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# AGRICULTURAL MARKETING IMPROVEMENT STRATEGIES PROJECT

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Assisting AID Missions and Developing Country Governments
to Improve Agricultural Marketing Systems

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# THE AGRICULTURAL MARKETING AND PROCESSING SYSTEM OF THE CENTRAL AFRICAN REPUBLIC

An Appraisal and Outline for Follow-Up Activities

Presented to: USAID/Cameroon

July 1989

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Presented to:
USAID/Cameroon

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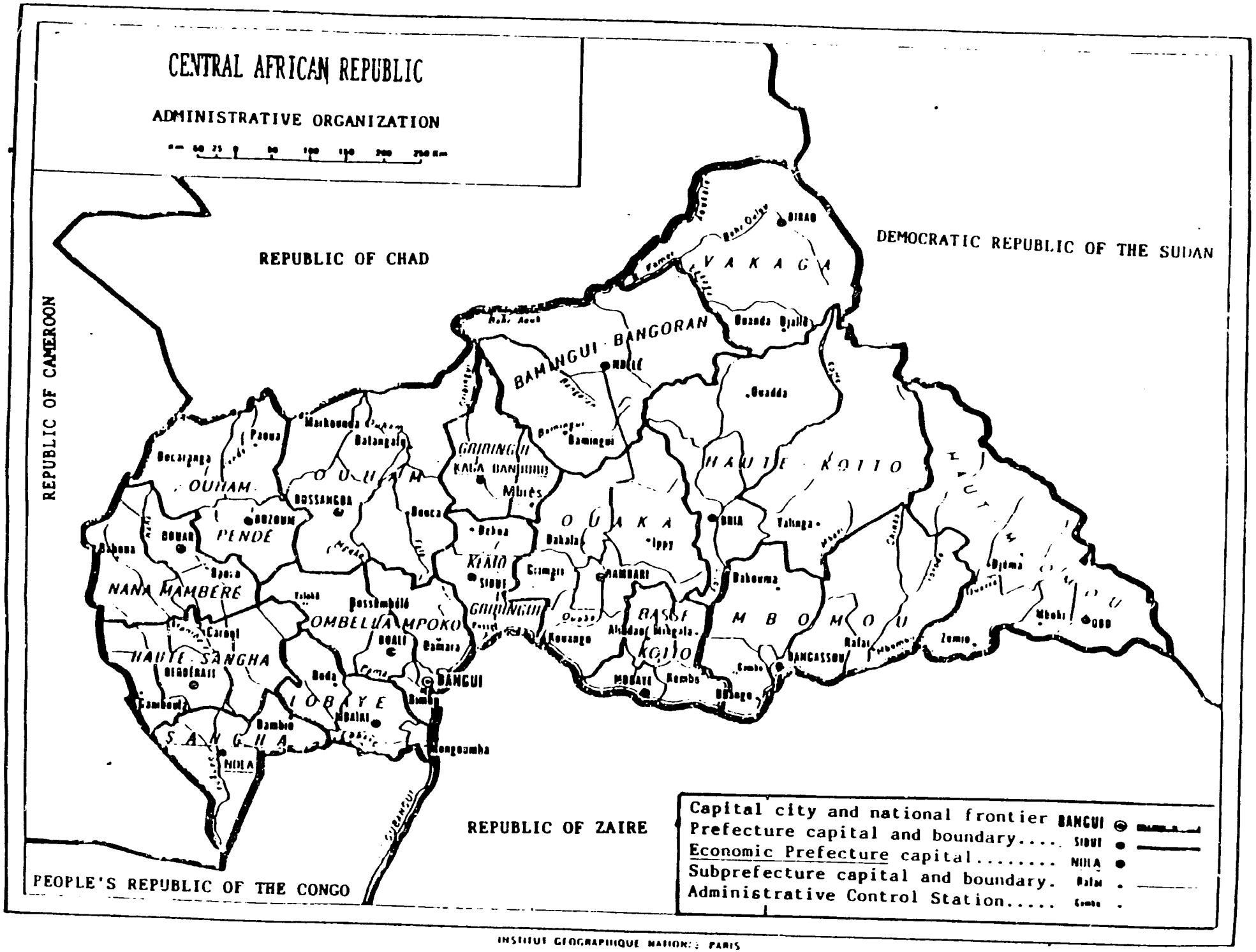


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## ACRONYMS

| | | |
|---|---|---|
| ACADOP | - | Agence Centrafricaine de Développement de l'Ouham Pende (Development Agency for the Prefecture of Ouham Pende) |
| ADECAF | - | Agence de Développement de la Zone Caféière (Agency for Development of the Coffee Region) |
| AFRICARE/RED | - | Rural Enterprise Development project |
| CAPMEA | - | Centre de l'Assistance aux Petites et Moyennes Entreprises et à la Artisanat (Center for Assistance to Small, Medium and Artisanal Enterprises) |
| CAR | - | Central African Republic |
| CFAR | - | Centre de Formation Agricole et Rurale (Center for Agricultural and Rural Training), a PVO linked to the Diocesy of Bossangoa, supported by German Misereor foundation |
| CREF | - | Centre Rural d'Education Familiale (Rural Center for Family Education) |
| GOCAR | - | Government of the Central African Republic |
| MRD | - | Ministère du Développement Rural (Ministry of Rural Development) |
| SOCADA | - | Société Centrafricaine de Développement Agricole (Central African Company for Agricultural Development - the cotton promotion agency) |
| UDFC | - | Union Democratique des Femmes Centrafricaines (Democratic Union of Central African Women) |
| UNDP (=PNUD) | - | United Nations Development Program |
| VITA/PHFS | - | Volunteers in Technical Assistance/Post-Harvest Food Systems project |

## EXECUTIVE SUMMARY

The present document results from the work of a two-person team fielded by the USAID-financed Agricultural Marketing Improvement Strategies Project (AMIS). The fieldwork took place in the Central African Republic in January and February 1989 and was followed by consultations and review sessions held at the USAID Mission in Cameroon, which oversees USAID activities in Central African Republic.

**Part A** of the document presents the results of the survey and fieldwork in the C.A.R as presented to the Mission.

**Part B** comprises the results of the consultations and review sessions held at the USAID Mission in Cameroon, which included terms of reference for future studies and for a pilot project in market information.

### PART A - DESCRIPTION AND APPRAISAL

According to the Scope of Work developed by USAID/Cameroon, the first task of the team was to undertake a preliminary survey of the agriculutral production, processing and marketing chain. A more detailed assessment would then be conducted if findings indicated that marketing constituted a constraint to increasing agricultural production and income. Based on the initial survey, the team judged that conditions in C.A.R. warranted further study and proceeded with gathering information and data for the Mission that could be later incorporated into a Project Identification Document (PID). The "AID Strategy Review" of February 2, 1988 had already endorsed the concept of undertaking an agricultural marketing project.

The team spent over four weeks in the Central African Republic studying the available documentation, contacting economic operators in both the private and public sectors, and conducting extensive field trips in the Prefectures of Ouaham, Ouaham-Pende, Nana Mambere and Haute Sangha. Personnel working on AID-funded projects implemented by VITA and AFRICARE provided the team with information and the documentation that greatly facilitated an understanding of the basic issues related to marketing and processing in the C.A.R. The team was impressed with the human, organizational and physical investment built up through these projects, which, if continued, could serve as a base for future development projects.

The objective of the survey conducted by the team was to (1) describe the principal characteristics of the agricultural and marketing system, and (2) identify the major constraints inhibiting the introduction of specific marketing improvements that in turn restrict the growth of the agricultural sector. In view of the lack of adequate documentation and reliable statistics, it was difficult for the team to formulate a comprehensive analysis. However, the team was able to describe some

important dynamics of the marketing system and specifically identified a number of constraints to improvements in the system. These constraints are as follows:

a) Structural Constraints

- o Geographical and demographic factors: small, sparsely settled population of 2.7 million spread over 600,000 square kilometers (4.5 inhabitants/sq. km.). Consequently high input distribution and product marketing costs.

- o Production for subsistence needs: most food crops are grown for subsistence needs, reducing the quantity of marketable surplus.

- o Fragmentation of marketing functions: a large number of traders dealing in small unit volumes, creating high transaction costs per unit of volume of product.

b) Attitudinal Constraints

- o Insufficient commercial orientation among farmers (and even public development institutions) and lack of appreciation of the need for competitive marketing systems.

- o Marked lack of success in the application of principles of cooperative marketing ventures.

c) Technological Constraints

- o Extremely rudimentary technology at all levels of:

  -- agricultural production
  -- storage, transport, distribution (wholesale and retail)
  -- processing (including absence of grades and standards)

d) Insufficient Credit for Farming and Marketing

- o Inadequacy of credit institutions (two bank branches outside of Bangui in the entire country) and

- o Inaccessibility of bank credit for all, except the largest food traders.

e) Market Information and Communications

- o Information on market price primarily through word of mouth.

f) Economic Inefficiencies of the Marketing System

- o Large differences in prices observed among different regions of the country.

## The Central Finding of the Study and a Project Proposal

The central finding of the study presented to USAID/Cameroon was that, given the extremely primitive state of the economy of C.A.R., characterized by a small and thin market, underdevelopment of the non-agricultural sectors, very low urbanization and heavy dependence of the rural population on subsistence farming, the growth of agricultural marketing and processing can take place only as a result of the growth of non-agricultural sectors and strengthening of effective non-farm demand for agricultural products. (See part A, section 1 of the present report).

As a conclusion of its work in the C.A.R., the team proposed a project in support of agricultural marketing and processing. Considering the very high costs of activities in the large, landlocked territory of the C.A.R., the funding available for the project ($1,500,000 per year over five years) did not seem excessive.

The review at the Mission resulted in a suggestion to the team that, while a pilot project in marketing information is desirable, additional studies are needed before deciding upon further steps regarding a possible full-scale project. The design of these studies was discussed at the Mission before the team left Yaounde. The outlines of the studies are presented in Part B of the present document.

## PART B - RECOMMENDED ACTIVITIES

### B-I Analysis of the Dynamics of the Supply and Demand of Food in the 1990-1995 Period

1. Demand: driving forces (population growth, urbanization, industrialization, etc.); their effect on the volume of food demanded, processing, storage, etc. Expected influence of these changes on the dietary habits.

2. Supply: responsiveness of producers (elasticity of supply); prerequisites of the growth of supply (investment, price policies, etc.); growing complexity and sophistication of transport, storage, handling; impact on employment.

### B-II Analysis of the Need for Specific Actions for Improvement

B-II-1 Capacity of the system, as presently constituted, for expected growth in volume and complexity; efficiency; specific needs.

### B-II-2 Policy Reform: Implementation-To-Date and Further Needs

The objective of this study is to identify the changes needed in the current legal, regulatory and administrative structure, in order to eliminate the constraints and encourage an expansion of agricultural marketing.

- Business licensing and restrictions on exercise of commerce;
- Legal rights of women as regards property, debt, etc.;
- Fiscal charges: customs duties on equipment, spare parts, etc.;
- Remaining regulation of prices, interregional transport of agricultural commodities, freight charges, etc.; and
- Other restrictions and regulations.

B-II-3 Credit Needs and Availability

- Analysis of the needs: working capital, fixed capital (vehicles, storage, processing equipment, etc.);
- Difficulties in the access to formal credit sources;
- Conditions offered by informal sources (family, money lenders, etc.); and
- Search for innovative credit formulae.

The level of effort involved in the above studies (B-I and B-II-1,2,3) consists of 26 weeks of work performed by four expatriates and 20 weeks by three local-hire individuals.

B-III Pilot Project: Design and Testing of a Market Information System

This pilot project would be executed in cooperation with the Radio Rural (supported by German technical assistance) and the Ministry of Rural Development, building on the rural market monitoring system already initiated by AFRICARE in the important Prefecture of Ouham Pende.

A sample of markets will be selected to include three significant shipping points, terminal markets in Bangui and major provincial centers. The information will include current prices of important commodities, such as cassava chips, grains and groundnuts. Another important type of information to be gathered is the availability of supplies of respective commodities offered at various market locations.

It is expected that dissemination of this information over the Radio Rural network will provide a stimulus for farmers to develop commercial attitudes and contribute to greater competition within the national market.

## PART A

## DESCRIPTION AND APPRAISAL OF THE AGRICULTURAL MARKETING AND PROCESSING SYSTEM

### 1.0 OVERVIEW AND PERCEIVED PROBLEMS

### 1.1 Agricultural Marketing and the Economy of C.A.R.

The economy of Central African Republic can be characterized as predominantly rural-based economy, with agriculture (farming, livestock and forestry) accounting for approximately 40 percent of GNP and providing employment for 80 percent of the population. Other economic activities include mining (diamonds), some secondary and tertiary industries, and services. Agriculture is an important contributor to export earnings, accounting for 60 percent of official receipts (coffee, wood, cotton and tobacco). Diamonds, ivory and gold make up the remaining 40 percent of official receipts, and also provide considerable but unknown unofficial export revenue.

C.A.R. experienced a serious decline in output and income in the 1970s which left the economy weak and stagnant. In the 1980s the Government began to promote an agricultural-led growth strategy. Beginning in 1982, an economic recovery program was initiated in order to improve the level of income growth and to correct fiscal and budgetary problems through better macro-management. Some improvements were registered in the mid-1980s, e.g., food production increased in response to a liberalization of the price and trade regimes. However, a fall in world commodity prices for C.A.R export crops (coffee and cotton) contributed to a decline in real per capita GDP in 1986 and 1987, and the country faces continued fiscal problems, a weak balance of payments situation, and negative domestic savings. There are some identifiable tendencies in the economy that inhibit the development of the country:

i. Low productivity in the agricultural sector is responsible for low per-capita income for the country as a whole, because of the relative importance of agriculture to the national economy;

ii. The isolation of rural areas from the national economy is reinforced by the reliance of producers on subsistence production and the absence of a well-developed road network;

iii. Effective non-farm demand is limited owing to low urbanization and incomes, which does not give producers adequate incentives to increase production.

iv. The non-agricultural sectors of the economy -- mining, manufacturing, and services -- are relatively stagnant;

v. The level of exports to industrialized countries is flat and does not provide much stimulus for export-driven economic growth.

The Central African Republic has some distinguishing characteristics which put it at a disadvantage compared with other developing countries. First, C.A.R is landlocked and does not have direct access to an ocean port. Distances to and from potential markets are long and transport cost high. Secondly, its relatively small population is dispersed throughout the country and the system of rural feeder roads is not well developed, which further contribute to high transport costs.

All of the above factors act as constraints to the development of the agricultural economy. For agricultural marketing improvements to be worthwhile, it is crucial to determine what the future trends in supply and demand for foodstuffs is. The next step is to identify the primary constraints that must first be removed to allow for improvements in the agricultural marketing system.

Future trends in the supply and demand of agricultural products are difficult to estimate in C.A.R. due to the lack of reliable information and data on production and consumption. The demand for food and other agricultural products by the non-agricultural population is itself a function of increased growth in the urban-based economy (i.e., in the secondary and tertiary sectors of trade, industry, services, etc.). Assuming a positive supply response, the capacity to produce marketed surpluses should correspond to increases in demand. If the marketing system is performing well, it will provide producers with an outlet for their surplus production that will meet the demand for food among the non-agricultural portion of the population. Population growth, increased per-capita income, urbanization and the rise in non-farm employment are all factors that contribute to increased demand for food.

One forecast of future trends in food supply and demand was made in a study undertaken by the Office for the Development of Agricultural Production (BDPA), a branch of the French Ministry of Cooperation and Development. BDPA issued a food strategy study (Etude pour la Définition d'une Stratégie Alimentaire) which forecast a doubling or more of the production of most crops between 1980 and 2000, a tripling of fruits and vegetables, and a quadrupling of animal products. The study gave a scenario in which the non-subsistence, monetized part of agricultural production would grow at a rapid rate, as the ratio of the non-farm population to the farming population increased. The study also showed that currently more than 50 percent of the food needs of Bangui are supplied by urban and peri-urban agriculture, and more than 70 percent within a radius of 100 kilometers. If urban-based demand continues to grow, the geographic zone producing for Bangui will likely expand. The BDPA scenario makes the assertion that simultaneous growth in all sectors of the economy will result in increased employment in the non-agricultural sectors, and result in increased demand for agricultural products.

Whether the agricultural marketing system can facilitate increased production for the market depends in part on how successful the government is in implementing policy reform measures that are aimed at eliminating existing marketing constraints and creating a more favorable

economic environment. The next section identifies and discusses these marketing constraints.

## 1.2 Constraints of the System to be Overcome

### 1.2.1 Structural Constraints

#### 1.2.1.1 Geographical and Demographic Factors

Central African Republic's small population of some 2.7 million is dispersed over an area of 600,000 square kilometers, resulting in an average density of only 4.5 people per square kilometer. The largest city, Bangui, has a population of approximately 400,000 people and is situated on the country's perimeter. There are a few large provincial towns of between 20,000 and 50,000 that are located several hundred kilometers from the capital and from each other. Small hamlets and villages in C.A.R. are interspersed as one-house-deep ribbons along the highways and access roads.

The high degree of population dispersion in C.A.R. results in very long distances over which goods have to be transported. Transport costs are high due to poor roads, high fuel costs, and relatively low volumes of goods traded.

#### 1.2.1.2 Subsistence Food Production and Marketed Surpluses

The total annual production of all food crops is estimated at between 750,000 and 900,000 tons, of which some 30 to 40 percent is estimated to enter the commercial system. The rest is consumed at the subsistence level. Using the above estimates of total production, the quantity marketed can therefore range from as low as 225,000 tons to as high as 360,000 tons. Assuming the number of agricultural households is between 330,000 and 363,000, an average household contributes to the commercial system about one ton per year[1].

Estimates of commodity flows are difficult to make because there is little data available. Much of the marketed surplus is exchanged locally and never enters the larger commercial market network. Local exchange would include sales made among farmers and by farmers to small rural collectors and retailers, who may store and resell later in local markets. If we make the broad generalization that half of the marketed surplus actually moves out of local markets and enters the larger market system, then the <u>average</u> daily movement would range somewhere between 300 and 500 tons. However, seasonality factors, limited storage capacity, and poor transport conditions during the rainy season would add considerable variation to daily commodity flows.

A fairly sizeable country market in which produce is assembled for wholesalers in towns and Bangui may have on a single day no more that some

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[1] Rural Population/Mean Household Size, or 2.0 mil./5.5 = 363,000.

15 to 30 tons of product of all kinds. Much of the sorghum and maize on the market is used for brewing of the traditional beer, which is typically sold in country markets on market day.

#### 1.2.1.3 Market Participants and Their Functions

Marketing is carried out by many small and large-volume traders, who on the average make many small transactions, using a large number of intermediaries. As a result, average transaction costs per unit of the traded commodity tend to be high.

Market participants include the following groups:

- rural women who sell their own production (cassava, other tubers, dried vegetables and spices, etc.) as well as the production of their husbands (who mainly cultivate grain products);
- small-volume itinerant women traders (wali galas) who buy from peasants for resale at retail or for sale to larger traders;
- large-volume wali galas who buy from small-volume traders for resale to retailers in provincial towns and to Bangui;
- moslem male traders, who, like the wali galas, deal in both small- and larger-volume quantities. These men constitute about 30 percent of the total trading community;
- wholesale traders who buy mostly from the above groups but also sometimes go into country markets to buy for resale in large towns or Bangui.

Most agricultural commodities are traded in the many organized country and town markets that operate in C.A.R., varying in both size and frequency (daily, weekly, or every several days). Traders buy and sell in these markets and some traders buy directly from hamlets or villages that do not have regular, functioning markets. Many of the households in villages located along highways sell agricultural products directly to consumers who are passing through. There are no accurate estimates of the number of individuals who participate in agricultural marketing.

In sum, there are two conclusions that can be drawn regarding agricultural marketing in C.A.R..

(i). The extreme diversity of market participants, combined with high transport costs, result in high transaction costs; and

(ii). A rationalization of the marketing system that would lead to a smaller number of larger transactions in order to reduce transaction costs would also likely incur significant social costs. A consolidation of trading functions would mean that fewer traders would be needed. This could eliminate the livelihood of many thousands of small traders who rely the

income they receive from small-volume trade.

### 1.2.2 Attitudinal Constraints

#### 1.2.2.1 Lack of Commercial Orientation among Farmers

Farmers in C.A.R. are traditionally subsistence-based and have not developed a strong commercial orientation. Farmers feel they should receive highly remunerative prices for their surplus production, irrespective of supply and demand conditions. The farmers expect traders to take the initiative in terms of finding farmers to buy agricultural products from. Many farmers maintain the government should set prices at a high level favorable to the producer. The attitude of the farmers reflects the past tendencies toward government intervention and administered prices that have only recently been reformed and liberalized. In general, farmers in C.A.R. lack a good understanding of how prices reflect demand by consumers.

#### 1.2.2.2 The Role of Rural Agencies and Farmers Groups

There are a number of agencies and organizations that oversee rural development activities related to the production of specific crops. Cotton and coffee, for example, are handled by SOCADA (cotton) and ADECAF (coffee) which provide farmers with credit and technical assistance, and assist with the assembly of their production for export shipment. These agencies have organized farmer producer groups (groupements) through which farmers receive production subsidies. Farmers have so far not used their groups to expand production and marketing of other crops, which probably is due to the fact that these groups function primarily to serve the needs of the rural agencies (i.e., production of cash crops).

Cooperative initiatives among farmers have resulted in many examples of admirable community actions (construction of pharmacies, school buildings, etc.), funded from the monies which the groups receive for assembling, handling and preparing for shipment of cotton or coffee produced by individual members.

#### 1.2.2.3 Cooperative Enterprises: What Are the Lessons Learned?

There are many kinds of village-level community organizations that have been set up in C.A.R. to initiate grass-roots activities. These activities usually are related to social infrastructure (e.g. schools) to improve the well-being of the villagers -- schools, or income-generating schemes (e.g., storage). The success of such activities is easier to judge in the case of social infrastructure because there is usually some clear evidence of accomplishment (i.e., the school is built). In the case of income-generating activities, it is more difficult to assess performance (i.e., silos have been built but are they being used?). In C.A.R., grain storage programs were organized for farmer groups in order to allow them to store their production when prices were low (at harvest time) and sell when prices rose. The record of success in storage is mixed.

One scheme financed by the United Nations was a cooperative venture for farmers that failed because it was poorly managed. Another example of a grain-storage scheme is one organized by ACADOP. The purpose of the scheme was not sufficiently explained to the participating farmers, and it was poorly supervised. ACADOP was finally forced to terminate the program.

The above cases demonstrate the importance of project design, village institutional structures, and training as critical components of village-level schemes that aim to transfer new technologies. In the ACADOP scheme farmers were not given proper training in the principles of storage and did not receive sufficient follow-up supervision. As a result they did not benefit from improved storage and many who received cash advances were not able to repay their loans.

### 1.2.3 Technological Constraints

Agricultural marketing technology is rudimentary in the C.A.R. A few illustrations follow:

- Lack of proper storage and perishability of the important foodstuffs, combined with the climate of the rainy season, result in losses and forced sales at unfavorable prices. It is often alleged that in such cases disproportionate profits go to the traders who buy the product. At present, in the absence of data on trader budgets, these allegations are hard to confirm or disprove.

- Most agricultural processing equipment is primitive (e.g. pestles and mortar for grain and cassava). There is little or no mechanization of processing, even though labor-saving equipment could make a dramatic impact on the lives of women by freeing up their time for more productive activities.

- Underdeveloped use of inputs and insufficient (almost non-existent) input-supply network.

- Near-absence of rural non-agricultural activities, such as repair shops, mechanics and other enterprises of technical support and supply for agricultural activities.

- Public food markets in Bangui and provincial towns are very rudimentary. In villages, they consist simply of open plots with some flimsy shelters and shade trees.

Under the heading of technological constraints mention must be made of the Post-Harvest Food Systems Project of USAID executed by VITA in collaboration with AFRICARE. That project is one of not too many praiseworthy activities to overcome the C.A.R's technological constraints.

The VITA/Africare project began a grain storage program aimed at

minimizing post-harvest losses of sorghum and millet due to rats and insects. Experimentation was undertaken using various storage technologies (e.g., clay jars) and protective devices (e.g., rat guards). Subsequently, efforts were expanded to food processing: manual and mechanical milling of grains, cassava and groundnuts; corn shellers; and concrete or plastic-tarpaulin drying surfaces for cassava. See Annex IV for a more detailed description and assessment of these technologies.

VITA also developed an impressive training and extension methodology in which farmers and school children participated. Innovative means of communication, such as short theatre plays, were used.

The present personnel of VITA is composed in part of direct employees and in part of employees seconded by the Government or another development NGO (ACADOP). It seems to be a well managed and highly motivated group. Considerable investment in buildings, laboratory and communication equipment, rolling stock has been made. Further USAID programs should build upon the VITA/Africare experience.

### 1.2.4 Insufficient Credit for Farming and Marketing

Credit for small farmers is non-existent, except on the informal level of rural money-lending with its harsh conditions. Nor have small and medium traders access to the bank credit. Some large traders, owning houses in towns qualify for, and benefit from, mortgage credit. In these conditions, many small and medium traders must limit their activities to the availability of their own cash, unless they can be funded by a larger-scale merchant.

Among women traders there have developed several kinds of group-support activities, some of which palliate the lack of access to bank credit. For example, a recently formed association of some twenty women traders in Bangui raised, by subscriptions, a posted capital of about $3,000, which is loaned out in turns to two-person teams for their trips to buy foodstuffs in the countryside for resale in Bangui.

No cases of any substantial amount of capital being generated in the above indicated manner for purposes other than that of working capital were revealed during the fieldwork.

### 1.2.5 Market Information and Communications

There is no formal system of information about prices and availabilities of various commodities in different areas of the country. Traders, especially the larger ones, obtain that information by a network of friends, communications through truckers and similar means. These means are largely unavailable to small farmers.

### 1.2.6 Efficiency of the Marketing System

#### 1.2.6.1 Pricing efficiency

Very large differences in prices can be observed between different locations in the country. Much of these differences can be explained by the high cost of transport and the atomization of the system which renders it costly in terms of effort per unit of product traded. Whether all the difference can be explained by these factors is a question for the eventual project to study.

In the diamond and gold mining region, in the departments of Haute Sangha and Sangha, many farmers have abandoned agriculture in favor of working in nearby mines. In that region, the price of foodstuffs is high compared with other regions. The deficit in food production in the regions is especially marked for groundnuts. It would be useful for future applied research to compare to what extent regional price differentials are a function of regional specialization; or, are they due to an inefficiency of the marketing system in equalizing interregional differentials.

#### 1.2.6.2 Bargaining power: perfect competition vs. oligopsony

Rural markets in the C.A.R. are characterized by many small farmers selling to few buyers. For example, on a day in February 1989, at a large rural market at Lere in the department of Ouham there were 600 sellers who brought about 300 cuvettes[2] (7,500 kg.) of sorghum and 400 cuvettes (8,000 kg) of cassava chips. A handful of buyers, one of them a large wholesaler from Bangui who came in his own truck, came with three regular trucks and two pickup trucks. Whether collusive behavior among the buyers took place is not known.

Many traders say that the farmers set the price. Farmers deny it. Important as the issue is, it is doubtful whether any project in the near future will have sufficient means to make an explicit study of that question, let alone influence the situation. On the other hand, the pilot information project proposed in Part B of the present document would start to generate empirical data on prices which, in the long run, could help to study the degree of competition or its restraints in C.A.R. agricultural markets.

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[2] A "cuvette" is the traditional large-volume measure used for cassava, grains and groundnuts. It is a large enamel basin that holds approximately 20 kg. of cassava and 30 kg. of cereals.

## 2.0 ANALYSIS OF CONSTRAINTS

### 2.1 Policy Framework

The market for food products (principally cassava and sorghum) in the Central African Republic is limited due to the small size of the non-agricultural population, low population density, little export potential, and the high transport costs. Recent movements toward market liberalization as part of a structural reform program have, however, gone a long way toward relieving the price and allocative distortions typical of previous economic policies. Specifically, the government has already abolished the system of indicative prices for food products, and the food crop marketing subsector now demonstrates distinct signs of dynamism.

The private sector is dominant in the area of food crop marketing and shows every sign of being well-organized, diversified, and responsive to market signals (see above, sec. A.). There still exists some uncertainty among producers and traders as to the commitment to liberalism by all parts of the government. This is most apparent at local levels where application of tax, transport, and market regulations can sometimes be quite random.

### 2.2 Production Potential

Agricultural production in C.A.R is organized around the small farm, which operates as an autonomous production unit, the members of which exhibit highly individualistic decision-making behavior. This system provides the production unit with a very high degree of flexibility, but within the context of a relatively limited resource base. It is, thus, an efficient, low-resource, essentially subsistence production system. The flexibility of the system has enabled it to meet the challenge of accelerating urbanization while maintaining national food self-sufficiency. This is also due in no small part to the fact that the principal foodstuff for both rural and urban consumers is cassava, an extremely easy crop to produce. The importance of this crop in the Central African food system is evident in crop statistics which show that during the 1987-1988 season hectares planted in cassava totaled 293,000, compared with 242,400 for groundnuts and 185,200 for maize (see Annex II, Table 3).

Agricultural production in C.A.R also faces certain disincentives beyond those usually present in a low-resource based system. The organization of production is on an individual basis with farmers cultivating their own land, while consumption patterns tend to be somewhat communal. Once crops are harvested, they become subject to a number of traditional distributional obligations--food sharing, gift giving, intra-family and inter-communal exchanges of an almost obligatory nature, taboos against "getting too far ahead", etc. The effect of these social disincentives seems to manifest itself in two directions. There is a net disincentive to store surplus production on the farm or in the village. (Crops stored in the field seem to be relatively free from these social constraints, but they are subject to environmental and other

physical hazards.) On the other hand, there is every incentive to get rid of any surplus quickly, usually by converting it to cash in the marketplace. In this manner the social pressure to make gifts in kind to members of the extended family is lessened.

Finally, there are production disincentives of a structural/technical nature. Farms and villages in the Central African Republic tend to be somewhat isolated--a function of the generally dispersed population and underdeveloped road network. The distances from the homesite to the farm/fields are also often great. Since virtually all produce must be carried back to the home (usually on the head), the quantity produced is often limited by the amount of human energy available. By the same token, the unavailability of either labor-saving (i.e., carts, traction animals) or resource-saving (i.e., fertilizers) inputs imposes yet other limits on individual and household production possibilities.

### 2.3 Demand

Shallowness of demand for agricultural products is often a constraint in and of itself in low-resource, subsistence economies. In effect, nearly every consumer is also a producer of the same items for which potential demand exists. To posit whether it is this limited effective demand for food or the technical and social constraints to production that constitute the main disincentives to production is, in the present case, a moot point.

### 2.4 Marketing Arrangements

The production, demand, and policy considerations outlined above have combined to encourage a marketing system in C.A.R. strongly oriented toward high turnover. Where the farmer sees certain advantages in quickly liquidating his small surplus, traders also see an advantage in moving it to terminal points for sale or storage. Initial purchasing and handling is usually done by the omnipresent wali galas (literally: market women). They buy in various small markets by the cuvette. Once a woman has amassed one or several sacks, the commodity is hauled back to a regional center or to Bangui itself. These women often resell to other wali galas in the intermediary chain, but equally often retail the product themselves. Typical costs incurred at this level are as follows:

Marketing costs of 8 Cuvettes of Cassava (where 1 cuvette = 20 kg.)

| Cost Category | Unit Cost | No. Units | Total Costs | |
|---|---|---|---|---|
| Cassava (purchase) | 1,000 FCFA | 8 cuvettes | 8,000 | |
| Transport (personal) | 500 FCFA | 1 roundtrip | 500 | |
| Transport (goods) | 1,500 FCFA | 1 6-cuvette sack | 1,500 | |
| Loading/Unloading | 200 FCFA | 1 8-cuvette sack | 400 | |
| Storage | 300 FCFA | 1 8-cuvette sack | 300 | |
| Opp. cost of capital | | | 100 | |
| **Total** | | | **11,100** | |
| **Total Returns** | **2,500 FCFA** | **8 cuvettes** | | **20,000** |
| **Net Returns** | | | | **8,900** |

Clearly, these cost and return estimates are very rough and preliminary. Further applied research under a market information system would establish more complete and accurate estimates. Evidence of high costs for performance of particular market functions could signal where cost-reducing investments might be made. Evidence of high net returns would suggest a marketing system development strategy that promotes increased competition, greater efficiency, and reduced costs.

Net returns from marketing 8 cuvettes of cassava are estimated to be 8,900 FCFA, which appears high. Note, however, that the marketing costs do not include storage costs, product losses, payment of gratuities at check points, or any market taxes or licensing fees (i.e., patente). It should also be noted that the 9,200 FCFA appears to be a return to both wholesale and retail operations.

In addition to the above marketing channel, wali galas also sell at retail in regional markets or to larger "arab" traders. The latter also make frequent trips to the more accessible rural markets where they can buy enough in a few days to a week to fill a seven-ton truck. It is notable that truck-owners or larger traders often specialize in sorghum and/or groundnuts, though some engage in cassava purchasing as well. These larger traders are the only real "wholesalers" who have any considerable warehousing capacity. They seem to be well aware of the role of opportunity costs, and express a motivation to turn over their stocks relatively rapidly and avoid storage for too long a period.

Some large traders own their own trucks, but most rent from transporters. The number of trucks available is limited and roads are bad, so transportation costs are very high. A trader renting a truck will obviously not have access to more isolated markets, but he will, at least, be able to set his own itinerary. Wali galas almost always are constrained to use public transport and are thus subject in part to someone else's schedule.

The marketing and distribution system in the C.A.R. seems appropriate for the low-level economy in which it operates. The system provides traders with a good income relative to the rest of the population. However, it does not generate enough saving for traders to make major investments much beyond their cash-flow needs.

Marketing improvements can provide better economic incentives to producers. Exploiting economies of scale, increasing competition, investments in transportation and market infrastructures, and reduction of costs in the distribution chain are the logical areas where excess capital can be generated for future investment. Locating points of opportunity in these areas in the present cash-short, high-turnover situation will take a commitment to the relative long view. It is, nevertheless, this view that we believe is the only relevant perspective for a marketing support project in C.A.R.

## 3.0 GOVERNMENT AGENCIES AND PUBLIC-SECTOR INSTITUTIONS RELEVANT TO AGRICULTURAL MARKETING ACTIVITIES

### 3.1 Planning Commission - Haut Commissariat Chargé du Plan

This office is headed by a Secretary of State who reports directly to the President. Among its functions are the relations with foreign international and bilateral assistance organizations. Thus, any assistance agreement is formally negotiated with that agency.

### 3.2 Ministry of Rural Development - Ministère du Développement Rural (MRD)

This ministry is charged with the promotion of rural development, as well as with the functions usually performed by ministries of agriculture in the domains of research, planning and statistics. The ministry is not responsible for agricultural extension, the latter function being the responsibility of various development agencies (see below) in the regions in which they are active.

A senior officer of the Ministry, a Delegate (Délégué), supervises offices in each prefectorial department (prefecture) and serves as an advisor to the préfet in the matters of agriculture and rural development.

### 3.3 Ministry of Commerce, Industry and Small and Medium Enterprises - Ministère du Commerce, de l'Industrie, des Petites et Moyennes Entreprises

Some of the roles and responsibilities of this ministry are to:

- to conceive and apply the Government policies in this sector
- to conceive and apply national policies in foreign trade;
- to supervise advisory institutions, such as the Chamber of Commerce, and professional organizations in its sector;
- to maintain relations with foreign and international organizations active in the sector in question;

### 3.4 Center of Assistance to Small, Medium and Artisan Enterprises - Centre d'Assistance aux Petites et Moyennes Entreprises et à l'Artisanat (CAPMEA)

This office offers consultations in the matters of enterprise feasibility and management, and helps prepare applications for credit from banks and other credit institutions. Although a public agency, CAPMEA is designed to operate as a private enterprise and eventually cover its costs by fees charged for its services. CAPMEA reports to the Ministry of Commerce. It receives assistance from the International Labor Office.

### 3.5 Chamber of Commerce, Industry, Mines and Artisans - Chambre de Commerce, d'Industrie, des Mines et de l'Artisanat

This organization has received effective technical assistance from the Paris Chamber of Commerce since mid-1988. Its recent achievements include:

- proposals for new commercial and investment legislation, submitted to the Government and currently under discussion;
- successful intervention for the elimination of high tariffs on computers for use by business enterprises;
- obtaining financing from the French Caisse Centrale for three small enterprises: brick factory, printing press, and movable coffee decorticating plant;
- publication of a bulletin of economic and commercial news; and
- a weekly radio program.

As of February 1989, the Chamber began undertaking a comprehensive census of all commercial, industrial, financial and other firms and organizations, public and private, in Bangui. The Chamber has already started a series of market profiles for various trades. One for butcheries in Bangui has been already completed.

### 3.6 Important Development Agencies

SOCADA (Société Centrafricaine de Développement Agricole), engaged principally in supporting production and assembly of cotton, ginning, cotton oil production. Some activities in varietal adaptation trials for food crops. Receives significant French financial and technical assistance.

ACADOP (Agence Centrafricaine de Développement de l'Ouham Pende) engaged in integrated development in the Prefecture of Ouham Pende. Receives strong German financial and technical assistance. Collaborates with VITA project.

ADECAF (Agence Centrafricaine de Développement de la Zone Cafeiere) engaged in technical assistance to coffee growers. Distribution of some subsidized tools, fertilizers and insecticides. Some assistance in food crops.

PNDE (Projet National de Développement de l'Elevage) engaged in support, mainly veterinary, for cattle raisers.

SCAT (Société Centrafricaine des Tabacs) engaged in support for tobacco growers.

## 4. STRATEGIES OF GOCAR, AID AND OTHER DONORS RELEVANT TO THE SUBSECTOR OF AGRICULTURAL MARKETING AND PROCESSING

"GOCAR officials, and other donor representatives repeatedly stated that distribution and marketing of increased food (and other crop) production was the greatest single problem in increasing and diversifying rural incomes, thus improving the well-being of the rural population." (From A.I.D. Strategy Review, February 2, 1988, p. 11)

### 4.1 GOCAR Five Year Plan

The Plan of Economic and Social Development of the Central African Republic for the period 1986-1990 establishes the following goals and principles:

- Disengagement of the State from production and commercial activities and from price setting for foodstuffs (pp. 25, 26).
- Need for the establishment of small private (individual and cooperative) artisanal and commercial enterprises in the rural sector (pp. 41, 42).
- Improvement of post-harvest methods (VITA project - p. 47).
- Extension of commercial activities of "Groupements d'Intérêt Rural - "G.I.R."s (p. 48).
- Support for commercial credit in agricultural sector (p. 49).
- Investment in access roads and rural radio service (p. 50).
- Support for rural processing industries of cassava and honey and for artisanal industries of agricultural inputs (blacksmith shops, equipment for animal traction, etc.) (pp. 50, 51).
- Program of studies of commercialization of foodstuffs (p. 51).

### 4.2 AID Strategy Statement

From A.I.D. Strategy Review, Central African Republic, February 1988:

"The team recommends that A.I.D.'s future program in the C.A.R concentrate fully on the agriculture sector. The strategy should, however, shift away from agriculture production towards the distribution and marketing of agriculturally based products." (p. 11)

[the project] ..."would build upon the experience gained in Rural Enterprise Development and the Post-Harvest Food Systems projects. It would include market information, training of potential and actual small and medium scale entrepreneurs...training of micro entrepreneurs (with a small...credit component...and institutionalizing technology transfer ..." (p. 12)

### 4.3 Other Donors' Programs

The World Bank

(Report No. P-4813-CA of May 17, 1988, pp. 22 ff)

Objectives comprised in the Structural Adjustment Program:

- The Government will continue to liberalize the marketing of domestic foodstuffs to promote their consumption.
- The tariff structure for food products will be reviewed to provide adequate protection for local food products.
- Support for small agro-processing enterprises and construction and maintenance of rural roads.

German Assistance

German assistance is concentrated on financial and technical support for ACADOP (Agency for Development of the Department of Ouaham-Pende). That agency promotes pre-cooperative groups of farmers, and supply stores of agricultural inputs. It has collaborated with the Post-Harvest Systems Project of AID.

French Assistance

This very large (about $100 million per year) assistance supports a great variety of programs. One of them, SOCADA, promotes production and processing of cotton. Cotton is linked, in crop rotation, with the production of foodstuffs.

The management of SOCADA professes a great interest in the production and commercialization of foodstuffs and, indeed, certain varietal trials may be contributing to the amelioration of varieties grown in the areas where they are rotated with cotton. Nevertheless, SOCADA focuses on cotton production, ginning and export marketing, and its human and technical resources for food crop development and promotion are limited. SOCADA's principal business is cotton and time spent on other crops is time taken away from cotton.

Another program, executed by the Association Francaise de Volontaires du Progrès, provides technical assistance and inputs (at commercial prices) to hundreds of small vegetable growers in the Bangui area and in the prefecture of Mambere near the town of Bouar.

## PART B

## RECOMMENDED ACTIVITIES

The diagnostic of the food marketing system in C.A.R. given in the preceding part of the present document describes that sub-sector as a part of a stagnant economy, on a very low level of per-capita income and a high percentage of subsistence. Naturally, on such a low level of income and technology, the production and marketing of food are predominant components of the economy.

At the present level of the C.A.R. economy, the growth of marketing and processing of agricultural products depends on the growth of other secondary and tertiary sectors of the national economy. The growth of these sectors will create demand for food processing and marketing functions.

On the other hand, even at the present low level of the economy, there are actions that can usefully be taken for an improvement of the present marketing system. An improvement in market information (both for producers and traders) will immediately contribute to a better (more efficient) functioning of the system. These actions include:

- **Additional in-depth studies**

In order to provide baseline information for activities to be designed for the improvement and extension of food marketing, additional in-depth studies will be carried out on the following subjects:

B-I Analysis of the dynamics of the supply and demand for food in the 1990-1995 period. (See below terms of reference B-I)

B-II Analysis of the current market structure and its capacity to meet processing and marketing requirements efficiently. That analysis will comprise studies on the following subjects:

i. market structure and efficiency (terms of reference B-II-1)

ii. appropriateness of the policy environment for encouraging sustainable growth in the marketing system (terms of reference B-II-2)

iii. capacity of the formal and informal systems to provide adequate credit to meet the financial needs of an expanding marketing system (terms of reference B-II-3)

- **Pilot project**

B-III The food marketing sub-sector of C.A.R. can profit immediately from the implementation of a pilot project aimed at developing and testing of a market information system based on the existing facilities of "Radio Rural". (See below terms of reference B-III)

## TERMS OF REFERENCE B-I

## ANALYSIS OF THE DYNAMICS OF THE SUPPLY AND DEMAND FOR FOOD IN THE 1990-5 PERIOD

### I. OBJECTIVE:

**To answer the question:**

How will the dynamics of the C.A.R. economy, (changes in the aggregates of supply and demand and in their internal structure), in the perspective of the years 1990 to 1995, affect the agricultural-marketing sub-sector.

### II. SCOPE OF WORK

1. Demand

1.1 Analysis of the driving forces and assessment of their impact on agricultural marketing:

a) Aggregate population growth

b) Growth of urban population
- o Bangui
- o provincial towns (and GOCAR program of "metropolisation")

c) Growth and changing structure of incomes:

- o industrialization
- o service industries

d) New dietary habits resulting from higher incomes:

- o proteins, livestock products
- o vegetables, etc.

e) Export-driven growth?

1.2 Analysis of the expected effects of the above analyzed driving forces in terms of:

a) Demand for larger volumes by commodity.

b) Demand for improved post-harvest handling: storage, cold storage, transport, handling.

c) Demand for more processing and packaging.

2. Supply

a) Responsiveness of producers to the market signals:

- o Willingness to increase production ("psychological" elasticity of supply).
- o Technical capability of increasing production ("effective" elasticity of supply): limits of output achievable with the current technology of slash-and-burn and virtual absence of inputs.

b) Conditions required for a change in the methods of production, if the present methods will not be able to generate sufficient supply to satisfy the growing demand.

c) Preconditions for growth of supply:

- o Infrastructure: roads, vehicles, storage, etc.
- o Administrative support of GOCAR, extension, etc.
- o Policy on: prices, imports, etc.

3. Prerequisites of the Growth of Supply to Meet Increased Demand

What will be the needs in:

a) order of magnitude of capital investment directly related to marketing and processing

b) supporting infrastructure (indirectly related)

- o roads, transport facilities
- o energy, water, communications
- o technology transfer and technical assistance
- o training for new types of operations

4. Impact of increased production on employment:

a) positive (new production)
b) negative (economies of scale, rationalization)

## III. SOURCES OF INFORMATION

- o Interviews with public-sector and development-organizations' economists and managers.
- o Interviews with economic operators: farmers, traders, processors, etc.
- o AFRICARE materials already collected and in the course of being collected.
- o Secondary sources: survey of the existing reports and publications.

## IV. LEVEL OF EFFORT

- o Two six-week inputs of work of two consultants supported by an assistant/translator/interpreter (local hire).
- o Qualifications of the consultants:
  - -- Graduate degree in economics and several years of work experience in senior position(s).
  - -- Fluency in French and familiarity with low-income francophone African countries.
  - -- Experience in the analysis of agricultural marketing operations, demand trends and macro-economic factors affecting marketing.

<u>NOTE</u>: The above consultants will also work on the rapid appraisal of the capacity and efficiency of the present marketing system, (see terms of reference B-II-1 below).

- o Qualifications of the local-hire assistants:
  - -- college degree or equivalent.
  - -- understanding of the social and political environment.
  - -- facility in contacts with various food system participants, including farmers.
- o facility of interpreting from Songa (and possibly other local languages) into French.

TERMS OF REFERENCE B-II-1

# A RAPID APPRAISAL OF THE CAPACITY AND EFFICIENCY OF THE PRESENT MARKETING SYSTEM

## I. OBJECTIVE:

To answer the questions:

a) What is the present capacity and performance of the private-sector food marketing system?

b) Could the present system be improved (rationalized), so that the results would be:

Lower prices for the consumer and/or Higher income for the farmer

## II. SCOPE OF WORK

A. Analysis of the Present Market Structure and Efficiency (Objective I-a above)

1. Estimates of:

- o volumes of production and consumption of important products
- o values of production and consumption of important products
- o seasonal rhythm of flows of assembly and distribution
- o working capital involved in the movement of products
- o investment capital involved

2. Profile of the consumer:

a) Urban - Bangui
Urban - provincial towns
Rural

b) Subsistence production/consumption in the above groups.

c) Estimates of consumption by various groups and of its composition.

3. Profiles of the various types of traders, identification of the various channels of trade from the "farmgate" to the points of sale to the ultimate consumer, and analysis of their operations.

a) Numbers of persons involved in each type of trading (such as small-volume market women, large-volume market women, other traders, wholesalers, etc.).

b) Estimates of the proportions of the total flow of goods moving through various combinations of channels.

c) Prices at various stages of the movement of goods and the resulting margins.

d) Composition of the margins:

- o transport and handling
- o other costs (market fees, etc)
- o labor of the trader
- o profit

e) Consistency of margins with regard to various commodities, regions of the country, distances, etc.

f) Existence or non-existence of a truly competitive situation (Observe: only glaring anomalies can be treated in the study).

g) Allocation of profits from the seasonal cycles of commodity prices among farmers, and different types of traders.

4. System's infrastructure: granaries, trucks, manioc and grain mills, weighing/carrying equipment, etc.

5. Working and investment capital needs and availability; credit facilities.

6. Possibility of improvements in the system and their probable impact:

a) Principal areas of the system which could be improved (by lowering the cost of operations).

b) How the economies resulting from the improvement could benefit the farmer and/or the consumer.

c) What would be the impact of the improvement on the employment in the sector (above all small-volume market women, and unskilled labor)? If the probable impact were negative, suggestions for remedial measures?

7. Suitability of various interventions:

- o advice on desirable changes of policy environment
- o credit
- o technical assistance
- o training

## III. SOURCES OF INFORMATION

1.1 AFRICARE materials already collected and in the course of being collected.

1.2 Interviews with economic operators: farmers, traders, processors, etc.

2. Secondary sources: survey of the existing reports and publications

## IV. LEVEL OF EFFORT

- Two six-week inputs of work of two consultants supported by an assistant/translator (local hire).

NOTE: The above consultants will also work on the study of the dynamics of the market in the 1990-1995 perspective, (see terms of reference B-I above).

- Qualifications of the consultants and the assistant(s) as in the terms of reference B-I above.

TERMS OF REFERENCE B-II-2

POLICY REFORM

## Assessment of Implementation To Date and Further Needs with Regard to Agricultural Marketing

## I. OBJECTIVES

1. To assess whether the current legal, regulatory and administrative structure, as established in formal documents, as well as its practical applications to the daily functioning of commercial businesses, encourages and facilitates business operations or renders them more difficult and/or costly.

2. To indicate steps which would eliminate the constraints and favor the encouragement of private-sector agricultural marketing.

## II. SCOPE OF WORK

1. Identification of the relevant headings of legislation and regulations, such as:

   - business licensing and full rights to exercise any kind of peaceful activity:

     -- formal sector
     -- informal sector

   - legal rights of women as regards the property, debts, buying, selling, etc.
   - import/export policies and regulations
   - fiscal charges (national level, commune level, etc.)
   - customs duties on marketing/production inputs (vehicles, spare parts, etc.)
   - regulation of, pressure on, prices (if any)
   - unnecessary subsidies (e.g. subsidized inputs)
   - free movement of goods on highways
   - regulation (or deregulation) of freight tariffs of common carriers
   - regulation (or deregulation) of other kinds of charges
   - establishment and functioning of rural markets
   - titles to property and mortgage regulations
   - credit conditions (term, interest rate, penalties)
   - enforcement of contracts
   - simplicity (or complexity) of official forms (e.g. for import duties, etc.)

The above list is illustrative rather than exhaustive. An important part of this item of the scope of work is to establish an exhaustive list.

2. A brief survey of historical developments under the above headings during the last decade, with special attention to the developments since 1986 when the current market liberalization began.

3. Identification of the areas in which there is need for improvement due to one of the following causes:

   - the deregulation since 1986 has not been sufficient or has not been applied with sufficient consistency, (and possibly integrity) on all levels of administration;

   - lack of awareness on the part of market participants regarding the legal/regulatory changes that have occurred;

   - the existing legislation, rules or procedures and practices still act as constraints on growth and efficiency of marketing operation;

   - other reasons which might be identified.

4. Prioritization of the need for reforms, modifications or improvements, according to the intensity of the negative impact of the previously identified constraints on the operations of agricultural marketing.

5. Suggestions of steps to be taken to satisfy the high-priority needs of legislative, regulatory or operational relief or improvement, as identified in the preceding step.

## III. SOURCES OF INFORMATION

1. Secondary sources:

   - Reports and documents of GOCAR, World Bank, International Monetary Fund, UN organizations, etc.

   - Non-official literature, journal and newspaper sources

2. Interviews with

   - Economic operators

     -- formal/informal
     -- domestic/foreign

   - Business-oriented organizations: Chamber of Commerce, CAPMEA, etc.

   - GOCAR and official development community

## IV. LEVEL OF EFFORT

- o Eight weeks of work of a consultant assisted by an assistant/translator

-- Qualifications of the consultant:

  * graduate degree in institutional economics, administration or studies providing similar training, with experience in transaction-cost analysis;

  * fluency in French;

  * experience in business, legal and administrative aspects of agricultural (preferably specifically marketing) operations;

  * familiarity with privatization and structural-reform programs in francophone African countries.

-- Qualifications of the assistant/translator (local hire) (translation from Songa and possibly other languages into French)

  * law undergraduate, or higher, degree or equivalent;

  * understanding of the social and political environment;

  * facility in contacts with various social classes, including farmers.

## TERMS OF REFERENCE B-II-3
## CREDIT NEEDS AND AVAILABILITY ASSESSMENT

### I. OBJECTIVES

A.) To assess the capacity of the formal and informal systems to provide credit adequate to meet the financial needs of an expanding marketing system.

B.) To suggest innovative methods of mobilizing needed financial resources, in a sound manner which takes into account the numerous past negative experiences related to credit delivery.

### II. SCOPE OF WORK

1. <u>Description and Analysis of the Present Credit Operations</u>

1.1 a) Formal credit sources and access to them by different groups of traders, distinguishing the volume traded and location of their business.

b) Conditions of credit practiced in formal transactions

- o terms
- o interest rate
- o security
- o means of enforcement and their effectiveness

c) Facilitating institutions assisting in obtaining credit (CAPMEA, Chamber of Commerce, others if they exist):

- o their purposes and methods
- o their record to date

1.2 Informal credit sources
Description as above for formal sources

1.3 Experience to-date of programs of credit assistance by national and/or foreign development organizations.

2. <u>Analysis of Credit Needs of the Food Marketing Sub-system</u>

2.1 Estimates of working capital at different levels (brackets) of traded volume of principal products.

a) amounts
b) source (own, family, partners, friends, formal credit, informal credit, etc.)
c) assess the adequacy of the working capital: could the volume of operations and/or profits be increased with a larger volume of working capital?

2.2 Fixed capital - a similar analysis as for working capital.

3. Innovative Credit Formulae

The present section is based on two assumptions:

i. There is a real need for additional capital (both fixed and working) to be injected in the food marketing system and such an injection would increase the efficiency and aggregate profitability of the system.

ii. Abundant experiences of credit programs indicate that most of them have succumbed to poor management, low reimbursement rate, frequently favoritism in granting of loans and embezzlement of funds.

Keeping the second assumption in mind, the study will explore possibilities of innovative formulae which would aim at combining the preservation of the capital with satisfying legitimate needs of traders or peasants in their capacity of market participants.

A major part of the work on the study should consist in forming discussion groups composed of banking and other financial personnel, traders and processors, large and small, peasants, personnel of relevant PVO's. The subjects of discussions would be both the real needs for credit and the need of avoiding the failures of the past.

The following subjects are suggested:

- expansion of formal and informal credit unions;
- linking the informal "tontines" of market women with credit institutions;
- facilitating credit extended by larger wholesalers to intermediaries or "first handlers" by partial guaranties;
- limited-time subsidization of credit from larger to smaller traders, in order to facilitate the start-up of operations;
- farm grain-storage credit projects, very limited in number and under tight supervision.
- credit to small groups (of about ten persons) with group responsibility for repayments, as in the well-known Bangladesh scheme and Latin American "solidarios"

## III. SOURCES OF INFORMATION AND METHOD OF WORK

As indicated above, personal contacts with providers and users of credit, formal and informal, large and small, either as group discussions or as single interviews, will be the key tool in the proposed study. These interviews will facilitate the assembly and analysis of information, as well as the exploration of new ideas.

Additional information will be collected with, or obtained from, the researchers engaged in the study of the current structure and efficiency of the market.

Finally, a thorough review of literature and relevant documentation will be conducted.

## IV. LEVEL OF EFFORT

The time of the year during which the survey in question will take place ought to be chosen in a manner that will assure easy access to the informants.

- Six weeks of a consultant assisted by an assistant/translator (local hire).

- Qualifications of the consultant:

  -- Graduate degree in economics, agricultural economics, business management or equivalent training and several years of work experience in senior position.

  -- Fluency in French and familiarity with low-income francophone African countries.

  -- Extensive experience in small-business, agricultural and informal-sector credit.

- Qualifications of the local-hire assistant:

  -- College degree or equivalent.

  -- Understanding of the social and political environment.

  -- Facility in contacts with various food system participants, including farmers.

  -- Facility of interpreting from Songa (and possibly other local languages) into French.

## TERMS OF REFERENCE B-III

## DESIGN AND TESTING OF A MARKET INFORMATION SYSTEM IN THE CENTRAL AFRICAN REPUBLIC

### I. OBJECTIVE

In view of the lack of uniform access to market information by all economic operators in C.A.R, a program will be initiated to design and test an appropriate system for the collection and dissemination of information relevant to all market participants. The design effort should utilize the experiences of existing projects in this area, including Africare's marketing study unit, government efforts at market analysis (MRD), and ACADOP (German assisted development project) in collecting and disseminating market information. Two of these organizations have worked in a limited area, while the MDR effort is being national, and have had reasonable success using Radio Rural. The program to be developed should be national in scope if possible and include aspects which would advise market participants at all levels (producers, traders, consumers) of opportunities in the market.

### II. SCOPE OF WORK

1. An initial period (not more than one month) will be used to get an overview of available sources and resources of market information. Efforts by other organizations that can be tied in to the overall program should be identified at this stage (ie. Radio Rural, Africare market study, MRD market study). A matrix of necessary information to be utilized should be developed and analysis made as to what resources exist or need to be developed in order to assure each element in the grid.

2. Once the matrix of desired information is complete, choice of target sites will begin. Markets will be chosen based on certain characteristics:

   - Size of the market. While it is easier and more important to monitor larger markets, small and medium sized markets also need to be included, as they are the usually the points at which initial prices (farmgate prices) are set in the system.

   - Location. Rural markets, both large and small, are main targets of the program. To the extent possible, relatively distant markets should be included as well as easily accessible ones. Markets in Bangui and other principal consumption areas will be closely monitored.

   - Frequency. Most rural markets are held on a weekly basis. Urban and peri-urban markets are often daily. It will be necessary to coordinate site selection so as to include each of these.

At this point certain structural issues will also have to be resolved. Aside from the characteristics listed above, the actual number of markets to be monitored will have to be determined. This will depend greatly on the level of accessibility and the infrastructure necessary for maintaining contact with field personnel. Conditions of roads in both rainy and dry seasons and the availability of communications (i.e., short-wave radios) will have to be taken into account. In addition, personnel questions such as the training needs of market monitors, whether they will be hired or seconded, and the possibilities of executing certain parts of the program through subcontracts to the private sector or local PVOs will have to be answered.

3. Once the sample of markets to be monitored has been established, the types of information needed should be identified. The Market Systems Information program should focus on the following key items:

   (a). Prices. Collection of price information should be done on a weekly basis for rural or regional markets, and, if possible, on a daily basis for a selected Bangui market (eg. Marché Km. 5). Initially, the information system should concentrate on prices of those products most often traded (i.e., manioc, groundnuts, sesame, cereals).

   (b). Availabilities. Estimates of the volume of a consistent range of commodities will have to be made. Volume data are a useful complement to price data in interpreting seasonal trends and market conditions.

(c). Margins. The design of the market monitoring program should take into account the need to present information on expected or received margins. In other words, site locations should be in sequence along a particular marketing circuit (usually along a main road) so that price differentials and their contribution to margins can be widely known.

   (d). Market administration. A very important aspect of market monitoring should be dissemination of information of use to market participants. It will thus be necessary to develop some kind of format for broadcasting information to market participants concerning their various rights and responsibilities with respect to local and national taxes, regulations, fees, barriers, rules, etc.

4. Arrangements for assembly and diffusion of information should be carefully worked out. Individuals gathering source level data must be motivated and competent. Moreover, there must be adequate provision made for support and delivery of the information they collect. Various possibilities, including use of short-wave radios or motorcycle couriers should be explored. The preferred mode of disseminating information would be by radio, utilizing Radio Rural (German Technical assistance). However, other forms, such as newspapers and periodic bulletins should not be overlooked if they appear appropriate. Bulletins are often costly and time-consuming to produce and typically released too late to be of use to private parties.

## III. SOURCES OF INFORMATION

As this is conceived as an operational program, the principal sources of information will be field data from the various target markets. Market monitors will have to be well trained and the information that they gather closely specified. Use of secondary sources of information may be possible. Government and some projects are doing price and market data gathering operations, usually not of an ongoing nature. It may, however, be useful to the program to compare the results of these operations with its own. The principle should be retained that the program strives to obtain the maximum of empirical accuracy that its own resources permit.

## IV. RESOURCES AND TIME FRAME

The program will be conducted on a pilot basis for a period of 15 months, with option to extend for a longer period. A pre-test period of approximately 2-3 months should be performed in order to verify the appropriateness of enumerating methods and the logistics of transferring information from the source to the point of diffusion. It would be highly desirable for the program to be attached or amended to an existing USAID project in C.A.R so that the operation can begin as soon as possible.

### A. Executing Agency and Responsibilities

The PVOs currently working in C.A.R have not demonstrated any appreciable capacity for executing an operation of this type. They do have the advantage of knowledge of the field and local conditions. If this program were confided to one of the existing PVO projects, they would have to give clear evidence, in terms of qualified personnel and understanding of the terms of reference, of their ability to execute the program in the manner desired.

### B. Personnel

Agricultural economist (2 yrs.). Must have a minimum five years' experience in data gathering, market studies, or project monitoring and evaluation in Africa. Must speak French well (S-3,R-3). Previous experience with implementing projects or programs related to information systems and/or policy reform highly desirable.

## ANNEX I

## BASELINE INFORMATION ON PRODUCTION AND MARKETING SYSTEM

The present annex provides additional background information which supports statements and conclusions made in the text of the document submitted as a proposed PID.

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## 1.0 Physical Scale of the System: Orders of Magnitude

### 1.1 Agricultural Production Volume

Annual production of principal food crops in C.A.R. is estimated this table:

| | Production of Major Crops (000 tons) | | |
|---|---|---|---|
| Food crops | 1985/86 | 1986/87 | 1987/88 |
| Cassava (cossette) | 306.5 | 319.5 | 281.6 |
| Groundnuts (shell) | 63.1 | 117.4 | 113.5 |
| Sesame | 11.1 | 15.3 | 16.7 |
| Millet/sorghum | 53.2 | 74.1 | 48.7 |
| Maize | 50.1 | 103.6 | 72.6 |
| Rice | 14.7 | 9.2 | 11.6 |
| Export crops | | | |
| Commecial coffee | 13.4 | 15.3 | 12.9 |
| Seed Cotton | 35.5 | 24.9 | 19.3 |
| Tobacco | 1.1 | 1.1 | 0.6 |

(Source: Agricultural Sector Donor Meeting, follow-up to Geneva Round Table of June 1987, two volumes, GOCAR, Septembre 1988)

The export crops obtain special technical assistance for appropriate organizations (ADECAF, SOCADA and SCAT) and move through separate marketing channels. The production of these crops, however, affects in many ways production of food crops, through crop rotation in the case of cotton, through supply of inputs by the organizations in charge of these crops, and technical assistance.

At present, only a small percentage (of the order of 2-4 percent) of arable land in the C.A.R. is used. The use of land still follows the ancient method of burning and four-year use in rotation followed by several-years fallow.

### 1 2 Marketing Volume

A 1975 Consumption Survey by UNDP (quoted in Barbour et. al., 1984) estimated the quantity of marketed surpluses, i.e., the quantity left for trade after the consumption and reserves of planting material for the following year. Estimates of marketed surpluses for various crops ranged as low as 25 percent for millet and sorghum in rural areas to as high as 56 percent for groundnuts in the "outer Bangui" area. An estimated 30 to 40 percent of the volume of all crops is marketed (and constitutes the surplus over subsistence consumption and planting needs). A marketing improvement project will have to consider this question: What is the total volume in the "system pipeline" and what are the speeds with which various goods move through the system?

One factor that will affect demand for food is increased wages and income for farm labor. Changes in farming systems and the spread of animal traction (now still less that some 10,000 teams in the entire country) are likely to increase the demand for hired farm labor which will be paid partly in money. Instead of relying completely on subsistence production, hired labor will use their income to purchase food and the proportion of the crops marketed will consequently tend to increase.

## 2.0 Structure and mechanics of production and marketing systems

One of the objectives of the current AFRICARE project for Rural Enterprise Development is to conduct detailed research on various aspects of food marketing in the project area, which lies in an important region for Central African agriculture. Accordingly, AFRICARE's findings to-date and in the future would be of great use in the design and execution of a possible marketing project.

A new marketing project for C.A.R. should be based on the understanding of the fundamental characteristics of the current structure and mechanics of the production and marketing systems. Compiled here is an illustrative list of socio-economic factors that would have significant import for the design of a new marketing project.

- While the nuclear family and extended family units remain operating mechanisms, production and marketing decisions are divided among active adults.

- Men and women of the family have their separate plots, make their own production decisions, and store their crops separately.

- Each sex specializes to a large degree in certain crops:

- Cassava is primarily a woman's crop; so are various other tubers, okra, etc.

- sorghum and maize are primarily crops grown by men (a large proportion will be sold to women who will use it to brew beer to sell to men); it also seems that the newer crops, Irish potatoes and European-type vegetables, which have not yet become part of the traditional subsistence diet, but are grown for cash income, are grown exclusively by men;

There are various intra-family transactions. For example:

- If a woman cultivates sorghum, her husband will build a granary for her and will supervise storage. Upon sale, the woman will give her husband a substantial part of the revenue.

- Selling of both men's and women's crops is done predominantly (but not exclusively) by women who take their own crops and those of their husbands to the market.

- Processing of sorghum into beer, an important artisanal industry, is done by women. They buy the grain from men and sell them the beer.

- Beef cattle are mostly raised by semi-nomadic Peuhls and sold for slaughter to the sedentary ethnic groups. Certain non-Peuhl persons may own large herds of cattle and have Peuhls take care of them.

## 3.0 Trading Network

This section addresses the issue of the complexity of trading networks for major commodities in order to show what kinds of trade relationships have to be understood as a basis for any new marketing project.

Movement of foodstuffs from the producer to the ultimate consumer proceeds along a number of paths with a varying number of intermediaries who assemble foodstuffs break bulk, or who simply pass the volume along its path.

### 3.1 Marketing by the Producer

The farmer-seller, (usually a woman selling her own or her husband's produce, or a man selling game which he procured by hunt) has several basic options:

i. To wait in her village for an itinerant buyer who may be a woman trader wali gala or a moslem male trader. Either of these traders may be buying to sell to retailers in a provincial town or Bangui, or assembling to sell it to a larger bulk buyer from Bangui. This option may be unrealistic if buyers do not visit regularly a particular locality in order to purchase goods;

ii. To offer it for sale by displaying it along the highway (this method seems to be used mostly for cassava chips and for smoked pieces of game);

iii. To take the product to the nearest market and offer it to a trader; or

iv. To retail it to consumers at the local market.

### 3.2 Market Intermediaries for Manioc, Grains and Groundnuts

i. Itinerant traders - bulk assemblers:

- Woman traders, or wali gala. They may trade on very small scale, buying from the producer and selling retail at small markets. On a larger scale, wali gala assemble large shipments in their provincial-town bases for sale to wholesale buyers from

Bangui. Alternatively, they make purchases or sales on their own account in Bangui. They deal mainly in manioc chips.

o Male traders, usually Moslems of Chadian or Cameroonian descent. These traders may be provincial men acting on behalf of larger Bangui buyers or on their own account to bring truckloads to Bangui. They may be based in Bangui and have wholesale depots at one of the large markets. Men traders seem to deal mainly in grains and groundnuts. There are considerable imports of groundnuts, sorghum and millet from Chad and rice from Cameroon.

ii. Settled wholesalers with own storage facilities:

. Exclusively men, these traders are concentrated in Bangui and deal in grains and groundnuts. These traders buy from itinerant bulk assemblers. However, some of them travel themselves to buy at provincial markets.

iii. Retailers:

Exclusively women for manioc. Mixed sex for grains and groundnuts.

### 3.3 Traders in European Vegetables

Trader who specialize in European vegetables have begun to appear in Bangui. Around the city, some six hundred growers cultivate European vegetables on micro plots of one to five ares. A group of women traders specializes in marketing the produce, mainly to expatriates. An interesting peculiarity of this trade is that often a trader will contract for the entire crop of a small band-plot and will harvest it gradually through the growing season.

### 3.4 Retail Distribution of Imported Foods

Imported packaged foods (sardines, tomato paste, crackers, etc.) can be found in stores which often combine these goods with dry goods. Some of these stores are subsidiaries of Bangui firms, such as Dias Brothers.

In Bangui there are two supermarkets. With the exception of some local fresh vegetables, they sell exclusively imported goods. The customers are mainly expatriates, local persons of European or Asian descent and a few upper-income Central Africans.

## 4.0 Profile of Market Participants and Activities

The researchers of AFRICARE have gathered and analyzed a considerable amount of data on various trade networks in the departments of Ouham and Ouaham-Pende. In view of the preponderance of that region in the agricultural economy of C.A.R., these figures have more than a regional significance.

The results of the AFRICARE survey illustrate the great fragmentation at all levels of the country's food production and distribution system. This results in the high costs, in terms of human effort and/or motorized transport, per unit volume of transaction.

### 4.1 Market Participants: Sellers

The sample comprised five major and three smaller markets in 1987 and 1988. The data do not distinguish between individuals selling their own product, those selling also on behalf of other producers, and finally non-producer first handlers selling to bulk assemblers.

Sex. Women constituted 91 percent of the sellers.

Quantity brought to the market Quantity varied considerably from less than one cuvette of about 20 kg. to over 20 cuvettes. The mean was 1.33 cuvettes and median 1 cuvette. The extreme values were rare. Thus, the market dealt on the average with very small quantities.

Distance. Nearly 40 percent of the sellers came from distances of over 10 km. Nearly 25 percent travelled over 15 km.

Manner of transport. Nearly 90 percent of the sellers came on foot, carrying the product on their heads. The rest used pickup trucks, bicycles, carts, etc. Among those who came on foot, nearly 35 percent carried their load a distance of over 10 km.

Frequency of visits to the market. Some 45 percent of sellers made their trip to the market at least once a week. Three quarters visited the market at least twice a month.

Selling at home. More than 20 percent of those who brought their product to the market were also selling at home.

### 4.2 Market Participants: Traders and Buyers

A survey of 263 traders gives a similar picture of how a large number transactions made is related to the high transaction costs per unit of product traded.

Sex. Female - 72 percent; Male - 28 percent.

Products bought: manioc chips and flour - 45 percent of transactions; groundnuts - 21 percent; sorghum, sesame - 21 percent.

Quantities traded were about the same for both sexes and ranged from as little as 1 cuvette (about 25 kg.) to over 50 cuvettes (over 1,250 kg.). Some 70 percent of trades were less than 10 cuvettes in volume and only 8 percent of trades involved more than 50 cuvettes.

Means of transport. Over 70 percent of buyers were using common carriers (buses, pickup trucks, 7-ton to 10-ton trucks). Ten percent of the

traders were using their own vehicles. (The team responsible for the present document noted, during an extensive field trip, that four out of five traders who were identified as having their own trucks had their vehicles immobilized permanently by mechanical breakdowns. In addition, a trader visited in Bangui had his truck under repair.)

Direction of trade. Most traders moved products in relatively small quantities from small local markets to larger regional markets. From these larger centers, a smaller number of larger traders moved about 60 percent of the volume to the country's greatest single consumer market in Bangui.

Stocking of products. Only 20 percent of the surveyed buyers gave a positive answer when asked about storage. (Probably these were the relatively larger operators, buyers from Bangui, those provincial operators who assembled for shipments to Bangui, or finally those who bought for resale for profit at a subsequent stage of the price cycle.)

## 5.0 Seasonality of Marketing Operations

Grain crops harvested early in the dry season can be stored for a few months in traditional granaries without significant deterioration or loss, especially if rat protection devices are used. With the advent of the rainy season, these traditional granaries become increasingly vulnerable to insects, molds and other forms of deterioration. The bulk is usually sold, directly or through market intermediaries, to larger merchants, before that deterioration occurs. These merchants seem to be more successful in preventing insect- and other types of damage. Some of them at least use insecticides and possibly fungicides. The necessary safety measures are likely only loosely (if at all) applied.

These sales of grain by growers are due not only to the difficulties of storage, but also to the acute need of farmers for cash right after the harvest. C.A.R., like many other countries in its stage of development, endures a cycle of wide-amplitude fluctuations of cereal prices. It is alleged that farmers are forced to sell at the lowest point of the price cycle (at harvest) and are sometimes constrained to buy later the same product for his own consumption at a higher price.

Cassava, C.A.R.'s principal food crop, has the great advantage of remaining fully fit for consumption even if left for several months in the soil after having reached maturity. Thus, it can be harvested when needed for food or for sale. Once taken out of soil, however, it is quickly perishable and has to be processed quickly into dried chips (cossettes). Manioc seems to move through the marketing system at a steadier rate than grain, as it is harvested all year round.

The above loose sketch of seasonal factors affecting manioc and grain crops is given here only as an illustration of the type of problems that will have to receive more thorough attention in a possible project. Similarly, of interest are seasonal factors affecting market interactions between farmers and semi-nomadic herders, as the latter change location

in response to grazing conditions. Farmers sell herders food crops and herders sell cattle to agricultural communities.

## 6.0 Technological aspects of marketing and processing

We shall briefly look at the principal functions of marketing and processing technology.

o Storage.

Different operations under this heading include post-harvest storage of grains on elevated platforms in the field, as well as storage of grains in various places and various types of containers: traditional outdoor granaries on platforms resting on wooden legs; indoor on platforms over hearth using the smoke as conservation agent; or in large clay jars or metal drums.

o Processing.

A number of basic processing functions can be seen frequently in the villages or their frequent use can be inferred from the observation of markets:

- detoxification of manioc through soaking and rinsing;
- de-husking of grains, shelling of groundnuts, peeling of roots and tubers and similar activities to eliminate outer surfaces of produce;
- drying, above all of manioc chips, but also of numerous other products, e.g. okra, spices, etc.;
- pounding of manioc chips, and less frequently other products, into flour;
- milling of manioc chips into flour by small mechanical mills at markets;
- pounding and/or milling of groundnuts into a paste;
- preparation of beer from sorghum;
- preparation of mead from honey;
- grilling/roasting of termites, caterpillars, etc.;
- conservation of fish, venison, snake meet, etc. through smoking.

o Handling, measuring, containers, packing and transport.

Handling is exclusively manual.

The traditional large-volume measure of manioc, grains and groundnuts is a basin of about 20 kg - 30 kg capacity (cuvette). At retail, these products are sold by the cups. Many other products in retail are sold by small piles; containers used at the semi-wholesale level are cuvettes. Larger volumes are packed in bags of up to 100 kg. Huge bags containing over 200 kg. have been observed but their handling was not observed.

Transport can be on foot (with a cuvette on head), by a small pick-up

truck and by regular 7-ton to 10-ton truck. An explanation should be sought for the striking near-absence of donkeys as a basic means of transport.

The Post-Harvest Food Systems Project of AID, executed by VITA, concentrated its attention on several aspects of marketing technology, namely earlier threshing and shortening the time of on-field storage, protection of granaries against rodents and insects, drying surfaces for manioc chips, grinders for groundnuts and mills for manioc and/or sorghum. The eventual project could build on that experience, both on the purely technological level and on the level of communications and familiarity with the human environment.

## 7.0 Infrastructure

Most of the roads in the agriculturally productive regions of the country have been improved after a long period of deterioration. They are mainly dirt roads and in the middle of the dry season, with some exception, they allow for satisfactory transport. Experience will show if the maintenance will be sufficient, especially during the rainy season.

Market facilities in Bangui and other major towns are very rudimentary, without any facilities for refrigeration and proper storage. Much of the activity takes place in the open air under extremely fragmentary shelters.

Small village markets provide bare space for flimsy shelters and activity is at best sheltered by trees.

## 8.0 Recovery from discouraging experiences of recent decades

The present state of the agricultural marketing sector may be characterized as, at best, that of halting recovery from a long period of difficult experiences. Several decades of neglect caused a great deterioration of the road system. By the 1970's many agricultural areas became isolated because buyers of foodstuffs could not reach them without great costs and risks to vehicles.

At the same time, attempts at the regulation of the market and limitation of the right of trade to a privileged group of merchants (known as "commercants agréés") gave rise to numerous abuses which discouraged production, obstructed commercial channels and further increased costs of trading.

Since 1986, the market has been left largely free, limitations of trade have been lifted, and abuses seem to have diminished greatly. One should expect that the restoration of confidence of farmers in the fairness of the trading system will take some time and will depend on their experiences.

## ANNEX II

## BASIC DATA AND STATISTICAL TABLES

### Basic Data for the Central African Republic

Area: 623,000 sq. km (243,000 sq. miles)

Population, 1987 est: 2,770,000
Population of Bangui (capital city), 1986 est.: 430,000

| | |
|---|---|
| Percentage of urban population, 1986 est.: | 33 percent |
| " " rural " " " | 67 percent |
| | 100 percent |

Per capita GNP at 1985 prices, est. 1987: $US 453

Composition of GDP, est. 1987

| | |
|---|---|
| Agriculture | 38.5 percent |
| Industry and mines | 12.5 percent |
| Services | 43.2 percent |
| Indirect taxes | 5.8 percent |
| | 100.0 percent |

Balance of Trade, est. 1987

| | | |
|---|---|---|
| Exports, F.O.B. | $US | 138.3 million |
| Imports, C.I.F. | " | -285.3 " |
| Trade Balance | $US | -147.0 million |

Composition of Exports (Value Terms), est. 1987

| | | |
|---|---|---|
| Wood products | 15.2 percent | |
| Coffee | 16.0 percent | |
| Cotton | 7.0 percent | |
| Tobacco products | 2.9 percent | 41.1 percent |
| Diamonds | 39.5 percent | |
| Others | 19.4 percent | 58.9 percent |
| | | 100.0 percent |

Sources: U.S. Embassy Foreign Economic Trends Report, World Bank, "Consultations..." (see Bibliography)

**Table 1**
**Central African Republic**
**Country Data, 1988**

Population: 2.80 million (Pop. growth rate of 2.2 percent)

Urban Pop.: 0.95 million (Pop. growth rate of 4.0 percent)

Proportion of population engaged in agriculture: 80 percent

Area: 622 372km2 (Pop. density = 3.4 pers/km2)

| | | |
|---|---|---|
| Total area cultivated (1988): | 560 000 ha. | 9.0 percent of total area |
| Cash crops: | 87 600 ha. | 15.6 percent of cropped area |
| o/w cotton: | 58 500 ha. | 10.4 percent of cropped area |
| food crops: | 390 500 ha. | |
| o/w manioc: | 165 000 ha. | 29.5 percent of cropped area |
| o/w cereals: | 131 800 ha. | 23.4 percent of cropped area |

**Table 2**
**Farming Systems Indicators by Region**

| | Ouham/ Om.Pende | Forest Zone | Ouaka | C.A.R |
|---|---|---|---|---|
| Pers./Farm | 5.5 | 4.2 | 5.2 | 5.25 |
| Farm size (ha) | 2.5 | 1.0 | 1.5 | 1.73 |
| ha. manioc | 1.0 | 0.7 | 0.7 | 1.00 |
| ha. cereals | 0.7 | - | 0.2 | 0.25 |
| ha. cash crops | 0.7 | 0.2 | 0.5 | 0.40 |
| ha. others | 0.1 | 0.1 | 0.1 | 0.10 |
| Production (kg) | | | | |
| Manioc 1000 | 700 | 700 | 1000 | |
| Cereals 500 | - | 110 | 140 | |
| Consumption (kg/yr) | | | | |
| Manioc 600 | 470 | 575 | 580 | |
| Cereals 100 | 30 | 100 | 125 | |

**Table 3**
**Crop Statistics, 1987-88**

| Crop | Nbr. Farms raising | Area (ha.) | Area/Farm (ha) | Production (Metric T) | Average yield kg/ha |
|---|---|---|---|---|---|
| Coffee | 57,800 | 29,100 | 0.50 | 21,350 | 734 |
| Cotton | 78,400 | 58,500 | 0.75 | 41,500 | 709 |
| Manioc | 293,800 | 164,750 | 0.56 | 529,000 | 3,211 |
| Maize | 185,200 | 64,700 | 0.35 | 66,000 | 1,020 |
| Ground-nuts | 242,400 | 88,600 | 0.37 | 87,800 | 991 |
| Rice (paddy) | 55,000 | 9,862 | 0.18 | 11,400 | 1,156 |
| Sesame | 161,300 | 39,300 | 0.24 | 16,300 | 415 |
| Millet-Sorghum | 69,000 | 57,300 | 0.83 | 49,000 | 855 |
| Pumpkin Seeds | 125,300 | 27 500 | 0.22 | 11,800 | 429 |

Source: Enquête Annuelle sur les Superficies, Rendements et Productions; Résultats pour la Campagne 1987-1988, Direction de la Statistique et de la Documentation, MDR.

**Table 4**
**Parcelling by Crop**

| Crop | No. of Fields | Area/Field (ha) | Fields/Farm |
|---|---|---|---|
| Coffee | 65,000 | 0.48 | 1.12 |
| Cotton | 104,500 | 0.53 | 1.33 |
| Manioc | 510,000 | 0.35 | 1.74 |
| Maize | 239,000 | 0.26 | 1.29 |
| Groundnut | 258,000 | 0.37 | 1.06 |
| Rice | 52,700 | 0.25 | 1.00 |
| Sesame | 164,800 | 0.24 | 1.02 |
| Millet-Sorghum | 79,200 | 0.64 | 1.15 |
| Pumpkin Seed | 176,500 | 0.25 | 1.41 |

Source: Enquête Annuelle sur les Superficies, Rendements et Productions; Résultats pour la Campagne 1987-1988, Direction de la Statistique et de laDocumentation, MDR.

## ANNEX III

### LIST OF PERSONS AND ORGANIZATIONS CONTACTED

1. DOUALA

Mr. Ellsworth Amundson, D/Director, USAID/Cameroon
Mr. Marcel Ngue, Project Officer designate, USAID/Cameroon

2. BANGUI

Mr. David C. Fields, U.S. Ambassador
Ms. Mary B. Marshall, DCM
Mr. Hugh I. Smith, AID Liaison Officer (ALO)
Mr. Philippe Makendebou, AID A/ALO
Mr. Alan Miller, Advisor, VITA Post-Harvest Food Systems project
Mr. Faustin Pademona, Director, VITA Post-harvest Food Systems project
Ms. Mary Bess, Director, AFRICARE Rural Enterprise Development project
Mr. Neil Boyer, AFRICARE Representative
Mr. Ari Ibrahim, FAO Representative
Mr. George Ndow Wally, UNDP Representative
Mr. Daniel Nditifei-Boyssembe, CAPMEA, Director General
Mr. Amadou Bocoum, Representative of FENU, (Fonds d'Equipement des Nations Unies)
Mr. Pheore Bagua-Yambo, Minister of Rural Development
Mr. Georges-Germain Assas-Mbilault, Secretary of State, Ministry of Rural Development (MRD)
Mr. Basile Erepe, Charge de Mission, MRD
Mr. Jean Magrondji, Charge de Mission, MRD
Mr. Andre Gombako, Director General of Studies, Planning and Monitoring, MRD
Mr. Gabriel Fio-Ngaindiro, Coord. of Studies & Plan. Dept. MRD
Mr. David Ouambia, Director, Coffee Bureau, MRD
Mr. Moise Koyakonli, Chief of bureau, Study of foodstuffs
Mr. Gilbert Ganga, " " " , General studies
Ms. Teresa Gruber-Tapsoba, A/P.C. Director, Agriculture
Ms. Mary Sedwell, P.C. volunteer, Apiculture
Mr. Thierry Bingaba, Secretary of State for Plan
Mr. Philippe Zacko, National expert, Ministry of Plan
Mr. Fidele Datolouvi, Assistant charge de mission, Ministry of Plan
Mr. Thimothee Marboua, Minister of Commerce
Mr. Fidele Karbol-Yangassengue, Secretary General, Ministry of Commerce
Mr. Clement Gbakamanzopa, Press attache, Ministry of Commerce
Mr. Gottfried Garbe, German Ambassador
Mr. Jean-Jacques Nimeziambi, Director General, ADECAF
Mr. Patrice Endjimgboma, Director General, SOCADA
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Mr. Camille Damago Mandeu, Secretary General, Economic and Regional Council
Mr. Bounandele Koumba, Director General, Caisse de Stabilisation et de peréquation des prix de produits agricoles (CAISTAB)
Mr. Jean-Paul Dailly, World Bank, Representative
Ms. Genevieve Lombilo, Secretary of State, Social Affairs and President,

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Ms. M'Boka, President, Cooperative Solidarite
Mr. Jacques Ramond, French assistance, CCCE
Mr. Rouannet, French assistance
Mr. Tiertemps, " "
Mr. Bernard-Christian Ayandho, President, Chamber of Commerce
Mr. Francois Farra-Fronds, Secretary General, " " "
Mr. Maxime Ange Kazagui, Charge de Mission, " " "
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Mr. Robert Mazel, Association Francaise des Volontaires du Progrès
Mr. Philippe Valadour, " " " " " "
Mr. M. Benoit " " " " " "
Mr. Fernand Ferrara, President, CEDIMEX (a trading company)

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Mr. Antoine Mokombo, VITA Post-Harvest Food Systems project
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Mr. Jeremie Beninga, Regional Coordinator, SOCADA
Mr. Thomas Bah-Gayn, Supervisor, CFAR (Centre de Formation Agricole et Rurale)
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Ms. Josephine Bougouri, " " "
Mr. Marc Andjipalemo, Animal traction specialist, CFAR
Mr. Alphonse Ngombe, Bookkeeper, CFAR
Mr. Dana Glazier, Economist, AFRICARE
Ms. Susan Shetterly, Computer specialist, AFRICARE
Mr. Eric Moyer, Agronomist, AFRICARE
Mr. Tom Giossi, AFRICARE, Project extension specialist, Members of women's association in Bodouk

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Mr Ambroise Bellet, VITA PHFS project, Chief, Storage Unit
Mr. Frank Bolduc, VITA PHFS project, Storage specialist
Ms. Kate Debold, AFRICARE, Training & extension specialist
Ms. Mathurune Sana, VITA PHFS project, Regional chief
Mr. Abakar Adela, Trader
Mr. Elisee Dorkem, Trader
Mr. P. Paseck, Chief mechanic, SOCADA oil extraction plant
Mr. Hans Meir Eybers, Chief, German T.A. to ACADOP
Mr. Antoine Kakombela-Yalingui, Acting Director, ACADOP
Mr. Karl Waldele, Technical advisor, ACADOP

5. BOUAR

Mr. Philippe Gbayan (and brothers), Trader in fresh vegetables
Mr. Philippe Auzel, Volontaire du Progres, horticultural advisor Visits to market gardening farms in the villages of Zotoua and Yongoro Bedimo

6. BERBERATI

Mr. Degan, ADECAF, Chief of the region Personnel of MDR delegate office
Mr. Simon Mogaya, Berberati branch manager and several members of evangelical mission PAEDAS Representatives of three coffee growers' GIRs: Nodube, Sava and Nanlobo
Mr. Moise Gueret, Manager, coffee decorticating plant, S.C.N.P.J. Several potato growers in the village of Zabo
Mr. Assal Salao, coffee buyer and foodsftuff trader

## ANNEX IV

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**ANNEX IV**

# REVIEW OF THE VITA/AFRICARE POSTHARVEST FOOD SYSTEMS PROJECT

GARY E. NEILL

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# VITA/AFRICARE POSTHARVEST FOOD SYSTEMS PROJECT REVIEW

## I. Executive Summary

Abt Associates, at the request of USAID/Cameroun, was asked to review the Postharvest Food Systems project being implemented by VITA and AFRICARE under USAID Cooperative Agreement 676-0016-A-00-4046-00 in the Central African Republic to aid a Commercialization and Marketing Project Identification team by studying the technologies employed by the project and reporting on their dissemination, replicability, institutionalization. The study was carried out from January 26, to February 11, 1989.

When phase one research found that storage losses were actually four percent and that long-term storage was not being practiced the extension and food transformation aspects of the project gained emphasis.

Although all of the technologies identified by the project have potential for replication to other parts of the country the most interesting will be the labor saving food transformation technologies. More research needs to be done in motorized milling for sorghum and cassava and possibly begin to take another look into hand mills for cassava. Animal traction mills seem to have little future. It is unfortunate that ACADOP did not try these mills in an appropriate village.

The project probably should have moved towards research into storage problems in the private sector including wali-gala associations (market women) and private transporters/buyers who do most of the storage in the country. The project paper, however, put this out of their scope of work.

The project's extension section has been particularly successful in training staff, extension supervisors, school teachers and extension agents in extension methodology. The training of trainers, especially for project staff, has done much to institutionalize the project.

Work with women's groups with credit has just had a beginning and has interesting possibilities for development of cooperatives, formal or informal savings groups, and common storage and marketing of products. Work with these groups as well as informal men's savings groups should be encouraged.

Even though the project has made little impact on present storage methods it has been successful. Constraints to storage have been identified, successful extension techniques developed, food processing technologies have been identified and are being tested, and a cadre of Central Africans are trained and can be called upon for their expertise.

## II. Conclusions and Recommendations

### A. Conclusions

The assumption that postharvest food losses were approximately 20 percent left the project with a goal and one of two purposes which became difficult to obtain after phase one research found that losses were actually in the range of four percent. Many of the project personnel were left with the feeling that they were not really addressing any real needs of the rural population. It is to the credit of the project technicians and administrative personnel that they were able to redirect their efforts towards extension methodology, training of trainers, food processing and milling research. Labor saving technologies identified by the project may allow for an increase in production by freeing women for agricultural production.

Much more research needs to be done on the labor economics of motorized mills, how women use their free time, and what other constraints to production need to be addressed. It is generally assumed that farmers in the project area are self-sufficient producers, consuming what they produce with no incentives to produce more. An FAO survey conducted by Mr. Bui Quang Minh in 1977 (Enquete Budget et Consommation des Menages) found that 33% of the grain consumed in the C.A.R. is consumed in Bangui although Bangui does not produce any grain. Unless the grain being consumed in Bangui is from clandestine imports there is apparently a market for at least a third of the country's grain which must be stored and transported at some time. Further studies on production at the farm level need to be done. The farmer may be producing at his maximum with still no need for long-term storage.

Besides labor saving food processing techniques the single most important contribution this project has made to the rural farmer is the introduction of new extension training methodologies, the training of trainers, and improving the capacity for the Central African staff to undertake these projects on their own. Although the project has not become a government function and not all of the staff are government employees they remain in the country and are an available human resource. This is not formal, but informal institution building.

### B. Recommendations

The consultant makes these recommendations with the realization that only eight months remain before the PACD, September 1, 1989. Also, since this review is not an evaluation and is intended only as an aid to the Commercialization and Marketing PID team, many of the recommended studies are suggestions for areas that should be explored for future projects. The studies which need to be continued (women's free time, milling) or started (constraints to production, current levels of production, interventions necessary) are important and USAID should consider alternative sources of funding for their completion.

1. Motorized mill research should be complemented by a study which includes how women will use their free time. Such a study will give insight into the value of labor saving technologies to agricultural production, health or social activities at the village level. An anthropologist's services for such a study are recommended. Motorized mill research in general should continue and recommendations on minimum village size and operating expenses should be made by the project storage specialists.

2. VITA/AFRICARE's educational programs for storage and food processing should be formally introduced into the elementary school system and the professional technical school levels.

3. Before the PACD, VITA should outline plans for a study to be done on postharvest losses in the commercial food transport and storage sectors. This study should follow food grains from the farm through the wali-galas (market women) or individual sales to the middle men and then to the final storage place before resale. Losses in the food chain should be documented and recommendations on food storage protection measures should be made.

4. A study to determine current levels of small farm foodstuffs production should be done. The study will identify maximum and minimum levels of production using current methods and technologies and make recommendations on interventions that will increase production and estimate attainable levels. It is commonly thought that farmers are not storing grain because of low incentives to produce. This study would verify farmers labor inputs to verify farmers' levels of production. Farmers may not be storing because they are already producing at their maximum level.

5. VITA/AFRICARE's regional project directors should be given training in basic bookkeeping as there are no accountants at the regional level.

6. The PHFS project should reinstate a vehicle use log for all project vehicles.

7. PHFS is a pilot project. A full scale final evaluation should be conducted before the PACD. Replicability of the project may be compromised if the accomplishments and failures of the project are not documented.

## III. Introduction

### A. Project Review Purpose

The present review of the VITA/AFRICARE Postharvest Food Systems Project is intended to give guidance to the USAID Marketing and Distribution Project Identification Team on technologies which the VITA/AFRICARE Postharvest Food Systems project have identified as being applicable in the project's area, including those which have been successfully disseminated and those technologies which appear to be

replicable in other areas of the country. It is also intended as an aid to project management in programming the remaining eight months of project activities. This paper is not intended to be an evaluation of the project's accomplishments although commenting on the technologies and directions that the project has taken necessarily make certain sections appear to be so. Some judgments of activities undertaken are required to clarify the recommendations and conclusions presented. The lack of time to brief the consultant and the fact that a single person has been asked to review VITA/AFRICARE's participation in this critical project negates the review's value as an evaluation.

### B. Project Background

The reader should be reminded of the project's goals and purposes in examining this review. The goals 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 purposes are to extend food storage and reduce postharvest food losses, both quantitatively and qualitatively, as well as to reduce labor in postharvest processing.

### C. Methodology

The PHFS review was conducted between January 26 and February 11, 1989. After three days of interviews with government, private and parastatal organizations an eight day trip to the project areas of Bossangoa, Paoua and Bocaranga was conducted where the consultant met with Central African and ex-patriate project staff, villagers, local officials and others. Five days in Bangui were devoted to meeting USAID and project officials and writing this report.

## IV. Project Technologies, Dissemination, Potential for Private Sector Manufacturing and Sale

The strategy adopted, to work with small farmers using locally available levels of technologies was developed before the first phase (research) was completed and was based on the assumption that farmers were experiencing high (20%) postharvest losses and that once the losses were documented locally available technologies would be improved, adapted, and disseminated to the farmers.

The project has been remarkably successful in identifying technologies, adapting them to local conditions, and developing an extremely effective program of extension training and methodologies. The research phase has provided data which did not exist and which is critical to a successful storage, marketing or extension program. The technologies chosen by the team are good but the project may have been more successful in its first goal of increasing food availability by working with women's marketing associations (wali-galas) and private commercial buyers.

Even though some of the storage loss technologies may seem marginal at this time they have been identified for future use when production incentives will make long-term storage more attractive to the small farmer. The food processing technologies and the extension training sections of the project have been successful. The economics of motorized mills still needs more research but from initial project statistics looks very promising. These technologies could lead to production increases by providing more time for women. A great deal more research needs to be undertaken on how women's free time will be used, if it is theirs or their husbands'.

**A. Rodent Control Technologies**

Almost unilaterally, farmers in the project area identified rats as one of their major storage concerns. Interestingly, they noted that the problem was more qualitative than quantitative in nature. The actual losses were not as great a concern as the presence of rat feces and urine in their food stores. As a result of the phase one research several different rodent control technologies were identified for an extension program.

Most of these technologies have met with limited success. This is more than likely due to a lack of disposable income than to the lack of an efficient extension program. Although rats were identified as a real problem for storage, storage was not identified as their highest concern. Health and water were identified as more pressing concerns than storage. Therefore, it is easy to assume that the little disposable income available to farmers will be used for health and water. There has been some spontaneous adoption of the anti-rodent measures which would indicate a willingness to try the new technologies.

1. Rat Guards

Rat guards are a technology which should be very easy for an artisan to manufacture in any setting. The cost, however, is limiting for the average farmer. One sheet of metal roofing (90 cm by 200 cm) costs approximately 2,200 CFA and will provide rat guards for four to six granaries depending on the number and diameter of supports used in the granary's construction. The project has determined the average cost of protecting a four to six leg granary to be 500 CFA.

Interestingly, in the Bocaranga region, only a short distance to Cameroun where a sheet of metal roofing can be bought for 1,500 CFA, the number of granaries using rat guards (240) is nearly ten times that of Bossongoa (27). Another factor in this disparity is the adaptability of the very low built Baya granary which can often have up to 24 legs.

2. Traps

Rat traps were being sold by the previous FAO project but they proved to be too expensive and were abandoned. The PHFS project been able to buy a cheaper brand of trap which, when modified, is as effective as the more expensive models. The end of the retaining bar is straightened to increase

the sensitivity of the trap.

Local manufacture of rat traps would require investing in a sophisticated metal press and importing parts which will make local traps more expensive than the original FAO models. The potential for local manufacture of traps is not good.

PHFS has had more success disseminating traps than rat guards. Rat traps provide a source of protein for the farm family when used correctly, rat guards usefulness is not as easily apparent.

3. Hygiene Measures

The PHFS hygiene program to control rats is one of the more easily disseminated of the technologies used for the only investment required from the farmer is time to clean up his surroundings, to dispose of kitchen scraps properly etc... The farmers identified rat droppings as one of their major concerns in storage and the hygiene program addresses this problem directly.

4. Common Storage Protection

Rat proofing of common storage facilities has encountered a number of problems and has had little success. The warehouses in the villages which the consultant saw were built by ACADOP and the villagers do not feel that the warehouse belongs to them. When there is a problem with the warehouse or an upgrade to be done, such as rat proofing, the villagers wait for ACADOP to come and do the work. To date, one storage shelter has been rat proofed and it was done by the project as a demonstration/training exercise. VITA has trained 17 ACADOP agents in rat proofing common storage shelters.

**B. Insect Control**

Except for quick harvesting of sorghum the other three methods of controlling insects in this section are used against the groundnut bruchid, C. serratus. The insect has been most prominent in the extreme northwest area of the C.A.R. having come into the country from neighboring Cameroun. Many of the project's operations in this area have been cut back or suspended due to security problems and so these methodologies may be much more effective than illustrated when better evaluation, extension and monitoring can be added to the program.

1. Early Threshing of Sorghum

Phase one research showed that the major cause of losses to postharvest causes was during field drying and harvest, not during storage. One of the measures adopted to try and cut losses was to encourage farmers to abandon the traditional way of harvesting sorghum, a two to three month process, and try and bring in their crop in one month or less. The project's extension agents report that farmers are aware that they should thresh as soon as possible after harvesting more quickly but the cotton harvest

coincides with the sorghum harvest and cotton is their cash crop. If SOCADA comes to collect the cotton and it is still in the fields the farmer losses that year's income plus any credit he received from SOCADA for planting his cotton crop.

To date early threshing sorghum harvesting is not widespread. The Bocaranga region reports a total of 43 farmers have agreed to try the new method this year.

To alleviate the situation, an early maturing type of sorghum may be a possible solution. Introducing new varieties of crops is in itself a project and should not be considered as a viable technology for PHFS at this late stage of project activities. Some help may be obtained from IITA in Ibadan or from the NCRE project in Cameroun.

2. Village Drying of Pulses

As a control measure against the groundnut bruchid, C. serratus, the project has been recommending that farmers no longer leave their peanuts in the fields to dry before bringing them to the village. This technique has not been widely accepted. The two most probable explanations are; first, groundnuts weigh a lot and are difficult to transport when the moisture content is high and second, the bruchid has not yet provoked major widespread losses as it has in Senegal.

3. Insecticide Control of the Groundnut Bruchid (C. serratus)

PHFS tried insecticide testing of two locally available products, K. Othrine (deltamethrine) and Satisfaire. The results of the tests were considered invalid by the project storage specialist for participating farmers sometimes would change their method of storing the peanuts during the trials, add untreated material to the stock, or took all of the groundnuts out of the granary before the test was completed.

During the following year, a trainee from the Institut Superieur du Developpement Rural was asked to test a product imported by SOCADA, methyl chlorpyriphos. Unfortunately, the product which was used for the test was ethyl chlorpyriphos, an insecticide highly toxic to humans. When the error was discovered samples of the stored pulses were sent to France for laboratory analysis and found to be nontoxic.

Insecticide testing was halted shortly after the problem with ethyl chlorpyriphos and simpler, less dangerous methods of bruchid control were identified; such as drying pulses in the village, cleaning old granaries and building new ones at least two months before putting groundnuts in them, using local repulsive plants and trying to keep humidity to a minimum in the granary.

4. Use of Noxious, Indigenous Plants

Two local plants have been identified as having repulsive effects on insects; Tephrosia and Neem. Of the many technologies for control of insect

pest use of locally available plants has the highest potential for creating an artisan industry of production, harvesting and marketing of these plants. 100 gram packages of dried Tephrosia are mixed with one pan of peanuts at storage. Small individual packages may be marketable at the village level, especially with an increase in the presence of the insect and with extended control measures promoted by PHFS.

### C. Storage Technologies

#### 1. Clay Granaries

Clay jar storage is adapted to only one region, Bocaranga. The project conducted experiments which show that sorghum can be successfully stored through the rainy season with only a four percent rise in grain moisture content in clay jars using locally available metal plate covers sealed with clay. Clay jars are manufactured locally by older women, an art commonly thought to be dying out. Neither the types of clay or the skills needed to make these jars are common in most other regions of the country so the replicability of this method or the manufacture by private entrepreneurs is questionable. The technology has interesting possibilities for Bocaranga and regions where similar clay storage jars can be found but should be discounted for use in other regions.

#### 2. Maize Cribs

The FAO, in other countries, has found that maize cribs can be an effective way of cutting postharvest losses as it is possible to store corn on the ear with a relatively high moisture content (33%). Thus, drying time in the field is greatly reduced as well as losses to rodents and birds. The PHFS project has had little success extending this method in the C.A.R. because of theft. Corn cribs make an easy target for thieves and farmers refuse to use cribs.

#### 3. Adapting Traditional Granaries

To protect granaries from rodents they must necessarily be constructed so that they are at least 80 to 90 cm above the ground so that rat guards can be placed 60 cm from the ground, maximum jumping height for rats. The Banda and Kaba granaries are well adapted to rat guards, the Baya granaries are very low to the ground, can have up to 24 legs and cannot be protected using methods promoted by the project. The project has also been encouraging storage outside the house where it can be better protected from rats. So far there is little evidence that farmers are willing to change their traditional way of storing their grain.

### D. Food Processing

Given the present low level of storage problems in the project area, food processing technologies can reasonably be the area where the project has had and future projects can have an impact on production and marketing, private sector manufacture and replication of project technologies to other

areas of the C.A.R. All of the technologies listed below can be extended to other regions of the country and could easily be replicated in other countries given favorable cultural conditions. Corn shellers are already being made locally and are from all appearances extremely popular with maize producers, hand powered peanut mills are popular among women, motorized mill offer great potential for local manufacture and will create a need for trained mechanics for their repair.

1. Peanut Mills

In two of the three project zones, Paoua and Bocaranga, hand powered peanut mills are self-extended. They have been in the area for a longer period of time and are in demand by women. Cost is only constraint to use of mills by most women. In Bossangoa, the project has tried to introduce the use of hand powered peanut grinders for two reasons; first, to lessen women's work load and second, to stimulate group activities. The project has made peanut grinders available in the target villages by providing credit to women's groups who can provide one-third of the cost of a mill. The groups then charge a user's fee in order to reimburse the project. To date, the project has sold thirteen peanut mills.

In Paoua and Bocaranga, the project has concentrated on teaching women the proper care and use of the peanut mills. Incorrect operation often results in damage to the expense grinder. The projects extension service has provided training for all the collaborating ACADOP agents, SOCADA agents and animators from Developpement Communautaire.

As with rat traps, the potential for local manufacture of peanut grinding mills is not feasible. Repair of the mills can be taught and these skills can be put to profitable use by local mechanics.

2. Corn Shellers

Small, hand held corn shellers are being produced in Bangui by local artisans assisted by the Developpement Communautaire appropriate technology unit and sold through their extension agents, ACADOP agents and by the PHFS project among others. These cheap innovations are made from scrap metal, each with three teeth made by cutting and bending a small bit of the outside wall of the shellers inward and used by inserting the ear of dried corn into correct end of the sheller and then turning the ear or the shellers so that the kernels are removed from the cob. This simple device could easily be made in a small artisan shop and could be successfully marketed across C.A.R. Other versions of this sheller have been used in Cameroun and were quite successfully marketed by a private firm in Bafoussam.

The consultant was in Bouar when a local farmer approached saying he saw the VITA symbol on the car and wanted to thank the consultant for selling the corn shellers in the Bocaranga region, for this year he had purchased three and had prepared twenty sacks of corn in record time.

3. Drying Floors

Five drying floors have been installed in villages in the Paoua region for research reasons. There are several advantages to drying grain and especially cassava on cement drying floors. The product remains as clean as possible, it is near the village, drying time is reduced and gathering the dried food is easier than on laterite or granite rocks. The disadvantages are cost and determining who gets to use the floor at any one time (size).

The cost of a project drying floor in the Paoua region is approximately 30,000 CFA. The cost may be reduced in the Bocaranga area (no drying floors have been constructed there) by using cement from Cameroun which is significantly cheaper than cement in C.A.R. The high cost of constructing a drying floor will require a serious credit scheme to be successfully extended. Whether the credit scheme is simply organizing informal credit savings groups or establishing local credit and saving clubs or credit unions should be explored, not only for drying floor but for mills and tarps as well.

4. Drying Tarps

Drying tarps have been accepted by village women as practical and cheaper alternatives to drying floors. Women have commented that they are skeptical about the tarps durability in comparison to drying floors. The most important advantage of tarps over drying floors is price. Many women can afford to buy the small 1 square meter tarp (1,000CFA) and dry when they want. Some women's groups have pooled money to buy larger 64 square meter tarps (8,000 CFA) and use them communally. Apparently women will take the risk of having the tarp stolen or it wearing out in order to save money. Tarps have two drawbacks not found with cement drying floors; they are attacked by rats and, drying time is longer on tarps than cement.

The potential for sale of tarps is good. The country lacks the capacity for manufacturing tarps locally or on the artisan level.

5. Hand Powered and Animal Powered Grain Mills

At the beginning of the research on food processing technologies hand powered grain mills seemed to offer great potential in that they could be made locally, their operation was simple and cheap and repairs were not needed as often as motorized mills. The use and research on hand powered mills raised some controversy within the project with proponents wishing to continue research on mills even though initial results showed that the mills required too much time and energy to grind grain and the opponents saying that motorized mills are here to stay and any research on mills should be in that area.

Research on hand powered mills stopped soon after phase one was completed and research was directed to motorized mills. It is unclear to the consultant why hand powered mills were not promoted for use in other areas of the country for grinding cassava which takes less than half the energy of sorghum.

Animal powered grain mills were tried by ACADOP in two different villages of the Paoua region. Both mills failed, the most likely explanation, according to Carl Bielenberg's report, being that the mills were put in villages which were much to large for the capacity of the mill. Animal traction was too slow for the large groups of women who wished to mill their grain, they became disenchanted and gave up using the mills at all. It is unfortunate that ACADOP did not try the mills in a smaller village, at least to compare results for future reference. Further research may be warranted but with the rapid influx of motorized mills it is doubtful that many villages will accept animal traction mills.

6. Motorized Mills

Carl Blienberg's excellent report on the possibility of a motorized mill subproject has directed the project's research on motorized mills. Three mills owned by the project are currently being tested, two in the Paoua region and one in Bocaranga. A fourth mill, made in Galoa by Lutheran missionaries is being followed in Baboua, outside the project zone. Mills are being tested for economic viability by determining the minimum size of village needed, average running time and minimum running time required to be profitable. Efficiencies of kerosene versus gasoline motors and changes which will improve milling and the machines are also being tested. The PHFS team did not have enough time to test their mills on station before taking them into village test sites.

Motorized milling, if proven economically viable by the project, can have an important effect on the artisanal construction of mills, the training of mechanics in repair of small motors, increasing agricultural production by freeing women from the tedious tasks of grinding sorghum and cassava, and stimulating cooperative behavior and savings among organized groups on the village level.

The project should continue to consider motorized mills research as a priority before the PACD in September, 1989.

## E. Information Diffusion/Training as a Technology-PHFS Extension Program

In reviewing this project the consultant was most impressed by the success of the PHFS extension service and the methods they have used in extending identified technologies to the project area. Like the storage and transformation technologies being promoted by PHFS, none of the extension techniques are new or unique, but the fact that they are being used and extension personnel from the cooperating agencies (ACADOP, Dev. Comm., SOCADA), GOCAR and PHFS direct hire personnel are learning and using them may be.

1. Training of Trainers

Many of the senior PHFS technical staff had little or no prior experience in extension methods or services before working with the

project. The training that they have received has been participatory learning. At first, staff participated as observers/trainees and then in helping to plan and design a training session. They were then asked to be trainers themselves, working with the PHFS senior extension personnel and finally as training directors who designed, planned, and trained animators themselves with no outside help.

Staff training is done at the pace of the individual, no one is asked to perform tasks for which they feel they are not yet prepared. Each individual staff member progresses at his/her own pace.This program has been very successful and extension training is now done by Central African staff.

In addition to project staff, supervisors from Community Development, AFROP, the Agriculture Service, primary school teachers and SOCADA have received training for trainers.

2. Extension/Training Programming Process

The project has demonstrated an ability to adapt extension methodology to its own particular needs, the project's extension programming model is a synthesis of traditional process models used in extension work. It consists of three major categories of activities; planning, design and implementation and evaluation.

The extension training section has developed innovative village theatre, programs broadcast on radio rurale from Bangui, demonstrations in villages, flip charts for follow-up to theatre production, educational comic books and slide shows.

The following model is used in extension/training programming by the PHFS project:

<u>Planning</u>

- o Collect baseline data
- o Analyze the operational context of the program:
  - -the farmers' environment
  - -the organizations involved in planning, designing, implementing, and evaluating the program
- o Choose pilot villages
- o Identify needs specific to target and project mission
- o Identify relevant technologies to meet specific needs

<u>Design and Implementation</u>

- o Develop strategy for technology dissemination
- o Determine educational objectives for target public/change/agents/trainers
- o Choose appropriate instructional methods and media
- o Develop learning/training activities

- o Develop action plan
- o Implement action plan
- o Monitor activities in-the-field; revise and redirect activities based on feedback

Evaluation

- Ongoing evaluation (based on feedback, observation)
- Mid-term evaluation
- Final evaluation

PHFS has used this model with success. Where farmers have been reluctant to adopt new technologies it has usually been due to factors beyond the reach of the project such as low income of the average farmer.

The methodology learned by the training staff at PHFS can be applied to any development project and is a major step towards institutionalization of extension methodology.

3. Primary and Technical School Program

At the primary school level the extension section of PHFS has been training teachers and school directors in basic rodent control practices. PHFS has developed a manual for use in the primary school system. Teachers and directors seemed to be interested in the new methods and students appreciate learning practical applications which they can use in their homes. The primary school program should be continued and expanded to all of the primary schools in the country. Some of the technologies may need to be adapted by project staff or the teachers, if trained to do so, to meet local customs or to conform to traditional storage practices.

Initial talks have begun which would include a wide range of project technology studies into technical (professional) training schools such as the veterinary school in Bouar and the agricultural technicians school in M'baiki. Although no definite program exists at this time the project is making an effort to have their program adopted before the PACD.

4. Working Through Intermediary Agents

Development projects which include an extension program with limited funds to hire extension agents and with little time to complete their goal and objectives are often best served by working with existing development agencies in the project area. Care must be taken to investigate the reputation of the intermediary agency among the target population. In some countries there is a plethora of organizations who can provide development agents for training and extension. Unfortunately, this is untrue in C.A.R.

PHFS has been working with three organizations, the principal one is ACADOP, followed by Developpement Communautaire and finally, SOCADA. ACADOP provides 17 extension agents to the project on a 70 percent time basis. The project pays 70 percent of the agents bonuses, per diem and transportation costs while ACADOP supplies the remainder plus salaries. Working with ACADOP has had it trials and tribulations. ACADOP has twice pulled its agents from

the project, saying that it was reviewing its procedures and did not want the agents in the field until new methodologies could be established. Mutual understandings have solved these problems in the past but they do upset schedules and planning.

## V. Potential for Project Replication and Institutionalization

### A. Replication of Activities

There is very little doubt that many aspects of this project can be extended to other regions of the country. However, it would be wise to revise the goal if the project intends to continue working only with small farmers and excludes the women's marketing associations and private commercial transporters and buyers who are doing the major part of storage in the Central African Republic. If the project puts more emphasis on food transformation and reducing labor time for women it can be replicated in the rest of the country, especially where transformation of cassava is concerned.

Some of the technologies will not be acceptable in some of the regions such as rat guards. Farmers in some regions will have granaries that are not adaptable to rat guards. Clay jars will have limited success where they are not produced. A preparatory phase, not unlike phase one of this project but much less detailed, will be necessary for each region destined for expansion. Cultural and physical restraints to the introduction of new technologies should be documented before extension plans and materials are prepared, agents trained and placed in the field, and full scale extension programs begin.

The PHFS extension program, nevertheless, can be adapted not only to another region, but to many other projects. The extension training which took place, as mentioned earlier, was in methodologies first and then in particular message production.

### B. Institutionalization

Institutionalization was a major concern of the first, formal evaluation of the PHFS project carried out by Labat-Anderson. Too often, institutionalization suggests that some formal structure be left behind after the project is over, such as a government service, cooperative etc. Institutionalization should be thought of more as leaving the capacity to replicate activities. Thought of in these terms the project has done an admirable job of institutionalization.

Nine of sixteen professional Central African staff working with PHFS are assigned to the project from the government. It is safe to assume that they will be assigned to other government posts when the project closes. The job skills that they have perfected while working with the project are not lost simply because there is no postharvest section created in the Ministry of Rural Development, and they will still be available for consultation or for assignment to a future project should one be funded.

The six professional staff who are not civil servants will be more attractive to the private sector with the skills that they have practiced with PHFS. Most of the professional staff at PHFS can now organize and conduct training sessions for animators, put together extension theatres, develop radio broadcasts and communicate through newsletters. All of these skills are transferable to other sectors, private and government.

The project has also been successful in initiating a program working with primary school teachers where some of the technologies they have identified are passed on to students in elementary schools. Teachers have been trained by the project and manuals prepared for use in the classroom. The initial contacts needed to expand this program to professional schools have been made. Introduction of the projects technologies to the professional agriculture and rural development schools in the country will ensure a degree of institutionalization on the professional level.

## VI. Management Issues

Some, but not many, management issues became apparent during the short time the consultant visited VITA/AFRICARE field staff and talked with Bangui based administrative personnel. These issues are exposed as an aid to the PID team and to VITA/AFRICARE project management's consideration before a full scale evaluation is carried out.

### A. Accounting

During the brief up-country visit the consultant had the opportunity to participate in the monthly accounting procedures with the project and regional directors. Money which had been sent to the regional director was to be accounted for by adding receipts and subtracting the total from the amount received. In this case the difference was 14,000 CFA. Although not a great sum of money it represents a flaw in the regional director's accounting system. It seems that when a small purchase such as a liter of kerosene or a box of matches is to be made the money is simply taken from the local box and no receipt is required. If purchases are being made from individuals who do not or can not provide receipts the director should provide one himself and have the seller mark it in some way.

All project personnel who handle cash should have basic accounting training. One or two days should suffice for the simple procedures required.

### B. Vehicle Control

VITA vehicles carry no vehicle logs. Apparently, project vehicles did use logs and the habit died out and was not encouraged by project management. Logs are not intended to "police" vehicle use but to compare mileage economy, remind the driver how many miles they have driven since servicing and that the vehicle is an official project vehicle and should be used as one. Log books also allow senior staff to compare drivers. Some drivers are harder on vehicles, those vehicles will show that they have had more repairs per kilometer driven, they will show that one driver always uses more fuel than another, indicating that he drives too fast etc...

### C. Project Administration and Staffing

The project administration should be congratulated for the administration of this project as it was conceived. Normally, the more players involved the more difficult the administration of a project becomes. The PHFS project has been working with two different ministries, Ministry of Plan and the Ministry of Rural Development, and has done a remarkable job of collaboration with both. Interviews with both ministries showed that they were very pleased with the project's activities and would like to see the project continued. Credit must also be given to GOCAR for their collaboration and support. Counterpart inputs have been supplied on time, personnel have been assigned and access to the highest levels of the two Ministries have been open to project personnel.

PHFS has had some difficulty recruiting and retaining expatriate experts. Often stark living conditions tend to multiply any unrest that surface between technicians and administrative personnel which would not exist under more favorable conditions. When phase one research found that losses were already minimal some of the ex-patriate staff felt that they were not working on farmers major problems. This, combined with the hard conditions, caused some dissatisfaction.

The consultant did not have time explore these types of problems but note that they did exist, as they do in every project, and for the most part were handled well.

## APPENDIX A: List of Persons Contacted

I. WASHINGTON D.C., January 24, 1989

Mr. Carl Lindblad
Consultant
VITA

Mr. Art Theisen
VITA Staff

Mr. Larry Williams
Vice President for Overseas Operations
VITA Staff

Mr. Jerry Martin
ABT Associates, Inc.

II. Bangui, Central African Republic, January 26, 1989

Mr. Phillippe Makendebou
USAID Assistant Administrative Officer

Mr. Hugh Smith
USAID Representative

Mr. Phillippe Zacko
Charge de Mission, Responsable National pour le Developpement Rrural
Ministere de Plan

Mr. Bingaba
Minister of Plan

Minister of Commerce

Secretaire Generale
Ministere de Plan

Attache de Presse
Minstere de Plan

Ms. Mary Bess
Africare Coordinator
Rural Enterprise Development Project

Mr. Neil Boyer
Africare Represenattive

Mr. Al Miller
VITA Post Harvest Food Systems Technical Advisor
VITA Representative

Mr. Jean-Jacques Nimeziabe
Directeur Generale
ADECAF
Bangui, C.A.R.

Mr. Patrice Endjngboma
Directuer Generale
SOCADA
Bangui, C.A.R.

Mr. Fio-Ngaindio, Gabriel
Directeur de la Plannification et des Etudes
Ministere de Developpement Rurale
Bangui, C.A.R.

Mr. Jean de Dieu Dessande
President
Conseil Regional et Economique
Bangui, C.A.R.

III. BOSSANGOA, January 29 - 30, 1989

Mr. Tom Giossi
PHFS Project Extension Specilaist
AFRICARE

Mr. Faustin Pademona
PHFS Project Director

Mr. Antoine Mokombo
Regional Director - Bossangoa
PHFS Project

Mr. Dana Glazier
Ag. Economist
Africare Rural Enterprises Project

Ms. Susan Glazier
Statistician
Africare Rural Enterprises Project

Mr. Eric Moyer
Agriculturalist
Africare Rural Enterprise Development Project

Mr. Thomas Bagui
Coordinatuer du Centre CFAR

Monsieur le Sous-Prefet
Bossangoa

IV. PAOUA, January 31 - February 2, 1989

Monsieur le Sous-Prefet de Paoua

Mr. Frank Bolduc
PHFS Project Storage Specialist

Ms. Kate Debold
PHFS Extension Specialist

Ms. Mathurine Sana
PHFS Regional Director - Paoua

Ms. Bertine Djollo
Regional Extension Specialist
PHFS Project

Mr. Ambroise Bellet
Regional Storage Specialist
PHFS Project

Mr. Hans Meier-Eybers
Chief Advisor to ACADOP
Head of the German Mission to ACADOP

Mr. Karl Werelde
Advisor to ACADOP

V. BOZOUM, February 4, 1989

Monsieur le Prefet
Ouham-Pende Region

VI. BOCARANGA, February 4 - 5, 1989

Mr. Alec Soupene
PHFS Project Regional Director

Mr. Samsom Koyabaye
Regional Agricultralist
PHFS Project

## APPENDIX B: List of sources and documents consulted

1. POST HARVEST FOOD SYSTEMS FOR THE CENTRAL AFRICAN REPUBLIC, Project Proposal submitted to USAID by VITA, July 1984

2. COOPERATIVE AGREEMENT No. 676-0016-A-00-4046-00 between VITA and USAID, August 24, 1984.

3. POST HARVEST FOOD SYSTEMS PROJECT, REPORT OF CONSULTANT ROBERT B. CHARLICK, RObert B. Charlick, October, 1987.

4. EVALUATION OF THE VITA-AFRICARE POST-HARVEST FOODS SYSTEMS PROJECT, Labat-Anderson, May, 1987.

5. POSTHARVEST FOOD SYSTEMS PROJECT, Phase One Reports, VITA/AFRICARE, no date.

6. OPERATIONAL GUIDELINES: RAPID APPRAISAL OF AGRICULTURAL MARKETING SYSTEMS, Abt Asociates Inc., December, 1988.

7. Proposed Milling Subproject, Central African Republic, Carl N. Bielenberg, July, 1988.

## APPENDIX C: List of VITA Personnel

PERSONNEL HIRED BY VITA:

BANGUI:

| | |
|---|---|
| Ms Malendoma, Beatrice | Admin Assistant |
| Ms Dorkem, Elisabeth | Secretary |
| Mrs. Gadepou, Leonie | Secretary |
| Mr. Djabona, David | Driver |
| Mr. Liba, Prosper | Guard |
| Mr.Pandaga, Georges | " |
| Mr. Reda, Gaston | " |
| Mr. Bringui, Maurice | " |
| Mr. Mangali, Maurice | " |
| Ouambrougou, Jean-Louis | " |

BOSSANGOA:

| | |
|---|---|
| Mr. Mokombo, Antoine | Assistant Director |
| Mr. Kparesspka, Esaie | Secretary |
| Mr. Ngaikoumo, Rene | Driver |
| Mr. Nganaguende, Pierre | Guard |
| Mr. Yakoisse, Salomon | " |
| Mr. Feidangamo, Joachim | " |
| Mr. Wilibozouma, David | " |
| Mr. Izoko, Antoine | " |
| Mr. Eyasse, Jean Bruno | " |
| Mr. Rangba, Andre | " |
| Mr. Mboroum, Elie | " |
| Mr. Nganakwe, Joachim | " |
| Mr. Ouendessere, Emilie | Technician |

PAOUA:

| | |
|---|---|
| Ms. Sana, Mathurine | Assistant Director |
| Mr. Malenda, Jean | Lab Technician |
| Mr. Baba, Yerima | Driver |
| Mr. Tamba, Nathan | Driver |
| Mr. Ngamba, David | Driver |
| Mr. Mardet, Albert | Secretary |
| Ms. Kowan, Joesphine | Secretary |
| Mr. Bomadji, Julien | Guard |
| Mr. Nguinissara, Emile | " |
| Mr. Niambe, Dieudonne | " |
| Mr. Doumta, Joachim | " |
| Mr. Ndingabe, Nathan | " |
| Mr. Sanhoule, Albert | " |
| Mr. Ganite, Baoze | " |
| Mr. Yassere, Sathurnin | " |

BOCARANGA:

| | |
|---|---|
| Mr. Koyabaye, Samson | Agricultural Engineer |
| Mr. Kofio, Julienne | Ag. Technician |
| Ms. Bawele,Rachel | Secretary |
| Mr. Ngala, Rene | Driver |
| Mr. Berekoutou, Jean Noel | Guard |
| Mr. Hoemaye, Etienne | " |
| Mr. Bandikanda, Ambroise | " |
| Mr. Yagana, Etienne | " |
| Mr. Ngolo, Martin | " |
| Mr. Guet, Rene | " |
| Mr. Bonang, Clement | Extension Agent |
| Mr. Wiguele, Daniel | Extension Agent |

PERSONNEL SECONDED BY THE GOCAR:

| | |
|---|---|
| Mr. Pademone, Faustin | Project Director |
| Mr. Soupene, Aleck | Regional Director, Bocaranga |
| Mr. Bellet, Ambroise | Storage Expert, Paoua |
| Mr. Senafin, Andre | Regional Director, Bossangoa |
| Ms. Djollo, Bertine | Food Processing Technician, Head of Transformation Section, Paoua |
| Mr. Ngbaga, Francois Bossangoa | Assistant Regional Director, |
| Mr. Ndouba Beleke, Daniel | Ag Technician, Paoua |
| Mr. Gandjio, Oscar | Ag Technician, Paoua |
| Mr. Matchy, Thomas | Ag. Monitor, Bocaranga |

## APPENDIX D: LIST OF VITA TRAINING PROGRAMS

| Type of Training | Participants | Number | Loacation | Duration |
|---|---|---|---|---|
| Intro to PHFS | ACADOP | 10 | Paoua | 3 days |
| Intro to PHFS | ACADOP | 10 | Bocaranga | 3 days |
| Intro to PHFS | Comm Dev | 10 | Bossangoa | 3 days |
| Training of Trainers(TOT) PHFS Technologies | Curriculum Advisors AFROP Supervisor Srv. Agricole Comm. Devel. Supervisor | 12 | Bossanoga | 1 wk |
| Training of Trainers PHFS Staff, ENSTA Trainees PHFS Technologies Service Agricole ACADOP/AFROP | | 9 | Paoua | 1 wk |
| TOT PHFS Technologies | Supervisors and SOCADA Trainers | 12 | Paoua | 1 wk |
| PHFS Technologies Extension Methods | Community Devel Agents & Supervisors | 12 | Bossangoa | 2 wks |
| PHFS Technologies Extension Methods | ACADOP Agents & Supervisors | 27 | Paoua | 1 wk |
| PHFS Technologies Extension Methods | CFAR | 8 | Bossangoa | 1 wk |
| PHFS Technologies Extension Methods | Women Village Leaders | 15 | Bossangoa | 1 wk |
| Introduction to PHFS Technology 1 | Village Leaders Women | 10 | Paoua | 1 day |
| Intro to PHFS Technology 2 | Village Leaders Women | 10 | Paoua | 1 day |
| PHFS Extension Methods | Peace Corps | 15 | Bangui | 1 day |
| PHFS Technologies | PHFS Staff | 15 | Paoua | 1 day |
| Village Rodent Control | ACADOP | 10 | Paoua | 1 wk |
| Village Rodent Control | ACADOP | 10 | Bocaranga | 1 wk |

| | | | | |
|---|---|---|---|---|
| Village Rodent Control | Comm Dev | 12 | Bossangoa | 1 wk |
| Village Rodent Control | School Ad. | 9 | Bouar | 3 days |
| Village Rodent Control | School Directors | 10 | Bossongoa | 3 days |
| Village Rodent Control | School Directors | 12 | Bocaranga | 3 days |
| Peanut Handmill Use | Comm Dev Agents | 12 | Bocaranga | 2 days |
| | ACADOP Agents | 10 | Paoua | 2 days |
| | ACADOP Agents | 10 | Bocaranga | 2 days |
| | ACADOP Storekeepers | 10 | Paoua | 1 day |
| Drying Floor Construction | Village Masons | 2 | Benermain | 2 days |
| | Village Masons | 2 | Bedaya | 2 days |
| | Village Masons | 2 | Beni | 2 days |
| | Village Masons | 2 | Bebi | 2 days |
| | Village Masons | 2 | Paoua | 2 days |
| | Village Masons | 2 | Toulara | 2days |
| Rat Proofing Storehouses | ACADOP Storekeepers | 17 | Paoua | 2 days |
| Administration | PHFS Staff | 15 | Bozoum | 2 days |
| Report Writing | PHFS and ACADOP Staff | 10 | Paoua | 1 day |
| | ACADOP Agents | 10 | Paoua | 1 day |
| Bruchid Control | Village Leaders | 12 | Paoua | 1 day |
| | Village Leaders | 10 | Bocaranga | 2 days |
| Manual Writing | PHFS Staff | 12 | Paoua | 3 days |
| Post Project Sustainability Workshop | PHFS Staff | 14 | Paoua | 2 days |
| In- Country Technical Training: PHFS and Extension Components (integrated into Peace Corps training program) | Peace Corps Volunteers | 2 | Bambari | 8 wks |
| | | 3 | Bossangoa | 8 wks |
| In-service workshops on PHFS topics and extension methods (monthly) | ACADOP agents<br>SOCADA Agents<br>PHFS Staff | 40 | Bossangoa<br>Paoua<br>Bocaranga | 1 to 3 days each |

## ANNEX VI

## CONSULTANTS' SCOPE OF WORK

### I. Background

In March, 1988, the AID/Washington CAR Desk Officer and Project Development Officer reviewed AID's strategy in the Central African Republic (CAR). Based on its review, the team proposed a revised strategy emphasizing private sector promotion aimed at improving the marketing, distribution and processing of agricultural production, especially food crops, to diversify and increase rural incomes. Assuming continued OYB of $2.0 million per year, it is anticipated that approximately dollars $1,500,000 per year over five years beginning in 1989, would be channelled to implement the new program strategy.

Subsequent Mission review of the proposed strategy resulted in a qualified approval; the Mission perceived a need for additional information regarding the feasibility and priority of a program to improve, as well as to expand, agricultural marketing and distribution and processing. The purpose of the study outlined herein is to provide detailed information regarding the specific nature of CAR's agricultural marketing, distribution and processing problems as well as to assess alternatives for their amelioration.

### II. Objectives

The study will assess the feasibility of a project to increase the economic efficiency of private sector marketing, distribution and processing systems for agriculture products. Such a project is expected to build upon the experience and knowledge gained under on-going projects in Post Harvest Foods Systems (PACD August 1989) and Rural Enterprise Development (PACD September 1991).

Based on results of studies/surveys carried out under the Post Harvest Food systems and Rural Enterprise projects, as well as other secondary information sources, the study will identify and assess the major constraints and inefficiencies of key marketing, distribution and processing activities in (1) the Bangui zone and one or two major contiguous zones, and (2) in the Ouham-Pende and Nana Mambere Prefecture where extensive studies have been conducted on food storage and processing and the PHFS project. Further, the study will identify alternative interventions for addressing key constraints to increasing economic efficiency and viability of private sector marketing, distribution and processing investments that are within the financial and technical resources available to USAID/CAR. Possible areas of intervention under a new project include analyzing and improving the environment for small scale marketing and processing investments, improving the flow of marketing information regarding prices, product availability and demand, improving marketing skills and facilities; and, improving technical knowledge and skills regarding small scale processing industries. The study should provide the basic information required to draft a PID.

III. Scope of Work

1. Based on brief (not more than 10 days) overview of available information (studies, reports, surveys etc. conducted by or for the GOCAR, IBRD, ABD and other multi-lateral and bi-lateral donors) supported by a rapid reconnaissance effort that has improve on key informants in the production, processing and marketing chain, (extensive), identify the major short and medium-term constraints to increasing agriculture production and incomes in the major production areas of the CAR.

The survey will focus on:

- The adequacy of the focused policy frame works to provide minimum production incentives.

- The potential for expanding production given existing improved technologies (and the systems for their dissemination) and traditional technologies (through extensive production).

- The domestic and external demand for the crops being produced.

- The adequacy of existing marketing arrangements for clearing input and output markets. The survey will review information developed under the Post Harvest Food Systems and the Rural Enterprise Development projects regarding post harvest food losses and food processing costs and problems of extensive of agricultural foodstuff, respectively.

2. To the extent that the brief overview further supports the hypothesis that marketing is a significant constraint to increasing agricultural production and incomes, a more detailed assessment of the marketing system will be conducted. The purpose of the assessment is to identify and prioritize major constraints to improving the efficiency of the marketing system and their causes. The level of effort foreseen is that needed to meet PID preparation requirements outlined in AID Handbook 3. Relying primarily on secondary information sources supplemented by information obtained through rapid reconnaissance and key informants by interviews, the assessment team will focus on the following key factors:

(a) The technical characteristics of selected relevant agriculture commodities, e.g., production calendars/cycles, production levels (yields and area cultivated), harvesting processing, and handling and packaging practices at key stages of the marketing system, including costs of production.

(b) Market demand characteristics, as reflected by overall consumption patterns for major commodities in the target zones, seasonal patterns of demand, and probable long-term demand trends associated with changing per capita incomes, increased urbanization, etc.

(c) Marketing system organization in the target zones as defined by the

types of market participants (e.g., producers, marketers, and tranformers), as distinguished by their public or private character, their legal status (formal--family firm, corporation, cooperative parastatal--and informal) and the typical patterns of ownership/management. Assess the extent of vertical integration and the nature of competition (oligopoly, monopoly, etc).

(d) Marketing system operations and costs, including the terms and conditions of exchange; information/communications between stages: and the means, if any, of differentiating product quality.

(e) Marketing infrastructure, including modes of transportation (road, river, rail), status of facilities (market places, storage facilities, and processing facilities), information collection and dissemination, and financing facilities.

(f) Economic efficiency of the marketing system as a mechanism for leveling intra- and inter-zonal surplus and deficit characteristics among the target zones.

(g) Institutional arrangements in terms of the (a) the laws, business regulations and policies that affect the incentives, opportunities and operations of marketing organizations, and (b) government of parastatal participation in the procurement, storage transformation or sale of agriculture inputs or outputs.

3. Based on the market assessment, if feasible, the team will propose a multi-year program assistance to achieve significant and measurable improvements in the efficiency and effectiveness of the marketing system in selected zones (focusing on liberalization and privatization) that will, in turn, benefit both producers and consumers. The size and duration of the proposed program will reflect anticipated resource availabilities described in section I above. It will also identify the counterpart agency and design questions and further study requirements and recommend the most appropriate mode of TA contract based on information available and the type of interventions proposed at the PID stage. The team should assess the capacity and effectiveness of current U.S. PVOs as an option for serving as a vehicle to address some or all of the constraints identified in the study. Specially, the team should explore the effectiveness of amending any of the current PVO activities as a means of tackling one or some of the identified constraints on a short-term basis, as opposed to undertaking a new long-term project per se. in fy 89/90.

4. To the extent that identified non-market constraints that are not being addressed through other donor programs prevent the achievement of significant market system improvements, these constraints should be described. As appropriate, the team should propose alternative actions for alleviating the constraints identified. Should the constraints identified be beyond the scope and capacity of the team to adequately assess, the team will propose an in-depth constraint(s) assessment, identifying the major questions to be answered as well as the scope, timeframe and skill requirements of the assessment.

## IV. Source of Information

The study will be based on existing secondary data and previous studies, supplemented by interviews with the key informants including other staff, market participants and government agencies and by field observations. Review of surveys conducted and results obtained under the on-going Post Harvest food Systems and Rural Enterprise Development projects is essential. It is understood that the World Bank will be conducting an agricultural marketing study in the fall of 1988. Thus, the appropriate World Bank Office in Washington and the soon to be established Office in Bangui should be contacted for possible information. Abbe fessenden, the Officer in Charge for the CAR (AFR/CCUA) is also a source of information. USAID/Cameroon, the AID Liaison Officer in Bangui and Aid/W will provide copies of existing materials and studies. Additionally, the consultants will be expected to identify additional secondary data and studies.