central African Republic. Africare's direct input will include the recruitment, placement and support of one Extension Specialist, one Food Processing Specialist, as well as participation in evaluations and providing consultants.

Henry, we look forward to the implementation of this project.

Sincerely,

C. Payne Lucas
C. Payne Lucas
Executive Director

CPL:ght

HONORARY CHAIRMAN
His Excellency Dr. Kenneth Kaunda
President of the Republic of Zambia

BOARD OF DIRECTORS

Chairman
RT REV JOHN T WALKER
Bishop of Washington
Episcopal Diocese of Washington

Vice Chairman
MOM OUMAROU G YOUSSEFOU
Ambassador, Executive Secretary
of the OAU to the UN

Vice Chairman
RICHARD THORNELL, Esq
Professor of Law, Howard University

Treasurer
CLYDE B RICHARDSON
Administrative Manager
Department of Labor

Secretary
JOSEPH C KENNEDY, Ph D
Director of International Development
Africare

BISHOP JOHN HURST ADAMS
African Methodist Episcopal Church

WILEY A BRANTON, Esq
Dean, Howard University
School of Law

WALTER C CARRINGTON
Director, Dept of Int Affairs
Howard University

REV DR TYONNE CHAPPELLE
African/Afro-American Studies
Silver Spring MD

MOM DICK CLARK
Former Member
United States Senate

REV DAVID H EATON
Senior Minister, All Souls Church
Washington D C

MOM WALTER FAUNTROY
D C Delegate
U S House of Representatives

J WAYNE FREDERICKS
Executive Director
Int'l Governmental Affairs
Ford Motor Company

EDGAR HALEY, Esq
Attorney, Washington D C

AMES M HARRLESS, Esq
Labor Arbitrator, Washington D C

ION JAMES A JOSEPH
President
The Council on Foundations

WILLIAM KIRKER, M D
Physician, Honolulu, Hawaii

ELAND E LEWIS, Esq
ice President, C B P Telephone

EDGAR E LYTHCOFT, M D
Administrator
Latin Services Administration
Department of HEW

WILLIAM F McSWEENEY
Assistant, Occidental Int'l Corp

DOVEN F MURRAY, Ph D
Assistant Emeritus
Iowa Tech University

BIM B OWENS
Coordinator, Older Student Program
Int'l Community College, Flint, Michigan

REEM F TILGHMAN
Asst Gen Secretary
ICOR

WALDENE E WALKER, M S, D D S
II Professor, Howard University
College of Dentistry

ANTHONY WINSOR, JR, Ph D
Social Director
Office for Free Enterprise

W ANDREW J YOUNG, JR
Former US Representative
New United Nations

Executive Director
PAYNE LUCAS

AFRICARE

Africare is a private, non-profit organization working to improve the quality of life in rural Africa. Africare conducts self-help programs in the broad areas of food, water, health, literacy, re-forestation and refugee assistance.

Africare was founded in 1971 in the District of Columbia, and since that time has worked in some 19 African countries. Africare maintains field offices in the African nations of Chad, Mali, Niger, Senegal, Somalia, Upper Volta, Zambia and Zimbabwe.

Africare is currently operating more than 40 programs in Africa. They range in budget from \$1,000 to \$5.9 million.

Africare receives funding from private foundations, corporations and small businesses, churches and national denominational organizations, other private voluntary organizations, the Agency for International Development, the U.N. High Commission for Refugees, foreign organizations and many thousands of individuals.

In 1971, when Africare was founded, West Africa was experiencing one of the worst droughts in its history. Africare has undertaken both short- and long-term programs designed to protect against further encroachment of the Sahara Desert and to restore the physical vitality and human dignity of millions of people affected by the drought.

Short-term assistance has been in the form of foodstuffs, medical supplies, small equipment, wells and nutrition recuperation centers. Long-range projects include water resource development (wells, dams and irrigation systems), food production, range management, maternal and child health programs, paramedical training and construction of rural dispensaries and rural health department buildings. Some examples of Africare experience follow.

Integrated Rural Development

Presently, Africare's major involvement is in integrated rural development projects. The Tara Hydro-Agricultural project in Niger and the Seguenega Integrated Rural Development project in Upper Volta are representative of Africare's large-scale capability in this field.

The Tara Project. The Tara project began in September of 1975, with Phase One funding from the Lilly Endowment, the U.S. Agency for International Development, the United Methodist Committee on Relief, the Kansas West Conference of the United Methodist Church, the Government of Niger, World Vision, Africare's New York City Chapter, and Ramapo College. Phase One was nearly

completed by the close of FY81. This six-year project took as its overall goal the increased agricultural productivity of Tara's farmers. It focuses on intensive irrigated rice cultivation and broad-based village-level management. It includes numerous activities, or sub-projects, considered essential to the realization of its overall goal.

Among the sub-projects are construction of a dike at the nearby Niger River, construction of a pumping station at the dike to channel water through a series of canals to the rice fields, organization of farmers' cooperatives, improvement of the road between Tara village and the nearest market village, adult literacy training, the institution of health services for all villagers, the broadened use of animals (instead of people) to pull plows and carts and to help farmers in other ways, the introduction of poultry and fish production, and the training of blacksmiths, carpenters, and masons. Socioeconomic studies were conducted to prioritize needs and determine the most appropriate project methodology.

As intended, by FY81 the Tara project had caused a dramatic rise in output, health, and income. The fourth harvest, reaped during FY81, yielded some 400 tons of rice, sold to raise money to expand farmers' operations. About 72 men were active in adult literacy classes, 43 women were in training to run their already-supplied poultry cooperative, the fish station was built and fishermen's cooperative in formation, the health center was active, and 256 heads of household were cultivating their own rice fields. These were just some of the accomplishments visible at the Tara site during FY81.

The Seguenega Project. Similar in principle to the Tara effort but far larger in geographic scope is the integrated rural development project spanning Upper Volta's Seguenega Sector, which encompasses about 120 major villages housing some 110,000 people. Begun in September of 1978 with funding from the U.S. Agency for International Development, this five-year project has three overall objectives: increasing (1) agricultural output; (2) local planning and management capabilities; and (3) popular participation in the design and implementation of rural development activities. Of the many sub-projects, some are similar to those enacted at Tara (water, health, adult literacy, road improvement, cooperative organization, rice cultivation and animal husbandry, building construction, and farmer training), while others are unique to Seguenega (vegetable growing, reforestation, and soil conservation are some examples).

Seguenega's scope of impact, however, mandates a strict emphasis on efficient management and allocation of resources to achieve maximum sector-wide results. Thus, of the 120 villages in the sector, 45 were chosen as sites for intensified project work and were further prioritized according to the following criteria: villagers' motivation, their willingness to contribute labor and to accept innovations, available resources to support development, and their geographical distribution within Seguenega

Sector. A flow of management and work was then set up, with the object of strengthening local responsibility and skills. Cooperating in the project are Africare, the Yatenga Regional Development Organization (covering Seguenega as part of its territory), and various councils and committees at the individual village and sector levels. Africare staff, both on-site and in Washington, serve to advise, both technically and managerially, those Upper Voltans actively participating in the project; and of course to transfer funds and account for their use.

By the close of Africare's FY81, much had been achieved, including the following. Village Development Committees were established in 26 villages. Adult literacy classes had been set up in 16 villages. Fourteen Village Health Teams had been trained. Activities preliminary to training young farmers had begun. Vegetable production accomplishments were numerous: some examples are a functioning school garden in the village of Seguenega, several hectares of vegetable gardens under cultivation, a number of educational sessions for farming teachers and for farmers themselves, construction of wells for vegetable growing, and the harvest of 3,787 kilograms of potatoes at four village gardens. A central livestock-poultry center had been built. Numerous wells, for general village use as well as for the health center, forestry nursery, livestock center, school garden, and vegetable gardens, had been finished; others were under construction. The road was being improved, and 23.26 hectares of reforestation plots held some 2,096 living plants.

Agriculture and Small-Scale Irrigation

In FY82, Africare continued helping the African people grow enough food to feed themselves--a process that goes beyond one meal or one harvest, a process that is establishing mechanisms for good meals every day and better harvests every year.

o ~~Upper Volta~~--A poultry center in Leo village was built and equipped in FY82 with funding from Africare's Metropolitan Washington Chapter and individual donors to Africare's Sahel Development Fund. The Leo center has several functions. First, it is a place where hens and roosters are raised for sale. Not only do sales help cover the center's on-going expenses, but also more and better poultry is available to local breeders and consumers.

A second and even more far-reaching center function directly supports increased poultry production throughout the Leo Region. Center staffers, who are both volunteers and local poultry experts, disseminate general information and give personal counsel to Leo breeders. Among those breeders are a number of young farmers schools, which give practical instruction to future growers of many kinds of food.

Leo area enthusiasm for improved poultry production is high, improvements are already showing up, and increased improvement is probable--because the Leo center has provided a mechanism for long-term growth.

o Senegal--With funding from the Hunger Project, Africare in FY82 continued support of poultry production in Senegal's Bignona Department, part of the Casamance Region, the villages of Djinaky, Mandegane and Sindian. Egg production in each village was averaging 85, 104 and 100 per day, respectively, by the close of Africare's FY82. The next phase of this project, now that the poultry and supplies are in place and operative, will help villagers manage their growing enterprises.

Also in Senegal's Casamance region, in the villages of Bafata, Koubanao, Mawa, Medina Sembel, Singher Diola and Tendouck, Africare is helping farmers raise poultry, pigs, sheep and honeybees. Support for this project came from Heifer Project International and the United Methodist Committee on Relief.

o Zambia--Disease is a major threat to any animal operation; and in Zambia's Petauke District, Africare is helping farmers fight East Coast Fever, a tick-borne disease capable of wiping out a herd of cattle within two weeks. With funding from the Besser Foundation, Africare is helping the Veterinary Department construct four tanks, each containing an insecticide solution, in which to dip cattle to prevent infection by disease-bearing ticks. Two dip tanks were completed by the close of FY82, with the other two due for completion in subsequent months. As a result of this project, local farmers can expand their herds to help meet demands for meat, milk and hides in Zambia, already 89,000 head short of its livestock needs.

o Mali--Another factor in animal production is water, perhaps no more overtly important than in fish breeding. Excellent sources of protein and minerals, fish are food staples in some parts of Africa and could provide valuable nutrients in many more places with proper support. Under a grant from the Agency for International Development, Africare is setting up a fish production station near the Malian village of San. The fish station functions as both breeder and resource to local commercial breeders. Staff have reported rapid growth and good adaptation of the fish. "The initial harvest," writes the Africare representative, "clearly demonstrates the feasibility of pisciculture for Mali." Now that the fish station is operative, Africare and Malian extension agents will begin helping local farmers improve their own fish breeding operations and encourage others to start raising fish.

CAPABILITY STATEMENT
FOOD AND FEED GRAIN INSTITUTE
Kansas State University

Food and Feed Grain Institute
Kansas State University
Shellenberger Hall
Manhattan, Kansas 66506 USA

February 1984

FOOD AND FEED GRAIN INSTITUTE

Kansas State University

Since 1967 the U.S. Agency for International Development (USAID) and the Food and Feed Grain Institute (FFGI) at Kansas State University have been working together to provide assistance to less developed countries (LDCs) in all areas of postharvest grain systems.

The Food and Feed Grain Institute under agreement with USAID offers multidisciplinary technical assistance, training, and research on postharvest problems of grains.

Scientists from the KSU Departments of Agricultural Engineering, Agricultural Economics, Agronomy, Animal Science, Biochemistry, Entomology, Foods and Nutrition, and Grain Science and Industry have been involved in a variety of projects over the years.

Under Cooperative Agreement AID/DSAN-CA-0256 with USAID, FFGI scientists offer worldwide technical assistance and training in all areas of postharvest systems, including harvesting, grain quality preservation, marketing, agribusiness development, transportation, and processing.

On request, FFGI specialists give direct technical assistance to USAID Missions, host countries, and USAID/Washington; provide specialized training programs for developing country personnel, in-country or at KSU, to help solve postharvest problems; and conduct adaptive and applied research on postharvest grain technology and grain marketing. FFGI staff also provide answers to written requests for information on specific problems.

FFGI's Postharvest Documentation Service provides library searches and documents on subjects related to postharvest grain systems. Limited requests for documents and computerized literature searches are provided to individuals and institutions in LDCs free of charge.

FFGI provides in-country technical assistance and training to host country governments and institutions through USAID Missions on a cost-sharing basis. FFGI pays specialists' international travel, per diem, and salaries for up to 30 in-country days per year for each country. When more time is needed or when consultants other than FFGI staff are required, special financial arrangements can be made by contacting the local USAID Mission.

Technical Assistance and Training

FPGI specialists can provide technical assistance and training in harvesting, drying, storage, transportation, processing, marketing, and grain agribusiness development. They also can provide analysis of postharvest systems and carry out research directed toward solving specific postharvest problems.

Responses to each technical assistance request and each request for a training program are designed to meet the needs of the country making the request.

Training programs may be provided in-country or on the KSU campus, while technical assistance requests are generally met in-country.

Along with training related to specific subjects, FPGI specialists can present courses to train developing country personnel to teach postharvest grain handling, conditioning, conservation and management techniques to others (training of trainers).

Agricultural economists can be supplied to help LDC institutions determine the cost feasibility of proposed improvements in postharvest grain handling, harvesting, drying, storing, processing, and marketing.

Specific areas in which technical assistance and training are available include the following:

- o harvesting;
- o storage;
- o processing;
- o marketing;
- o agribusiness development; and
- o grain storage and marketing short course.

Additional Services

- o Degree Training--Students from LDCs can earn university degrees related to postharvest systems and technology from KSU. The M.S. degree usually requires two years of work and, where possible, students are encouraged to perform research related to their home countries. Programs and degrees are offered in several departments including agricultural engineering, economics, entomology, and grain science and industry.
- o Postharvest Documentation Service--Information on harvesting, drying, storage, processing, marketing, and postharvest losses of cereal grains is available from

FFGI's Postharvest Documentation Service (PHDS). PHDS maintains an updated data base of materials covering all phases of harvesting and postharvest information with emphasis on planning, technology, and management for developing countries. On request, the service provides document acquisition lists, subject bibliography searches, and document copies to LDC clients.

Assistance, Training, and Research Experience

From 1978 through 1982 FFGI responded to 48 requests for assistance from 27 countries, provided 24 specialized in-country training programs, and conducted research related to grain storage and management problems in developing countries. Examples include:

- o Technical assistance
 - Evaluation of rural family grain storage in Chad
 - Solutions to small holder grain storage in Kenya
 - Identification of grain storage needs in Lesotho and Botswana
 - Assessment of PL 480 Title I rice sales to Sierra Leone
 - Evaluation of the Honduran Agricultural Marketing Institute and assistance with improving grain marketing and price stabilization
 - Analysis of grain handling and marketing in Peru
- o Training programs
 - Planners course on systematic procedures for formulation and evaluation of agribusiness projects, held at KSU
 - Oilseed extraction and processing course for Burma
 - Grain warehouse management and inventory control course in Botswana
 - Seed storage and management course in Nepal (in cooperation with Mississippi State University)
 - Trainer's short courses in Senegal and Upper Volta on grain storage and management practices
 - Annual 7-week Grain Storage and Marketing Short Course on the KSU campus

o Research projects

- Development of simplified grain standards
- Improvement of a natural convection dryer for on-farm use in developing countries
- Investigation of hygroscopic properties of corncobs for use in small-scale on-farm grain conditioning
- Evaluation of two loss assessment methods
- Development of grain storage units for small farmers
- Measurement of benefits from Philippine grain stabilization programs
- Development of transportation linear programming for location of public rice warehouses in Sri Lanka
- Impact of domestic grain policies and programs on stability of food grain supplies in Central America

CAPABILITY STATEMENT
DENVER WILDLIFE RESEARCH CENTER
U.S. Fish and Wildlife Service

Denver Wildlife Research Center
U.S. Fish and Wildlife Service
Section of International Programs
Building 16, Denver Federal Center
Denver, Colorado 80225 USA

February 1984

DENVER WILDLIFE RESEARCH CENTER

U.S. Fish and Wildlife Service

Increasing and conserving food production is one of the most important challenges facing mankind. Although half the world's population is actively engaged in agriculture, and in spite of the many advances in agricultural technology, millions of people in scores of nations still suffer from hunger, malnutrition, and starvation. Vertebrate pests, primarily rodents and birds, compete directly with humans for food. The United States Agency for International Development (USAID) and scientists of the Denver Wildlife Research Center (DWRC) of the U.S. Fish and Wildlife Service (USFWS) are committed to assisting developing nations in trying to close the gap between available and required food supplies by reducing food losses resulting from depredations by vertebrate pests.

Recognizing the adverse impact of vertebrate pests on agricultural development, USAID and the DWRC launched a cooperative effort to reduce preharvest and postharvest losses. The ultimate objective of the program is to increase available food supplies and reduce the risk of severe losses to vertebrate pests. This aim is achieved through a multidisciplinary effort. The DWRC staff is composed of more than 100 problem-oriented scientists in such diverse fields as ecology, physiology, wildlife biology, pharmacology and toxicology, animal behavior, statistics, taxonomy, chemistry, and electronics. The vertebrate pest control specialists of DWRC work with host countries and USAID Missions through in-country programs and outreach activities.

In-country programs strengthen host country institutions responsible for vertebrate pest control. This may include in-country and international training of developing country personnel, assistance in development and implementation of vertebrate pest management programs, help with extension programs, and cooperation in the development of host-country research programs. Current field programs developed by USAID are located in the Philippines, Bangladesh, Haiti, and the Dominican Republic.

Outreach activities from DWRC include short-term consultations at the request of host countries and USAID Missions for project design, assistance in implementation, special investigation, or evaluation. These activities may also include in-country and international training, assistance in extension programs, and development of techniques at DWRC to help solve specific problems. In addition, DWRC can provide upon request computerized literature searches of specific vertebrate pest problems. Copies

of relevant documents can be supplied without charge to developing country pest management personnel.

Because of the importance and magnitude of the problem, the USAID/DWRC project cooperates and collaborates in appropriate research and training with other organizations, such as the Centre for Overseas Pest Research (COPR) of the United Kingdom; the Office de la Recherche Scientifique et Technique d'Outre-Mer (ORSTOM) of France, the German Society for Technical Cooperation (GTZ), and the Food and Agriculture Organization (FAO) and the World Health Organization (WHO) of the United Nations, that also are involved in vertebrate pest management programs.

The USAID/DWRC project, in cooperation with counterparts and other international organizations, has produced a number of significant accomplishments in reducing losses to vertebrate pests which has helped and can help host countries to meet their food production objectives. The accomplishments include describing pest problems in ecological and economical terms, developing safe and effective management and crop protection techniques, and establishing institutional bases for viable vertebrate pest management programs in developing countries. Cost/benefit analyses for a few of these accomplishments clearly demonstrate the value of the program. Examples of achievements of the USAID/DWRC program follow.

o **Phillipines**--A continuous baiting program to reduce rat damage to growing rice is being implemented by the Philippine Government on small farms totaling more than 500,000 ha with the objective of reducing average losses. Experimental trials of the same program in maize/corn have reduced losses by 84 percent and resulted in a sevenfold profit increase. Annual national surveys of rice farmland showed pre-project rat damage of 3.7 percent (1971-1975) compared with post-project damages in program areas of only 0.5 percent (1976-1979).

o **Latin America**--Paralytic rabies, transmitted by vampire bats, was eliminated from livestock in Nicaragua. Small amounts of an anticoagulant causing death of the bats were either applied to the fur of the vampire bats, which subsequently spread it among themselves while grooming, or injected into the cattle and obtained by the bats while feeding. Annual benefit to the livestock industry was \$2.4 million, at a cost of \$150,000 annually. Mexico and other Latin American countries historically plagued by vampire bats now have control programs.

In Colombia, experimental trials using a crown-baiting technique for anticoagulant rodenticides dramatically reduced rodent damage to coconuts, and nearly doubled production in some areas of the country, resulting in an annual benefit of several hundred thousand dollars.

o **Africa**--Estimates of annual losses of cereals to birds range from at least \$1 million in Somalia to \$5 million in Senegal. Repellents have protected emerging rice in Senegal, small trial

plots of ripening rice, sorghum, and millet in Senegal and Sudan, fields of ripening wheat in Tanzania, and sorghum in Ethiopia. Sophisticated technologies have been useful, and may be appropriate to reduce depredation by grain-eating birds, such as quelea, and other vertebrate pests.

CAPABILITY STATEMENT
POSTHARVEST INSTITUTE FOR PERISHABLES
University of Idaho

Postharvest Institute for Perishables
University of Idaho
College of Agriculture
Moscow, Idaho 83843 USA

February 1984

POSTHARVEST INSTITUTE FOR PERISHABLES

University of Idaho

The Postharvest Institute for Perishables (PIP) was founded because of concern with food losses from harvest to consumption in developing countries. The Institute was founded in October, 1980, at the University of Idaho, Moscow, Idaho, U.S.A. by means of a Cooperative Agreement with USAID. PIP is associated with two private development firms--Development Alternatives, Inc. (DAI) and Agri-Food Systems International, Inc. (AFSI)--which have substantial experience in providing technical assistance to developing countries. PIP also cooperates with international donor groups, research centers, bilateral and multilateral assistance groups, the U.S. Peace Corps, the private sector and others in its efforts to reduce postharvest losses of perishable commodities.

The goals and objectives of the Postharvest Institute for Perishables are:

1. To increase the availability (without increasing production areas) of fruit, vegetable, root, tuber, spice, nut and oilseed crops, and to enhance the basic diet of people in developing countries by reducing food losses.
2. To reduce costs of these perishable commodities by improving the efficiency of marketing.
3. To encourage the development of processing and other industries associated with fruit, vegetable, root, tuber, spice, nut and oilseed crops.

Postharvest Assistance

PIP is prepared to provide assistance to developing countries in a variety of ways, including, but not restricted to:

1. Determine causes of postharvest losses including factors associated with infection/infestation of harvested commodities.
2. Assess postharvest losses from harvest to consumption.
3. Prolong the storage and shelf life of perishable commodities through improved harvesting and handling practices, pest control, storage design, improved cooling or refrigeration, processing or marketing systems.
4. Conduct feasibility studies on the potential for processing specific perishable commodities.

5. Assist in promoting export of fresh or processed perishable commodities to regional, national and international markets.
6. Analyze and provide suggestions for governmental policies affecting transportation, marketing and export of fresh and processed commodities.
7. Help instructional institutions develop curricula and extension aids relevant to assessment and prevention of postharvest losses.
8. Provide microfiche or paper copies of any literature related to postharvest technology by using the Postharvest Institute for Perishables Information Center.
9. Coordinate placement in U.S. universities of developing country student candidates for Master's degrees or short-term non-degree programs relevant to assessment, reduction and prevention of postharvest losses in perishable commodities.

Technical Assistance Teams

PIP provides experienced technical assistance teams in response to requests from developing countries. The free services of a team may be provided for a maximum of 20 person-days at no cost to the host country or to the local AID Mission. Team services for periods longer than 20 days will require additional support funding.

Upon request, postharvest specialists--economists, engineers, entomologists, food technologists, horticulturists, plant pathologists, rural sociologists and others--are available for direct technical assistance to USAID Missions, host countries and AID/Washington. PIP strives to send specialists with relevant developing country experience.

Short Courses, Workshops, Seminars, and Specialized Training

Upon request from a developing country, PIP provides the services of appropriate postharvest specialists to conduct short courses, workshops or seminars in any field of postharvest technology. This training is usually given in the host country and is a free service that may be provided for a maximum of 20 person-days at no cost to the host country or to the local AID Mission. Training for periods longer than 20 days will require additional support funding.

Training consisting of degree or non-degree programs designed to assist qualified developing country personnel solve postharvest problems of perishable commodities is provided by PIP. Students sponsored under this program usually study at a U.S. university for one or two years. Non-degree special programs may be of shorter duration and tailored to a specific need.

Information Services

Information, documents and bibliographies on all phases of harvesting, storage, marketing and processing related to reducing postharvest losses in fruit, vegetable, root, tuber, nut, oilseed and spice crops are also available from the Institute.

CAPABILITY STATEMENT
TROPICAL DEVELOPMENT AND RESEARCH INSTITUTE

Tropical Development and Research Institute
London, United Kingdom

February 1984

TROPICAL DEVELOPMENT AND RESEARCH INSTITUTE

London, England

On April 1, 1983, the Tropical Products Institute (TPI) was amalgamated with the Centre for Overseas Pest Research (COPR), another scientific unit of the Overseas Development Administration, to form the Tropical Development and Research Institute (TDRI).

The new Institute collaborates with the developing countries to solve agricultural and health problems caused by crop pests and disease vectors, and to derive greater benefit from their renewable natural resources by improved post-harvest handling, processing, preservation, storage, transportation and marketing of plant and animal products. The main emphasis of TDRI's work is centered on the improvement of food supplies in accordance with one of the major aims of the British Government's Overseas Aid programme. TDRI also carries out work on certain non-food cash crops of particular importance to small farmers and/or the economies of the developing countries.

Like its predecessors, TDRI is a multidisciplinary organization. Within its field, the staff of scientists, technologists, engineers, and economists are deployed in teams covering appropriate disciplines to tackle projects for the developing countries. The new Institute continues to collaborate with the multilateral and bilateral aid agencies, and with government and international organizations, universities and industries in the developing countries and in the U.K. and other industrialized countries.

The new Institute TDRI Newsletter, which supersedes the TPI Newsletter, twenty-five issues of which were published between 1974 and 1983. TDRI Newsletter, like its predecessor, gives information about TDRI's activities at home and overseas, reports on research and development projects, and provides details of the latest TDRI publications. TDRI also continues to produce publications on areas of its specialties, in the tradition of TPI.

CAPABILITY STATEMENT
NON-FORMAL EDUCATION INFORMATION CENTER (NFEIC)
Michigan State University

Non-Formal Education Information Center
College of Education
237 Erickson Hall
East Lansing, Michigan 48824 USA

February 1984

NON-FORMAL EDUCATION INFORMATION CENTER (NFEIC)

Michigan State University

The Non-Formal Education Information Center, which is part of the College of Education at Michigan State University and began in 1974, is a key resource in, and recognized internationally for, expertise in non-formal education, especially in Africa, Asia, and Latin America. It currently offers its resources to a worldwide network now numbering more than 6,000 participants in 145 countries. The Center functions as a clearinghouse for information resources, conducts research, publishes practical field-oriented materials, conducts training workshops, engages in technical assistance, and facilitates an exchange of ideas and project information. Highlights of the work of the Center include providing information assistance and referrals to persons who write to the Center; publication of a periodical, The NFE Exchange, topical annotated bibliographies, and occasional papers; maintenance of the NFE resource collection; provision of training workshops; and a particular emphasis on women in development. Although initially supported by the U.S. Agency for International Development, in April 1983 the Center will be operating entirely with support from the University and its own income generation.

The NFE Center is staffed by individuals who have lived and worked overseas and who have a commitment to developing replicable, people-centered projects. The Center has been involved in providing technical assistance overseas. For example, as part of the AID-supported NFE Network Project (AID/DSPE-C-0046) it established an NFE information center and provided training in the Ivory Coast. It has offered training both overseas and in the United States in areas that range from NFE methods to integrating women in the development process, writing funding proposals, and producing a community-oriented newsletter. Center staff have developed a variety of training aids. These include role play exercises on project planning and implementation and "how-to" manuals on such topics as setting up and maintaining a local resource center.

The existing knowledge base and expertise from the NFE Center will provide the necessary support in education and training that are essential to the CAR Post Harvest Food Systems Project. This includes materials and examples from around the world illustrating the use of various NFE methods such as radio, flip charts, discussion groups, and folk theatre. In addition to its internal resources, expertise, and experience, the Center can draw upon other units of the University of consultancies and technical expertise. Such units include the Adult Education Unit,

the Department of Agricultural and Extension Education, the Institute for International Agriculture, and the Office of Women in International Development.

The Center can go far beyond the boundaries of the University for expertise, however. It benefits from cooperative linkages and collegial relationships with a large number of individuals agencies, institutes, and organizations located in the United States who are similarly engaged in international research and service. This network of U.S.-based educational planners and practitioners provides a valuable source of specialized skills and expertise. The NFE Center can call upon individuals with particular skills in such areas as planning education programs, effective learning strategies, evaluation and cost effectiveness, extension education, distance learning, and methods of linking formal and non-formal education. The Center also draws upon the specialized expertise and skills of participants in its international network for the purpose of advising, conducting project assessments and evaluations, and consultancies. The network affiliates represent a variety of occupations ranging from local community leaders and NFE trainers to heads of national ministries and government policy-makers. Two recent examples of how the NFE Center has used this network are:

- o A literacy/numeracy specialist working in Papua New Guinea agreed to the Center's request to serve as a consultant for the Center.
- o An information specialist from Manila recently conducted the evaluation of the NFE Center's counterpart center in Los Banos, the Philippines.

CAPABILITY STATEMENT
FARMING SYSTEMS SUPPORT PROJECT
University of Florida

Farming Systems Support Project
International Programs
Institute of Food and Agricultural Sciences
University of Florida
3028 McCarty Hall
Gainesville, Florida 32611 USA

February 1984

FARMING SYSTEMS SUPPORT PROJECT

University of Florida

The role of the University of Florida in support of AID farming systems programs is to provide technical support to AID mission projects to improve the organizational and management competence of developing country institutions, and to improve their formal skills. UF's Farming Systems Support Programs provide AID projects with basic activities such as training, technical assistance, and networking and communication.

Project emphasis will be placed on the team leader who must have leadership abilities with developing country counterparts and AID personnel, good administrative skills, and technical competence.

APPENDIX II
CANDIDATE RESUMES

1971-75: Associate Director of the United States Peace Corps in the Niger Republic. In charge of identifying projects for and administering approximately 140 Peace Corps Volunteers, but most primarily concerned with those involved in rural development programs (mostly drought-related). Projects included water resource development and management (wells, pumps, dams, etc.), forestry, range management, agricultural education/training, agricultural mechanics, grain storage, and others. Helped draw up project budgets and work plans for many funding agencies including USAID, Church World Service, Catholic Relief Services, OXFAM, CARE, Africare, etc.

1970-71: Placement Officer. Aligning Peace Corps applicants with programs worldwide. Office of Volunteer Placement, ACTION, Washington, D.C.

1969-70: Training Program Coordinator for U.S. Peace Corps Inland Fisheries program in West Cameroon.

Language Instructor, Peace Corps Training Center, U. S. Virgin Islands. Taught Wes-Kos (West African Pidgin) to Cameroon-bound trainees.

1969: Junior High School teacher (primarily mathematics and science) at King Educational Vocational Guidance Center No. 9, Chicago, Ill. USA

1968-68: Technical Adviser to the Director of the Cameroon Handwork Cooperative, Box 123, Bamenda, Cameroon. Helped set up and direct 1500 member artisans co-op in Cameroon grasslands area. Involved in co-op organization, personnel management, fiscal administration, overseas and local marketing, and public relations.

Languages: English (native speaker)
French (fluent speaker)
Wes-Kos (fluent speaker)

Confidential Resume

FRANCIS NOEL BOLDUC

Address:

Telephone:

Objective: A career position affording the opportunity to work with developing nations at farm and village level to help improve storage facilities and aid people to understand different possibilities available through appropriate technology.

Education: Paul Smith's College
Paul Smiths, N.Y. 12970
1971 - AAS Degree in Pre-Professional Forestry

University of Vermont
Burlington, VT. 05405-0160
1973 - BS Degree in Recreation Management

Kansas State University
Manhattan, KS. 66506
1978 - MS Degree in Grain Storage Management

Languages: English (native tongue) - 5
French (very good) - 4

Employment: 1981 - Present
Co-Owner of the Valley House Inn, Inc.

Position: Vice President and major shareholder

1983
CARE/CONGO and USAID/ZAIRE

Position: Grain storage consultant; 2 months
in the Congo, 1 month in Zaire

Purpose: To advise on possible improvements in grain storage and processing methods employed by small farmers and seed producers in the areas of Mossendjo, Congo, and Mbulula, Zaire.

1980 - 1982

Food and Agriculture Organization of the U.N.
Republic of Mali

Position: Director of Project FAO/GCP/RAF/045/DEN
"Regional Center for Post-Harvest
Techniques"

Purpose: To improve farm and village storage
structures where needed and study
possibilities of introducing small
mills and dehullers at the village
level.

1979 - 1980

F.A.O. of the U.N.
African Rural Storage Center
Ibadan, Nigeria

Position: Post-Harvest Consultant

Purpose: Edit manual in English and French
for use in training workshops.

1978 - 1979

Food and Feed Grain Institute
Kansas State University
Manhattan, KS

Position: Full time research assistant

Duties: Consulting work in grain storage in
Francophone nations.

1976 - 1978

F.F.G.I.
Kansas State University
Manhattan, KS

Position: Graduate research assistant

Duties: Thesis work on development of a
natural convection dryer for tro-
pical and subtropical nations.

1974 - 1975

Peace Corps/Republic of Benin

Position: Grain Storage Coordinator

References: Available upon request

Dorothy S. Bell

PROFESSIONAL EXPERIENCE

Anthropologist, Peace Corps in the Central African Republic (C.A.R.).

- FOOD AND NUTRITION. Consultant to the National Bureau of Nutrition for the Central African Republic, June 1981 - August 1983. Prepared a critique of a proposed national nutrition survey and discussed special problems encountered while doing field research, and the solutions to those problems. Applied research on food and nutrition using market surveys, food inventories, and food transformation studies as data collection methods was done to provide a data base for further nutrition work in the C.A.R.
- CHILDBIRTH. Applied research on childbirth for the traditional midwife program being conducted by the Peace Corps in the C.A.R. Used participant observation on childbirth events and a survey of 334 women to establish a data base for this analysis of traditional and modern childbirth. (M.A. Thesis: Gbaya Childbirth: Traditional and Medical Childbirth in the Central African Republic. California State University, Sacramento. Fall 1983).
- WOMEN IN DEVELOPMENT. Consultant to a Women in Development program for the Central African Agency for the Development of the Ouham Pende, September 1980 - June 1981. Conducted a survey to provide the data base for projects for women in that area. Analysed the first eight months of this project and made recommendations for the completion of that work.
- CULTURAL SENSITIVITY ASSESSMENT. Prepared the social soundness analysis for U.S.A.I.D.'s proposed rice, fish, and bee projects in the Central African Republic for 1982-3. December 1981.

Archaeologist

- Worked for State and Federal Agencies on historic and prehistoric site location, excavation, and analysis. Trained and supervised others. Prepared reports. May 1975 - November 1979.

Ethnographer

- Worked as a fire fighter on a national forest where I studied women moving into occupations traditionally held by men. May 1975 - Oct. 1977.

EDUCATION:

M.A., Anthropology. California State University, Sacramento. 1983
B.A., California State University, Sacramento. 1976.

SPECIAL SKILLS:

- Fluent in French and Sango (the national language of the C.A.R.)
- Can drive and maintain all-terrain vehicles.

RESUME

Through ten years of professional experience in development working directly with farmers, cooperatives, rural businesspeople, extensionists, government officials, administrators, students and scientists, has evolved a practical and straightforward approach to food conservation through community development extension.

SKILL CONCENTRATIONS

Food Loss Assessment and Loss Reduction Program Planning

+++Assisted the director of a multiregional project to conceive and test the first international grain loss assessment methodology, now accepted as the standard by UNFAO.

+++Worked in fourteen developing countries to conduct on-site investigations of postharvest technologies and to identify areas of potential improvement and to recommend specific technological adaptations for loss reduction.

+++Developed project concept plans for loss reduction extension projects for eleven separate national or regional efforts.

Training and Field Extension

+++Researched and authored training manual on grain storage for Peace Corps, and developed an extensionist training curriculum for USDA/OICD.

+++Served 2.5 years as a rural grain storage extensionist in Benin Peace Corps, designing and conducting the technical and practical training for two successive groups of volunteers and their local counterparts.

+++Worked as extension specialist in over fourteen country projects which included efforts to assess storage problems and to design practical program approaches that would work within existing extension and farming systems.

Design and Development of Audio Visual Materials

+++Researched and coauthored comprehensive extension-oriented grain storage manual for Peace Corps/VITA which was first educational/training document of its kind and is now distributed worldwide.

+++Designed and coordinated materials development and presentation of two national demonstrational displays concerning appropriate technology and improved grain storage technologies.

+++Developed visual aids, graphics and accompanying presentations for citizens groups in U.S.A. and developing countries; as well as similar presentations for university students, Peace Corps volunteers and extensionists.

Facilitation of Group Concept Formation

+++Led and participated in expert panel workshops to develop consensual statement of purpose, priority and plan including National Academy of Sciences, USAID, VITA, L.I.F.E. and Peace Corps.

+++Planned, organized and coordinated Peace Corps' first symposium on renewable energy and coauthored seminar report and proposal which served as nucleus for later multimillion dollar joint Peace Corps/USAID program in renewable energy development and extension.

SELECTED LIST OF CLIENTS

Loss Assessment Project, League for International Food Education (L.I.F.E.), Washington, D.C.

Peace Corps Office of Programming and Training, and Office of Multi-Lateral and Special Programs, Washington, D.C.

United Nations Food and Agricultural Organization, Postharvest Food Loss Project, Rome, Italy.

Volunteers in Technical Assistance (VITA), Arlington, Virginia.

Project Blue Nile, Experience Inc., Washington, D.C.

Project Production, USAID, Niamey, Niger.

Project North Shaba, Development Alternatives, Washington, D.C.

USAID Office of Program and Policy Coordination, Washington, D.C.

United States Department of Agriculture, Office of International Cooperation in Development, Washington, D.C.

College of Wooster, Wooster, Ohio.

PUBLICATIONS

Lindblad, Carl. "Reducing Grain Losses." International Agricultural Development. Vol.3, No.5, Sept.-Oct.1983. London.

Lindblad, Carl. "Green Revolution Continued: GRAIN STORAGE." Rural Technology Bulletin. No.12, Mar.-Aug. 1982. Washington, D.C.

Lindblad, Carl. The Potential for Renewable Energy Technologies in the Rural Postharvest Food System in Developing Countries. USAID, Washington, D.C. 1981.

Lindblad, Carl. Programming and Training Manual for Small Farm Grain Storage. Peace Corps. Washington, D.C. 1978.

PUBLICATIONS contd.

Harris, Kenton L., and Lindblad, Carl J. Postharvest Grain Loss Assessment Methods. American Association of Cereal Chemists. Washington, D.C. 1978.

Lindblad, Carl J., and Druben, Laurel. Small Farm Grain Storage. Peace Corps/VITA Publication. Washington, D.C. 1976.

Lindblad, Carl J., Newman, Mark, and Vinita, Roger. "Considerations in Rural Development--One Perspective: Grain Storage in Dahomey." Vol.11, No.4, 1975. Washington, D.C.

COUNTRIES OF WORK EXPERIENCE

Benin, Burundi, Cameroon, Ghana, Kenya, Mali, Mauritania, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Sudan, Tanzania, Togo, Upper Volta, Zaire, Costa Rica, El Salvador, Mexico, Belgium, Canada, France, Great Britain, Italy.

LANGUAGES

English: Mother tongue.
French: Strong speaking and reading fluency.
Spanish: Rudimentary speaking capability.

EDUCATION

Bachelor of Arts in Sociology, 1972
University of Colorado, Boulder.

Graduate Studies, 1979-80.
George Washington University School of Science, Technology and Public Policy,
Washington, D.C.

Alethea S. Rudd

PROFESSIONAL HISTORY

Consultant/Trainer, Hunger Action Center, Tucson, Arizona (October - April 1984). Design and execution of hunger education training sessions for high school and religious educators. Duties included speaking assignments; coordinating anti-hunger activities with local organizations; researching and writing local hunger survey; production of educational video tape and slide/tape programs.

Trainer, Peace Corps Forestry Training, Sasabe, Arizona (May - August 1983). Trained Peace Corps recruits in extension, crosscultural, and communications skills (experiential model). Managed accounts and administrative details. Duties included ongoing counseling and evaluation of trainees.

Trainer, Peace Corps Agricultural Training, Frogmore, South Carolina (February - November 1982). Trained Peace Corps recruits in vegetable and field crop production; and extension, leadership, crosscultural and communications skills (experiential model). Duties included ongoing counseling and evaluation of trainees; participation in training design and management; design, writing and editing of training manual.

Trainer, Peace Corps Training of Users Workshop, Mbabane, Swaziland (August 1982). Designed, facilitated, and evaluated ten-day workshop in the use of Peace Corps Agricultural Extension Training Manual.

Horticultural Assistant, Tucson, Arizona (Fall 1981). Assisted jobba researcher in general nursery and laboratory work.

Technical Information Specialist, Information Collection and Exchange, Peace Corps, Washington, D.C. (November 1979 - July 1980). Supplied technical information to Peace Corps Volunteers and field staff. Duties included research and letter-writing; orientation and supervision of new staff; writing and editing newsletter.

Consultant, Peace Corps, Upper Volta (February - March 1979). Toured private rural community development projects to promote local collaboration with Peace Corps. Designed Summer 1979 Community Development Training program.

Peace Corps Volunteer (Community Development Agent), Upper Volta (1975 - 1979). Organized community development projects with rural women's groups: wells, cooperative agriculture, health and nutrition education, midwife and leadership training, functional literacy. Organized and directed training programs for local leaders and development agents. Coordinated health and community development training for new Volunteers.

EDUCATION & TRAINING

B.S., Agricultural Extension, University of Arizona, 1981.

Tucson Adult Literacy Volunteers; Tucson, Arizona, 1983. Thirty hours training in Laubach literacy method and TESOL. Certified.

Peace Corps Staff Training; Frogmore, South Carolina, 1982. Six weeks training in counseling, experiential training methodology, and training design.

Cooperative Extension Service; Holbrook, Arizona, 1981. Eight weeks on-the-job training in 4-H and agricultural extension.

CESAO; Bobo-Dioulasso, Upper Volta, 1975. Four weeks training in community development and group dynamics.

Peace Corps; Ouagadougou, Upper Volta, 1975. Ten weeks training in French, More, community development nutrition, health, crosscultural communications.

ADDITIONAL INFORMATION

Skills and Experience: Vegetable gardening; nutrition, hunger, and development education; food preservation; photographing and producing slide shows. Raise poultry and dairy goats.

Languages: Fluent in French, More; some Spanish.

Publications: Contributing author, Animation Rurale and Rural Development: The Experience of Upper Volta; Cornell University, 1983.

Contributing author, Agricultural Development Workers Training Manual; Peace Corps, 1983.

References available upon request.

Benjamin Stoddard Way

Current Address

240 Agricultural Admin.
University Park, PA 16802
(814) 863-0249 (o) PC office.

OBJECTIVE

Position at the project manager level requiring administrative and technical skills, offering opportunity to increase proficiency in the design and implementation of agricultural projects in less developed countries.

EDUCATION

Bachelor of Science, The Pennsylvania State University, 1977.
Environmental Resources Management (College of Agriculture).

Extra Curricular: Varsity Fencing Team, 1973-77 (Captain, 1976)

FOREIGN LANGUAGES

French: Attained FSI level 3; good speaking/fair reading, writing.
Sangho (Central African Republic): Attained very good speaking ability.

PRESENT

M.S. candidate, The Pennsylvania State University
Department of Agricultural Economics/International Development.
Peace Corps Representative to the College of Agriculture (Recruiter).

EXPERIENCE (most recent first)

June, 1980 - April, 1981: Personal Services Contract; United States Agency for International Development in the Central African Republic.

Was responsible for all technical and administrative functions necessary to close out four USAID projects officially terminated in September, 1979.

Primary duties:

- supervised residual construction at three up-country training and agricultural facilities.
- located, evaluated current usage, inventoried, and transferred title of project vehicles and equipment to the appropriate Central African government ministries.
- managed residual administrative duties in the AID office at the American Embassy in Bangui (purchasing, files retirement, correspondence, project accounting).
- maintained linkage between United Nations personnel and the USAID regional mission in Cameroun concerning on-going Fisheries and Water Resources Development projects in C.A.R.
- Assisted the AID regional mission in the design of a new development strategy for the C.A.R. as the result of a change of government in September, 1979.

December, 1979 - April, 1980: Personal Services Contract;
ACTION/Peace Corps in the Central African Republic.

Title: Program Director for Fisheries In-Country Training/1980.

Was responsible for the entire operation of a 12 week Technical Fisheries Training Session for 6 trainees. Primary duties:

Program Director: coordinated administration of the training site with the central Peace Corps office in the capital, Bangui; integrated the technical and language training components.

Technical Coordinator: planned and presented material to prepare the trainees to function as Fisheries Extension Agents. Included fish culture using Tilapia nilotica; station management; extension techniques; basic construction; vehicle operation and maintenance; regional administration; data collection; reports.

Administrative/Logistics Coordinator: managed general operation of the training site. Included setting up the site(housing, hiring staff); food purchases; staff supervision; accounting; closing the site. Staff size varied from 4 - 6 throughout the session.

Co-coordinator for Cross-Culture: Assisted in planning and presenting activities to assimilate the new Volunteers into Central African culture and lifestyles.

July, 1977 - October, 1979: Peace Corps Volunteer in the Central African Republic/Inland Fisheries Project (USAID funded).

First year: Extension Agent/Station Manager.

- managed an 11 pond, 56 acre hatchery/production station, including supervision of 4 employees.
- provided technical advice to approximately 100 private farmers in small-pond fish culture using Tilapia nilotica.
- taught, in French, an overview course in fish culture at a rural Agricultural Technical College (similar to a post-secondary Vo-Tech).

Second year: Volunteer Leader/Project Manager

- assisted the country office with program administration and acted as a liaison to the Central African Ministry of Water and Forests.
- procured/distributed USAID funded commodities to up-country Volunteers for stations and extension work.
- vehicle support: maintained fuel and spare parts stock, supervised repairs, coordinated allocation of vehicles.
- conducted site inspections at 12 up-country posts; evaluated new site selections.
- April, 1979: assisted Peace Corps/The Gambia with the design of an Inland Fisheries Project.

SKILL HIGHLIGHTS

- Administration
- Management
- Resourcefulness
- Cultural adaptation/sensitivity
- Inter-personal relations/conflict resolution

APPENDIX III
MAJOR USAID CONTRACTS AND OTHER REFERENCES

I. MAJOR USAID CONTRACTS

1. Renewable Energy Development in Djibouti

An expert VITA team is working with the Government of Djibouti to reduce dependency on imported fossil fuels, introduce conservation techniques and renewable energy technologies, and develop a long-term national energy strategy. In association with the National Institute for Higher Scientific Instruction and Technical Research, the team has designed and constructed a building that demonstrates high energy efficiency techniques and conducted a national assessment of Djibouti's energy use patterns to determine areas of possible conservation or conversion to non-traditional fuels. A planned permanent National Energy Council will develop new energy policy and implement improved management techniques. The team is also assessing the viability of small-scale renewable energy technologies through the testing and demonstration of prototypes.

Organization: USAID (REDSO/EA office)
Contracting Officer: James A. Anderson
Period: June 1982 - December 1986
Type: Fixed Fee
Amount: \$3,306,250

2. Worldwide Renewable Energy Program

Alternative energy technologies for rural areas in lesser-developed countries are developed, transferred, and disseminated through the provision of technical assistance, establishment of an international information network, and administering a small grants fund. A field office is maintained in Thailand, long-term staff assignments to institutions in Upper Volta and Rwanda are supported, and home-office positions are staffed by experienced engineers.

The VITA Renewable Energy Program has proved to be successful not only in providing expert technical assistance to lesser-developed countries but, in an equally important way, in strengthening VITA's organizational capabilities in the field of renewable energy. This was recognized by USAID in its mid-term evaluation of the program. Further, as a result of performance under the REP, VITA has been encouraged to submit a proposal for a long-term program to support the development of wood-conserving cookstoves around the world.

Organization: USAID
Contract No.: AID/DSAN-CA-0182
Contracting Officer: Morton Darvin, phone (703) 235-1289
Project Officer: Alan Jacobs
Period: August 30, 1979 - September 1, 1984
Amount: \$6,139,201
Type: Cost reimbursable

3. Institutional Support for Technology Transfer Services

Information materials and information services are provided to individuals, private organizations, and government agencies concerned with social and economic development. Services to developing country businesses and institutions are generally provided free of charge. Staff supported by the contract include professional librarians and technical specialists. A computerized skills bank of volunteer experts is also maintained.

The Technology Transfer Services Cooperative Agreement has enabled VITA to establish firmly an up-to-date and unique information system. The steady increase in demand from developing countries for VITA's information services demonstrates the value of this resource: in the past three years requests for assistance have increased more than 100 percent.

Organization: USAID
Contract No.: AID/VITA PDC-0237-A-00-2109-00
Contracting Officer: Michael Synder
Project Officer: Dennis Baker, phone (703) 235-1684
Period: April 1982 - March 1985
Type: Cost reimbursable
Amount: \$1,950,000

4. Chad Small Enterprise Development Project

Under USAID's Chad Refugee Resettlement project, VITA will assist the small private enterprise sector in the capital city of N'Djamena and surrounding areas. This assistance will consist of a revolving loan fund to furnish capital necessary for re-establishing, expanding, or starting up small enterprises. It will also furnish technical assistance for identifying unfulfilled demands for goods and services and for management and production technology to selected small entrepreneurs. In the course of establishing a functioning small business loan program with local staff and management system, it is anticipated that new jobs will be created by helping existing enterprises expand and get launched.

Organization: USAID/N'Djamena
Contracting Officer: Richard Webber, REDSO/WCA/RCO, Abidjan,
The Ivory Coast (41.40.55)
Period: January 26, 1984 - February 14, 1986
Type: Cooperative agreement
Amount: \$1,000,000

5. Appropriate Technology Project in Guinea

VITA is working through the National Productivity Center of Guinea (CNP) to introduce and disseminate specific technologies. The project has three components: the production of low-cost, stabilized earth blocks with CINVA-Ram type machines to be fabricated and marketed in Guinea; the development and dissemination of fuel efficient wood and charcoal stoves; and the establishment of an appropriate technology documentation center. On-the-job training of Guinean technicians will help facilitate large-scale dissemination of the technologies among public and private sector builders. The low-cost, locally produced CINVA-Ram type machines are expected to reduce construction costs and the importation of expensive raw materials.

Organization: USAID/Guinea (REDSO/WA Office)
Contracting Officer: Richard Webber, Abidjan, The Ivory Coast (41.40.55)
Period: November 1983 - August 1986
Type: Cooperative Agreement
Amount: \$500,000

6. National Woodstove Program, Somalia

A VITA team is working with the National Range Agency of the Somalia Ministry of National Resources to develop and disseminate efficient cookstoves. The team is working in both refugee and nonrefugee areas in five regions: Hiran, Gedo, Lower Shabelli, Northwest, and Mogadishu. The project includes surveys of sociological and practical cooking considerations of households, training of counterparts, and provision of technical assistance to public and private agency stove programs. Promotion of the stoves will be largely undertaken via private producers as well as by extension efforts among consumers.

Organization: USAID/Somalia (REDSO/EA Office)
Contracting Officer: Jim Anderson, Nairobi, Kenya (331-160)
Period: March 1983 - March 1985
Type: Cooperative Agreement
Amount: \$646,000

II. OTHER MAJOR CONTRACTS

A. INFORMATION SERVICES CONTRACTS

1. Appropriate Technology Data Base

Information from the best of VITA's 42,000 technical inquiry cases and extensive document collection is being placed on Control Data Corporation's DEVELOP Data Base. The new data base contains information on specific ideas and technologies of interest to people in developing countries, as well as to farmers, small businesses, and others in industrial countries. Library experts are combing through VITA's document collection and past inquiry cases, abstracting useful information, and placing the material on the DEVELOP data base. More than two-thirds of VITA's entries deal with enterprise development, including farm-related businesses.

Organization: Control Data Corporation, Minneapolis,
Minnesota

Project Officer: Beth Holmgren

Contracting Officer: H. C. Jensen, phone (612) 853-4585

Period: January 1980 - January 1983

Type: Cost reimbursable & fixed fee

Amount: \$112,000

2. A.T. Research and Development Center

VITA collaborated with the Societe Africaine des Etudes et de Developpement (SAED) in Upper Volta to establish a documentation center and outreach prototype development center. Local staff were trained in information systems management.

Organization: Private Agencies Collaborating Together
(PACT), New York, New York

Contracting Officer: Allison Smith, phone (212) 697-6222

Period: 1979 - 1980

Type: Cost reimbursable

Amount: \$180,828

3. The World Bank, Washington, D.C.

VITA reviewed World Bank project briefs for the choice of appropriate technology and generated ideas for the possible areas in which appropriate technology concepts could be introduced through Bank projects, under the direction of the World Bank's Project Advisory Staff. A VITA staff member was assigned to the Science and Technology Unit of the Bank.

Contracting Officer: Charles Weiss, phone (202) 477-6525

Period: 1978 - 1981

Type: Cost reimbursable

Amount: \$183,127

4. United Nations Educational, Scientific, and Cultural Organization, Paris, France

VITA provided UNESCO access to its network of volunteer experts located in over 100 lesser-developed countries, in-house staff, and documentation center services and publications. In addition, UNESCO provided partial financial support for: (1) energy information specialists who were trained in VITA's Information Resources Training program, (2) an expert panel on approaches to collaboration among PVOs for development efforts in Zimbabwe, and (3) the publication of VITA's Renewable Energy Dictionary.

Contracting Officer: Charles Gottschalk, Paris phone
331-577-1610

Period: 1981

Type: Cost reimbursable

Amount: \$20,000

5. IBM Europe, Paris, France

Technical information and assistance provided to the International Institute of Tropical Agriculture in Nigeria was used to develop a wide range of implements necessary for no-tillage agriculture. Several of the implements were marketed by local entrepreneurs.

Contracting Officer: Carol B. Reavis, Paris phone
331-266-3311

Period: 1976 - 1980

Type: Cost reimbursable

Amount: \$20,000

B. ON-SITE LDC CONTRACTS

1. Honduras Integrated Development Project

The Pan American Development Foundation (PADF) and VITA are working together on an integrated development project for the Bay Islands of Honduras. The project will bring potable water to some twenty villages, promote improved sanitation technology, and help small producers obtain credit and acquire basic business skills. A development committee composed of leading business and civic leaders of Roatan, the largest of the islands, requested PADF and VITA assistance to provide the technology and material inputs for the project. PADF is identifying small business opportunities, providing training and technical assistance, and helping the Roatan Development Committee launch a revolving loan fund to benefit micro-entrepreneurs. VITA is installing wells and windmills for

improvement of water supplies, and improved latrines and sanitation technology.

Prime Contracting Organization: Pan American Development
Foundation (PADF)

Contracting Officer: Lewis Townsend, Vice President,
phone (202) 789-6161

Period: June 1983 - June 1986

Type: Cost reimbursable

Amount: \$1,331,000 (includes counterpart funding and local contributions)

2. Appropriate Technology Survey: Bolivia

Four VITA volunteer experts conducted a field survey in Bolivia to: (1) identify existing or potentially useful technologies, (2) evaluate public and private institutions that are, or that could be, involved in AT development and dissemination, (3) analyze the impact of existing national laws and regulations, and (4) recommend specific programs to increase the use of specific ATs. The study focused on the small industrial, agricultural, water supply/sanitation, and renewable energy sectors.

VITA considers that the survey was successfully carried out and notes that the findings and recommendations were well received by the Bolivian Government.

Organization: USAID/Bolivia

Contract No.: AID 511-179T

Contracting Officer: Abe M. Pena, phone (202) 632-3628

Period: July 1979 - December 1979

Type: Cost reimbursable

Amount: \$123,000

3. Farming Systems/Colombia

VITA technical staff are providing on-going technical advisory support in addition to field assistance to the integrated rural development program of the Foundation for the Application and Teaching of Science (FUNDAEC).

A recent consultancy specifically identified possibilities for improved soil fertility practices and pest management. Technical assistance continues in areas such as plant pathology, local livestock feeds, and creative marketing schemes.

Organization: PACT

Contracting Officer: Rita Gibbons, phone (212) 697-6222

Period: 1980 - present

Amount: \$58,000

4. Farm Mechanization/Colombia

A VITA consultancy to the FUNDAEC integrated farming projects assessed current farm mechanization and provided recommendations for improvements. Emphasis was on practical small-scale equipment and cooperative efforts to increase productivity for subsistence farmers and community organizations.

Organization: PACT
Contracting Officer: Rita Gibbons, phone (212) 697-6222
Period: 1981
Amount: \$6,500

5. Agricultural Development/Honduras

VITA staff have initiated a long-term program of diverse agricultural development for the Bay Islands with a comprehensive study of production and marketing opportunities. Particular attention is focused on the areas of market analysis, producer organization, information availability, and financial support.

Organization: PACT
Contracting Officer: Rita Gibbons, phone (212) 697-6222
Period: 1982 - 1984
Amount: \$295,000

6. Woodstoves Development in the Sahel

Woodstove development activities coordinated by VITA's technician posted at the Permanent Interstate Committee for Drought Control in the Sahel (CILSS) focuses on scientific testing of stove efficiency, developing efficient and acceptable stove designs, exchanging information on stove technology, and monitoring local stove projects. IBM's assistance drew interest and support from other donors, including the National Academy of Sciences, USAID, the World Bank, and the Dutch Government.

Organizations: IBM Europe, Paris, France; USAID; Dutch
Government
Contracting Officer: Carol B. Reavis, Paris phone
331-266-3311
Period: December 1979 - June 1984
Amount: \$542,000

7. Government of Guinea, Conakry, Guinea, Ministry of Information, National Center for Productivity

Sponsored by the Government of Guinea, a survey was carried out that investigated the resource availability and potential for renewable energy and appropriate technology in Guinea. The survey team consisted of experts in agriculture, energy, water resources, and nutrition. Special assistance was provided by the League for International Food Education (LIFE) in Washington, D.C. VITA planned and administered this major organizational effort, and printed the report of findings and recommendations. The government of Guinea found the report valuable, and has consequently entered into an agreement with VITA to establish a national AT program. (1980)

C. PROJECT DESIGN

1. Renewable Energy Resources Development

A partnership between the Rockefeller Brothers Fund and VITA was established that will promote the linking of efforts between interested groups for the effective use of renewable energy resources for the economic development of the Caribbean region.

Organization: Rockefeller Brothers Fund, New York, New York
Contracting Officer: William S. Moody, phone (212) 397-4800
Period: February 1982 - June 1985
Type: Cost reimbursable
Amount: \$50,000

2. Community Development in Central America

Project design and fund raising assistance were provided to community organizations in Central American countries. Such assistance helped establish a technology prototype and information center in Honduras.

Organization: Presiding Bishop's Fund for World Relief, New York, New York
Contract Officer: Marion E. Marez, phone (212) 867-8400
Period: 1979 - 1980
Type: Cost reimbursable
Amount: \$67,830

D. PROJECT EVALUATION

1. Prototype Wind Energy Project

In collaboration with the Instituto de Investigaciones Electricas in Mexico, VITA has conducted a project to evaluate meteorological conditions, determine potential areas for wind energy application, analyze the technical and economic feasibility of wind energy systems, and construct prototype wind energy conversion systems.

Organization: General Electric, Fairfield, Connecticut
Contracting Officer: Audrey M. Jupin, phone (203) 373-3224
Period: 1979 - 1981
Amount: \$60,000

2. Solar and Wind Energy Prototype Development

Two VITA staff members provided technical guidance largely in the testing and evaluation of solar and wind energy devices in Mali. Additional assistance was given for the organization of the instrumentation systems of the Solar Energy Lab in Bamako. A prototype machine shop was constructed and equipped to fabricate renewable energy technologies.

Organization: Solar Energy Research Institute, Golden,
Colorado
Contracting Officer: David Trujillo, phone (303) 231-1000
Period: January 1980 - October 1981
Type: Cost plus fixed fee
Amount: \$53,000

March 1984