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**Agricultural Marketing
in Chad: Preliminary Project
Identification Assessment**

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Abt Associates Inc. on
AMIS Project)**

August 1989

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Dr. Norman Ulsaker, senior agricultural marketing specialist, conducted the research for the report and wrote it, and he accepts full responsibility for any errors or omissions. Dr. Ulsaker is an agricultural economist who has expertise in the private sector.

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I. EXECUTIVE SUMMARY

Literature Review

The literature review illustrates that the agricultural marketing system in Chad for domestic food crops is characterized by relatively low technology and high labor intensity. The agricultural marketing system is traditional, with low productivity, limited capital, and few modern innovations. The introduction of motorized transportation has been the single capital-intensive development in the agricultural marketing system in the country.

Although there is a lack of data on agricultural production, marketing, and input supply, root crops, fish, and minor commodities, assertions can be made based largely on informed estimates and judgments. Free competition prevails in agricultural marketing in Chad. In most areas of the country, farmers receive market prices for their crops; in some remote areas characterized by fewer producers and traders, agricultural prices are depressed.

Although the Government of Chad has intervened in the agricultural marketing system in the country to only a limited degree, resulting in little government influence on agricultural prices, the following marketing system constraints are evident:

- Geographic dispersion of production
- Weak transportation and infrastructure
- Production and price volatility
- Trade imperfections
- Ineffective government policies and interventions
- Underdeveloped market infrastructure
- Shortage of marketing credit

- Negative attitudes towards privatization and mistrust of market forces
- Lack of market information

To ameliorate these constraints on efficient and effective agricultural marketing, the following measures should be considered: improvement of roads and transportation, including reestablishment of barge transport on the rivers and Lake Chad; encouragement of crop diversification and planning in irrigated areas to avoid marketing gluts; introduction of new technologies for preserving perishable crops, as well as producing alternate food products from sorghum and millet; improvement of data collection and introduction of a market news service; development of a market credit program for farmers, traders, and firms; and encouragement and assistance to marketing firms to initiate contract farming mechanisms for farmer risk-sharing.

There is a general consensus on the need for marketing improvements, but uncertainty on the specific actions needed. The overriding problem seems to be weak institutions that limit the development of agricultural marketing, especially the infusion of capital into the system.

Perceptions on Agricultural Marketing Development

This study examined a number of issues related to agricultural marketing. These issues include the agricultural economy, regional self-sufficiency, public versus private sector agricultural development, the use of cooperatives or corporations to promote agricultural marketing, market infrastructure, and agricultural privatization. The issues and some recommendations for addressing them are summarized in the following sections.

The Agricultural Economy

The cereal grain sector does not provide as strong a stimulus to the overall economy as do the industrial crops and livestock sectors. The expansion of non-traditional crops in the irrigated areas is constrained by market demand, currently limited to N'Djamena and a few other large towns. Agriculture can contribute more to economic development if productivity can be increased through increased and improved irrigation, and seeds and other inputs. Also, markets can be expanded by increasing regional trade for processing and preservation and for alternative food products.

Self-Sufficiency

Although self-sufficiency is a goal of the government, the geographic isolation and poor transportation infrastructure in the north greatly restrict economic integration of the southern regions of Chad with the northern regions. Given the geographical and infrastructure constraints on regional self-sufficiency, the stabilization of agricultural production and the maintenance of grain buffer stocks should be a priority to help promote self-sufficiency in grain production and consumption.

Public Versus Private Sector

Given the low level of public financial and institutional resources available to foster the effectiveness and expansion of agricultural marketing in Chad, private sector marketing activities should be encouraged. Establishing a market news information service might be one useful public sector activity to improve agricultural marketing in the country, by providing timely agricultural price and output information to farmers, traders, and consumers.

Cooperatives Versus Corporations

Corporations have advantages over cooperatives for larger enterprises, especially for export initiatives. Cooperatives have useful roles in rural areas, especially for channeling and using credit.

Market Infrastructure

Market facilities need to be improved. While the need for cold storage in N'Djamena is clear, it is unclear who should own, operate, and manage such facilities. The preferred procedure would be to make credit and technological assistance available to private investors.

Privatization

There is considerable scope for the private sector to assume many of the commercial functions of various government organizations. This would reduce the problem of constrained government resources and inject dynamism into the agricultural sector.

Recommendations

Proposed market initiatives include the development of market credit and enterprises, including national agribusiness and marketing firms; regional and local market town development; a market information and news service;

marketing and transportation infrastructure; and processing technology for perishable commodities and alternative food products.

Proposed activities for the development of projects include examining the business climate, village organization, and credit mechanisms and soliciting proposals for pilot activities in market town development and for agribusiness promotion initiatives.

II. LITERATURE REVIEW: AGRICULTURAL MARKETING IN CHAD

Agricultural Marketing in Chad: Summary

The following sections briefly summarize the major findings in published reports and informal documents. Cotton and livestock are not included. Agricultural marketing in Chad is a complex system with "a combination of an immense number of social behaviors, commercial actions, and individual interests and operators" (21). Among the numerous constraints on agricultural marketing in the country are the extreme fluctuation in the level of agricultural output marketed and the wide dispersion of production. Limited resources, transportation, and infrastructure have also constrained agricultural marketing activities. Large quantities of food aid imported into the country in recent years have further complicated agricultural markets (22).

Production and Consumption

The literature and published reports on Chadian agriculture are mostly descriptive, with scanty and sometimes inconsistent data. A complete agricultural survey has not been done, but there were partial surveys in 1960 and 1973 by the United Nations Food and Agricultural Organization (FAO). Statistics on root crops, such as cassava and yams, have not been included in the total food production figures, partially because of the difficulty of collecting accurate information on these products. The improvement of agricultural statistics is the objective of the rapid warning system and the early warning system, with technical and financial assistance from CILSS. The last survey containing data on consumption dates back to 1965, and it covered only the cotton-producing south. The most recent survey was in 1973.

Production of food grains under rainfed conditions fluctuates widely by year and region (see Appendix C), with yields differing by a factor of three between peak and low production years. This condition and the widespread geographic dispersion of production and weak transport infrastructure are major obstacles in the movement of food commodities throughout Chad.

Cereal consumption is estimated to be as much as 95 percent of total calories from staple foods. Urban population requirements for cereals make

up about 20 percent of total harvest (21). The government sees a growing demand for rice. This situation parallels the experience in other West African cities, where changing food preferences have created sharp increases in rice consumption. Consumption data on non-cereals are lacking.

Trade

Agricultural trade takes place for the most part in the private sector with the exception of industrial crops such as cotton, sugar, tobacco, and, to a lesser extent, rice. The Office Nationale de Céréales (ONC) markets no more than 5 percent of the total volume of cereals traded. Estimates of the amount of total cereals traded have ranged from 10 percent of total production to 20 percent more recently (21).

Estimates for trade in other food crops do not seem to be available. As in most other developing countries, trade is characterized by large numbers of buyers and sellers at both ends of the marketing chain (atomistic competition). Some of these traders are employees of larger traders (3), and others are farmers. The traders eke out a bare subsistence and often lack the resources to improve or expand their operations. Although there is relatively free market entry for the small trader, some reports cite evidence of exploitation of the farmer by traders (3). A recent analysis of fruit and vegetable marketing for small farmers under a project executed by CARE determined that the traditional trading system was competitive and that gains from cooperative marketing initiatives would be unlikely (20).

There are reports of imperfect competition at the wholesaler or larger trader level in the market towns outside of N'Djamena (55). These traders reportedly have to establish mutually beneficial relations with the various traditional and formal authorities. They reportedly profit from collusion with other large buyers, from inside information not available to small- and medium-sized traders, and from speculation. It is unclear from the literature what impact these imperfections have on prices and marketing.

The level and the direction of trade flows depend on seasonal and regional levels of marketed output and food demand; however, agricultural commodities flow into N'Djamena and other urban centers consistently as long as there is a surplus in the rural areas (21). During times of scarcity, grains generally move from the south to the north. Cross-border trade with neighboring countries is also reported. Information on country grain flows will be better defined as a result of a study that CILSS/BIEP is conducting (43).

Prices

There are wide seasonal and annual swings in price levels, and prices also differ by region. Annual prices for cereal grains can change by 200 to 300 percent (see Appendix C). This range is a reflection of highly variable production, transfer costs, and the quantity of agricultural commodities marketed, as well as a lack of market integration.

Some traders report gains of greater than 100 percent by buying grain after harvest and holding it until the soudure period, which is the "hungry" period immediately before the next harvest. However, large amounts of food aid imported into the country in recent years have reduced gains to be made from storage (21). Annual prices for cereal grains can reportedly change by 200 to 300 percent (33).

Government Policy and Intervention

As noted above, government intervention in agricultural marketing in Chad is mostly limited to rice, livestock, and the industrial crops such as cotton, sugar, and tobacco. ONC, and its predecessor agency OFDR, have attempted to stabilize grain prices with contra-season purchases and sales (3, 30). However, the timing and quantities traded resulted in negligible impact on the market and on farmer incomes, and in high cost. Government intervention reportedly helped stabilize trader income more than farmer income (33, 21).

There has been disagreement among donors and market experts on the proper role, functions, and policy of ONC. The most recent recommendations call for ONC to act at the wholesaler level to

- Maintain food security reserves
- Stabilize markets through buy-sell operations
- Service certain remote areas in which there are not enough private traders (21, 22)

OMVSD plays a major role in the production and marketing of rice; however, its performance has been marginal (33). The cereals policy study by BIEP should provide more precise information on the question of the role of government in the cereals sector.

Market Constraints and Recommendations

Views on how to improve marketing for Chadian agriculture diverge widely. These views involve various perceptions on the relative role and importance of (1) the private versus public sectors, (2) specific marketing constraints, and (3) geographic areas and commodities. Some market experts advocate allocating more resources for government interventions, such as increased government storage, security stocks, and producer support prices (2). Other marketing experts argue for keeping the markets free of heavy-handed government interventions (21, 33).

Most of the literature reviewed cites geographic dispersion of production and poor roads as the major constraint to agricultural marketing in Chad. Identifying the next most important constraint is difficult, but the following are cited as significant by various authors: production and price volatility, trade imperfections, ineffective government policies and interventions, underdeveloped market infrastructure, a shortage of marketing credit, negative attitudes and mistrust, and a lack of market information.

Agricultural marketing problems vary according to area and commodity. A primary problem throughout the Sahel is widely fluctuating production and accompanying price swings. In the south and along the rivers and Lake Chad, constraints include the need to diversify production away from cotton and possibly sugar to other crops that can be grown using irrigation. Market capacity and outlets present more of a problem for crops such as fruits and vegetables. The following are a number of constraints on agricultural marketing and recommendations for addressing them, not listed in any order of priority.

Constraint 1: Geographic Dispersion of Production and Weak Transportation Infrastructure

Most reports cite this constraint on agricultural marketing. Production of food crops occurs in a large number of small-scale farming units spread out over wide physical areas. This dispersion, together with poor roads, leads to high transaction costs and low producer prices because of excessive transport, collection, and storage costs.

Recommendations in Literature

- Major improvements in roads and addition of more transport, particularly small and medium sized trucks¹

1. Various donors, including A.I.D., are providing assistance in roads and transport, but much remains to be done in improving the road network.

- Use of bikes and animal-powered carts to move produce from the outlying farms and villages to the main roads and markets
- Reestablished barge traffic on the rivers and Lake Chad (6, 33) for part of the year (not a substitute for an improved road network)
- Production and storage increases in the north to reduce the need for periodic movements of food to the deficit areas (33)
- Government involvement to reduce or eliminate the influence of CTT, forcing transport costs down (33)

Constraint 2: Production and Price Volatility

Annual rainfall that is highly variable by region causes wide variations in production. The changes in the volume of commodities reaching the market causes wide fluctuations in price. This problem is further aggravated for perishables since there is little storage or means of preservation.

Recommendations in Literature

- GOC intervention in the cereals sector to maintain floor prices for producers and in some cases, ceiling prices to consumers (2)
- Security or buffer stocks of grain maintained by ONC (21) and a monetary foreign exchange reserve fund to purchase imported food commodities in time of deficit in place of physical stock of grain⁴

2. No analysis has been conducted to determine the amount needed and the location for security stocks. The DAI team of 1987 tried to determine this, but others question their results. The extent to which farmer level grain or cattle "banks" can substitute for ONC buffer stocks also needs to be considered.

- Assistance in forming farmers' associations for credit and improved on-farm and village storage (54), and increased promotion and financing for the establishment and expansion of agribusiness firms to invest in market infrastructure
- Crop diversification and better production planning (especially of perishable crops) (7)
- Improved market facilities, including cold storage (45)
- Development of appropriate technology for preservation and processing of alternative food products (40)
- Development of export markets for fruit and vegetables and training of farmers to produce export quality fruit and vegetables (46)
- Encouragement of contract farming mechanisms whereby a business firm will first establish the market and then link back to farmers for production, thus allowing risk sharing in both production and marketing (35, 50)

Constraint 3: Trade Imperfections

Competition is atomistic at the first buyer or handler level in the marketing chain and also at the retail end of the chain. Large numbers of traders do not have the resources or knowledge to improve their productivity and are merely subsistence producers. There are also elements of imperfect competition among the larger traders and wholesalers, mostly in smaller towns outside of N'Djamena (55). There are reports that these larger traders and wholesalers engage in collusion and have inside information that enables them to extract profit and excessive gains from speculation, although it is difficult to determine whether these statements reflect fact or prejudice.

ONC has had a system of licensed traders (*commerçants agréés*) who traded for their account. These traders were often unqualified, and the result was simply another layer of middlemen. This system has reportedly been abandoned by ONC; however, it may still exist in the Bokoro region (see field trip notes, Appendix F).

Recommendations in Literature

- Data collection should be improved and a market news service developed to benefit small traders and farmers (and ONC), as well as to stabilize market flows (21)
- Credit should be made more available to small farmers for transportation, storage, and operating capital to increase their productivity and incomes, and to enable them to compete with larger traders (3, 21)
- ONC should be given more resources to enable it to serve as a large wholesaler helping to stabilize prices and reduce speculative gains (21)
- ONC should trade with merchants, providing they can meet the volume required by ONC (21)
- Institutions should be strengthened to provide credit, market information, and other market support

Constraint 4: Ineffective Government Policies and Interventions

The number of transport tariffs and road taxes results in increased costs and aggravation for traders (33, 21). The government and the parastatals have ineffectively managed and controlled some commodities such as rice and, to a lesser extent, cereal grains, thereby reducing the scope for development of private trade.

Recommendations in Literature

- Eliminate administrative fees, road taxes, and restrictive regulations (33, 21)
- Reduce or eliminate the role of OMVSD in production and marketing (34)
- Maintain a balanced system with the government and provide sufficient resources from ONC to support prices and to increase public storage, to be able to effectively intervene in the market (3)

Constraint 5: Underdeveloped Market Infrastructure

Some reports assert that there is a shortage of cereal grain storage capacity in some areas and inadequate facilities, leading to a high level of losses (3). This assertion is questioned in other reports (21). The adequacy of public sector grain storage depends on the levels and locations of recommended security stocks, which range from 10,000 to 35,000 tons (20,000 tons currently recommended). The marketing of fruits and vegetables is also constrained by the lack of cold storage and other facilities (46). The low quality of produce results from poor facilities and processing technology. For example, low extraction rates and mediocre quality of rice was reported from the rice mill at Bongor (19).

Recommendations in Literature

- Construction of more on-farm and village-level improved storage (3)
- Construction of cold storage and other market facilities in N'Djamena, especially for extending the life of perishables such as fruits and vegetables for export and domestic markets (46)
- Assistance in post-harvest handling (3)
- Encouragement of decentralized, village-level, small-scale agro-industries (29,19)
- Promotion of appropriate technologies for preservation and processing of basic commodities, such as alternative food products and snack foods (54)

Constraint 6: Shortage of Marketing Credit

Credit for farmers is scarce relative to demand. Commercial credit is directed largely towards industry or agricultural production of crops such as cotton, sugar, rice, industrial crops, and exports. Most credit for financing market functions must be obtained by farmers or traders themselves at exorbitant cost from money lenders, and there are no formal credit institutions serving the farmer and agricultural marketing firms. Two major uses of credit cited in the literature are for financing trucks and for operating capital to allow trading of larger volumes of commodities (33).

Recommendations in Literature

- Establish viable credit programs for both farmers and traders, using alternative approaches such as farmer groupements (32, 19)
- Expand credit operations to more farmers and traders (33)

Constraint 7: Negative Attitudes and Mistrust

As in other developing countries, middlemen in Chad are generally maligned, and marketing firms are regarded by farmers and consumers as a necessary evil, at best. Consequently, there is little inclination on the part of farmers and consumers to assist or encourage marketing activities or institutions. Distrust severely restricts the number of exchange opportunities for each trader and adds to marketing costs (52). While this constraint is apparently less important than in some other countries, it does surface more during bad years characterized by low production and scarcity of food when speculating middlemen are blamed for problems. While this phenomenon is by no means limited to Chad, it appears that the lack of operating capital and high degree of uncertainty in the market give rise to a larger percentage of credit sales than elsewhere, even for sales by farmers to traders.

Recommendations in Literature

- Provide institutional mechanisms such as courts and agencies for controlling grades and standards (52)
- Initiate educational campaigns to promote better understanding of the contribution of marketing people to the economy (52)
- Encourage contract farming mechanisms between agribusinesses and farmers, resulting in a more harmonious relationship, with the firm assuming much of the marketing responsibility and the farmers assuming the production risks (35, 50)

Constraint 8: Lack of Market Information

Market conditions can be assessed fairly readily by buyers and sellers within localized market areas. Knowledge of price and volumes in other markets is often available to only a few people, and they guard it closely.

Larger traders and those with good market intelligence can realize sizeable gains from arbitrage.

Recommendations in Literature

- Improve data collection, and establish a market news services for farmers, consumers, and traders, perhaps through rural radio (especially useful for perishable crops for which prices and volumes of crops are more variable, although realistically most feasible for the major traded grains) (21, 33)

Guide to the Literature for Planning Agricultural Marketing

The following sections summarize key documents to review in planning an agricultural marketing project in Chad, organized by category. Documents are cited by a number in parenthesis () that matches the number of the bibliographic reference. Numbers preceded by the letter "A" refer to those works listed in the annotated bibliography.

Agricultural Sector

A major compendium of information is contained in the report that describes the IBRD/Ministère du Plan *Projet de Rehabilitation du Secteur Agricole* (A-50). This document describes in considerable depth the production patterns and marketing by geographic area. It also contains revealing information on movements of commodities across the borders with the Central African Republic (CAR), Congo, Sudan, Cameroon, and Nigeria. This information includes reports of "clandestine" traders who go into remote villages, buy commodities, and trade them across borders by bribing customs officials.

Trade

For information with respect to the levels, players, and items of agricultural trade, the MASI report (A-3) should be consulted. Although the report is a bit dated, it deals with competition and elements of oligopoly and oligopsony. It also describes trade channels for grain, trading practices, and pricing. The DAI report is a more recent and fairly comprehensive report which also provides a good description of how the cereals market functions (A-21). Finally, Mr. Djongali's report on the markets in Lere, Fianga, and Bangor describes trade for specific markets and commodities (A-9).

Area- and Crop-specific Reports

A number of area-specific reports are concerned with various development projects such as irrigation (19, 23, 29). The CARE report on the Kim-Mayo-Kebbi area is a massive compilation of agronomic and socioeconomic data in two volumes (A-19). On the subject of agricultural marketing, the report cites a lack of a marketing system even for local perishables; however, it is not clear what is meant by "system." It also cites the example of the women at Ere who formed a group, borrowed capital from OXFAM, rented a truck, sold taro, and were able to pay off the loan and make some profit. Another area report (Cheddra) cites two major problems with marketing in irrigated perimeters and formation of viable groups (23). Under marketing are cited better production planning, crop diversification, improved packaging, transport, and appropriate technology for production and processing. The lack of organized market channels is not addressed, but a number of recommendations are given, including not promoting irrigation start-ups until these problems are addressed.

A GOT/ONDR report on the Ouddis of Kanem cited individualism (different tribal groups) as a constraint on groupements and marketing initiatives (29). Crop-specific reports include the following: rice study by BIEP (17); fruit and vegetables, L. Kent (20); Le Grontec (18); Gerbaud (45, 46).

Other Reports

An excellent report that presents a feasibility analysis for the processing of cereals into alternative food products is *Etude de Faisabilité d'une Unité Semi-industrielle de Transformation par Voie Sèche de Céréales Locales* (94). Another excellent guide and manual for researching marketing problems is the AMIS report (52). Reports that present data and analysis of grain marketing from other Sahelian countries are the MSU/A.I.D. study in Mali, which is a survey of 1,054 families in 16 villages; and the A.I.D./CRED study in Burkina Faso, a massive one-year effort (14).

A few references are not specific to Chad but have strong relevance if A.I.D. pursues an active private sector approach to agricultural marketing. *Contract Farming in Africa* and *Agribusiness and the Small-Scale Farmer* describe and analyze in some detail case histories of various contract farming/corporate core-satellite farm arrangements (35, 50). They should be useful in Chad where farmers need credit, technical assistance, guaranteed markets, and risk-sharing, especially with perishable and export crops.

Finally, it is recommended that planners read at least parts of "Every Worker an Owner," by the Presidential Task Force on Economic Justice, which presents a persuasive argument for widespread diffusion of capital ownership (53).

Evaluation of the Quality of Existing Information and Data Gaps

Data Problems and Gaps

Most of the reports are descriptive, with scanty numerical data, and assertions based on informed estimates, judgments, and secondary data. The only agricultural surveys in Chad were conducted by FAO for 1972-73 (for five southern prefectures only), and for 1960 (begun but not completed). A good crop-reporting system and an early warning system by area are needed. Also, a fairly extensive census survey should be carried out about every five years, as well as a modest monitoring survey each year. In addition to production data, more precise data on prices, volumes traded, imports, exports, and consumption would be useful.

There are data on production or consumption of root crops, but a deficit of market information and analysis on farm input supply (except for industrial crops), fish, and minor commodities such as honey, gum arabic, and spirulina. Information does exist on public storage capacity, but little assessment is made of the adequacy of that capacity for maintaining commodities in good condition. Further, there is a paucity of information on the capacity and adequacy of on-farm and village-level storage. Very little is known about the cost of handling, sorting, and inspecting produce; the amount of spoilage and losses involved; and the use of standardized grades, weights, and measures.

Need for Information

It is difficult to say what information is merely useful and what is critical for planning initiatives in agricultural marketing. Much depends upon the particular aspect or areas of marketing that are to be considered. It is best to have a wide database, but that requires a considerable investment in resources. For specific initiatives or investment by firms, feasibility studies will generally provide the elements of information essential for profitable operation.

III. PERCEPTIONS ON AGRICULTURAL MARKET DEVELOPMENT AND ISSUES RAISED

The following issues, comments, and recommendations are supplemental to those in the literature review and are based on contacts with informed people in Chad as well as on previous contacts, knowledge, and experience.

The Chadian Agricultural Economy

The industrial crops sector of the agricultural economy in Chad presents a strong contrast to the traditional or food crop sector. Parastatals dominate the production and marketing of cotton and sugar. Cotton provides 80 percent of export earnings, and the remainder comes from livestock. The traditional cereals crop sector is essentially private-sector-oriented, using small-scale and traditional farming practices. Irrigation has been developed along the rivers and around Lake Chad, and supplies of inputs have increased to promote increased production of rice and horticultural crops. However, this is not sufficient to provide a strong market stimulus for the development of the non-farm sector. In turn, the non-farm sector does not provide a strong market for products in the farm sector. N'Djamena provides a major market for both cereals and perishables; however, due to the limited buying power of most of the urban population, the demand is low, especially for fruit and vegetables. The result is a thin market with depressed prices and constricting increases in limited marketing opportunities in agricultural output.

If irrigation were improved and expanded, to increase productivity and inputs, agriculture could contribute more to the overall economy. Chad reportedly has the greatest potential for irrigation of any of the sub-Saharan countries. Expanded agricultural markets would also increase agriculture's contribution to the overall economy in Chad. Markets should be expanded for farm exports of final and intermediate commodities. European markets should be examined, as should local markets in neighboring countries such as Nigeria, Cameroon, Sudan, and the Central African Republic. The BIEP study should provide some useful information on this issue.

The most significant change in the marketing of traditional and staple crops in Chad over the years has been the introduction of motorized transport, mainly large trucks. Poor roads cause tremendous wear and tear on these vehicles, which results in high costs for transport. Government policies have tended to encourage investment in motorized transport even though camels, donkeys, and horses have been shown to be cheaper, especially based on economic benefits and costs. What is needed is the establishment and maintenance of watering points along the major transport routes to enable greater use of animal-drawn transport. The Institute for Transportation and Development Policy in Washington, D.C. presents a sound economic rationale and support for more sustainable means of transport.

Regional Self-Sufficiency

Chad covers a vast geographic area with very low population density, which is most pronounced in the northern Sahel and Sahara regions. Given existing road conditions, moving food commodities to this region from the surplus-producing south is not economical; it is justified only for emergency humanitarian needs. For example, even with a fair road network, cereals are generally not brought into N'Djamena from distances much greater than 350 kilometers. Transport costs make longer distances unprofitable for the trader. Therefore, rather than try to integrate this region with the rest of the country, it appears best to work toward self-sufficiency by stabilizing production and using security or buffer stocks of cereals. These actions lie outside the scope of this study.

Public Versus Private Sector

The Government of Chad is severely constrained in its resources. None of the government organizations interviewed (including ONDR, ONC, SODELAC, and OMVSD) was able to adequately carry out its economic and commercial functions. The government should use its services, regulations, and investment resources to complement and guide private sector decisions rather than to compete with or duplicate them.

A.I.D. and other donors should use their influence and resources (1) to reduce constraints to private trade and investment; and (2) to encourage the development of an effective private infrastructure. Private-sector firms need a favorable investment and trade environment since their investment decisions are made on their perceptions of risk and rewards. Therefore, donors and the government should use their resources to examine and develop policies, programs, and regulations that will create a favorable investment climate and infrastructure. Programs to be developed might include

- Brokerage and promotion. Many firms lack the managerial and market information to encourage them to invest. Organizations like Latin American Agribusiness Development, Inc. (LAAD) have been assisting these firms for A.I.D. for many years. Various PVOs such as Technoserve also act in this capacity, especially for small and micro enterprises.
- Feasibility studies. Private businesses would explore potentially profitable initiatives of its own choosing if given assistance such as (1) information on markets, prices, equipment, and supplies; (2) temporary access to skills that are necessary to develop a project and to test its alternatives; and (3) financing of explorations and feasibility studies. For example, the Overseas Private Investment Corporation (OPIC) finances 50 percent of the cost of explorations and feasibility studies for an agreed-upon project. If the investment is made, that financing becomes a debt of the project. If it is not the study becomes the property of OPIC and it may be offered to other parties. In Chad, the advance might be made more liberal, perhaps 60 to 70 percent.
- Credit programs. There is a strongly felt need for more capital infusion into the agricultural marketing processes. The question is how this can be organized best so that the capital is allocated and utilized efficiently, and the credit reimbursed. A.I.D. must become more innovative in directing credit through non-institutional sources, such as private money lenders, trade associations, and marketing organizations. In some cases, there may be a need to promote the development of these organizations, or to find means of lending to market intermediaries to stimulate market activities and competition.

Cooperatives Versus Corporations

The two organizational structures most suitable for carrying out marketing functions are the cooperative model and a form of corporate agribusiness. Cooperatives have been used widely in both the developed and the developing world. The following are reasons for preferring the corporate model:

- Capital mobilization and risk. A corporation, especially in joint venture with foreign firms, can attract and raise both equity/venture and debt capital that a cooperative cannot.

The small farmer is unable to assume the risks of new crops and technologies, since his livelihood is at stake. A well-financed agribusiness can assume this risk.

- Management. Effective management, especially in the formative years, has been a constraint and has led to the failure of many cooperatives throughout the world. The best managerial talent is in the private sector, and farmers are usually averse to paying the salaries needed to recruit and retain superior managers.
- Cultural homogeneity. Cooperatives are most successful when their membership comes from a relatively homogeneous population. Chad's population is made up of many tribal groupings; many villages are composed of a mixture of these tribes.
- Dynamism. Cooperatives generally do not have the entrepreneurial, risk-taking, and innovative spirit of a stock corporation.
- Political-economic climate. Chad has a generally favorable climate for private enterprise and investment. The government is private sector oriented as well as being concerned with social justice and equity in development.

In conclusion, for village-level groups such as credit and savings groups, and artisan, farmer, and village associations, the cooperative model may be most appropriate. However, for larger scale and more complex enterprises, the corporation structure may be more suitable. This would be particularly true for export operations.

Market Infrastructure

The economics of private or public storage are not clear. SECADEV has been active in helping farmer groups to build village-level subsidized storage for cereals. A better approach would be to make credit available on a non-subsidized basis; investment in storage facilities would thus be based more on market forces and anticipated financial returns. The same could be said for improved market facilities in N'Djamena, including cold storage for perishables. A feasibility study of investment in cold storage should be conducted to determine the proper and desirable ownership, management, and financial arrangements and to determine if there are intermediate or more appropriate technologies than refrigeration for perishables. Discussions

with traders in the N'Djamena market indicated little interest in improved facilities; they prefer to use tents and plastic sheets for rainy weather, instead of paying higher fees for modernized facilities.

A radio bulletin of principal crop prices in N'Djamena and a few other commercially important markets in Chad would benefit many people. Such a program would provide more incentives for farmer involvement in agricultural marketing, bringing advantages to farmers and consumers, integrating a national market, and bringing about a more monetized economy. The recurrent costs of such a service should be negligible if the government is persuaded of its value. The institutional capability exists; however, micro-computers, software, and short-term technical assistance would be needed.

Privatization

The need for alternative means of food preservation and processing has been identified. There may be scope for private enterprises in areas such as grain merchandising, where a processing firm could play a dynamic role by assuming some of the economic functions now being carried out rather ineffectively by ONC. This may or may not include the reestablishment of the wheat flour mill in N'Djamena. Similarly, private sector firms might assume the commercial functions of ONADEH, and that organization could do more in planning and coordinating the production and marketing of fruits and vegetables. Privatization of at least some of the input supply functions carried out by ONC, OMVSD, and SODELAC should also be considered. This would reduce the problem of constrained government resources, and it would inject dynamism and innovation into the agricultural sector. Private marketing firms should be encouraged to expand the agricultural export market. Currently, a prospective exporter faces some serious constraints, including

- Lack of information on export markets, prices, standards, shipping and payment procedures, and packaging
- Poor communications and facilities and low capital
- Lack of knowledge of legal procedures, documentation, and available service

Unequal Treatment of Private Firms Compared with State Enterprises

A private enterprise that imports fertilizers or other farm inputs must pay a substantial customs duty. Parastatals such as Cotonchad are exempt from this tax; they sell inputs to farmers at subsidized prices. This makes it extremely difficult for private traders to remain in business. The road toll barriers also create a nuisance for private sector marketing firms; taxes should be collected at the point where the products leave the market.

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IV. PROPOSED AREAS OF AGRICULTURAL MARKETING MOST SUITABLE FOR FURTHER CONSIDERATION AND DEVELOPMENT

Based on the literature review, field visits, and discussions with informed persons, the following aspects of marketing are proposed in order of priority for possible project development:

- Market credit and enterprise development
- National agribusiness and marketing firm promotion
- Regional and local market town development

During the course of the study, it became obvious that the type of work that VITA-PEP is doing is sorely needed and that it should be reorganized, expanded, and focused on agribusiness and marketing promotion. A major problem with VITA's operations is the high cost per loan or beneficiary. The administrative and logistic costs of servicing hundreds of micro-enterprises make the financial costs very high, even though the economic benefits may still be favorable. Efforts must be made to work through intermediaries or groups, such as credit and savings organizations, village associations, and farmer, artisan, and other groups. The third component — market town development — would have a complementary or synergistic effect with the national effort. Development of market town or village economies will provide an outlet for credit. Also, medium-scale enterprises at the national level will have more opportunities in input supply and marketing from village-level micro agro-industries. Other advantages of this approach include the following:

- Rapid start-up. Agribusiness promotion and market town development build on the Mission's present umbrella PVO project. The VITA credit activities and technical assistance could be reorganized, functions split off, and scope

expanded. Market town development could include testing by PVOs of associations for credit and market development prior to start-up of project.

- Flexible funding. Levels of funding and allocation among the components could be flexible. Further, funds could be leveraged by grants or loans from other donors. Components could be self-financing within five to ten years.
- Efficient allocation of capital and technical assistance. Market forces would largely determine which enterprises received assistance, which would cause the maximum impact on economy.
- Economic justice and stability. Ownership of capital would be diffused widely throughout the populace, building a stronger middle class.
- Correspondance with A.I.D. policy. This approach closely matches current A.I.D. policy initiatives, including privatization, diffusion of ownership, encouragement of entrepreneurial spirit, and development of the private sector and economy.

Market Information and News Service

The utility of this activity has been widely endorsed. It is a joint initiative of the public and private sectors, with the following advantages:

- Benefits would be widely dispersed among farmers, small- and medium-sized traders, and consumers.
- Costs would be relatively low, since the service could be an expansion of the existing rural radio program.
- Management would be relatively simple and recurring costs modest. Only limited training would be required, along with limited preliminary studies on feasibility.

A.I.D. Mission staff should be able to gather information needed for the PID design team.

Market and Transportation Infrastructure

Considerable attention has been given to the need for more modern market facilities, especially in N'Djamena, and in particular for a cold storage facility. Other areas for development include village, central, regional, and on-farm storage; river transportation; and more small- and medium-sized transportation infrastructure. There is a lack of understanding of the real need for these investments, their possible financial and economic benefits and costs, and matters of ownership. Capital and credit should be made available on a medium- to long-term basis for private sector investment. This would allow market forces to better determine which investments are most viable, especially if firms can get assistance in doing feasibility studies.

Processing Technology for Perishable Commodities and Alternative Food Products

Alternative ways to preserve perishable crops, especially fruits and vegetables, should be examined. Also, alternative food products from staple grains would help reduce consumption of imported rice. However, as with infrastructure investments, the number of beneficiaries is limited. Again, the provision of financing and technical assistance to the private sector will likely bring these enterprises into existence if they are financially viable.

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V. PROPOSED STUDIES AND WORK PLAN

Study 1: The Chad Business Climate and Agribusiness Promotion

There is a need for a study of the overall political, social, economic, legal, and institutional environment that influences agricultural marketing in Chad. Such a study would have a strong impact on the formation and expansion of private sector agribusiness and marketing firms, the organizations serving them, and their connection to the other sectors of the economy. The principal areas to be examined include

- The numbers and sizes of agribusiness firms that need technical, managerial, or financial assistance
- The relative need for assistance to agricultural marketing and enterprises in
 - Policy planning and development
 - Feasibility studies and more generalized studies
 - Management and training
 - Investment promotion
 - Joint ventures
 - Debt sourcing and equity financing
 - Investment guarantees and insurance
- The coordination and financing of institutional development, assuming there is a need for this assistance

- The relative successes and failures in Chad of organizations such as VITA-PEP and OPIT

Expertise for Study

Two or more persons with extensive experience and knowledge in small- and medium-scale agribusiness development and finance, development banking, and investment promotion. They should have operational expertise in Africa.

Duration and Schedule

A total of 8 to 12 person-weeks in-country will be needed to complete the assignments. Two to three weeks in Washington will be required to review literature, documentation, and other sources of information. The study should be completed by mid-August.

Study 2: Village Organizations and Credit Mechanisms

At the village level, there is a need for more socio-cultural information and insights with respect to marketing and credit. The following are specific areas for examination:

- The group dynamics of village and farmer associations or societies in Chad and how they differ by region or tribal grouping
- The necessary preconditions and appropriate steps to organize farmer associations, village societies, and credit and thrift organizations effectively
- The potential for a pilot village development scheme to infuse capital into market facilities and micro agro-industries
- The criteria for selecting villages for pilot market development

Expertise for the Study

Two or more persons are needed, with extensive experience in and knowledge of sociology and anthropology, micro-enterprise financing, credit and savings organizations, and cooperative and village associations. Their work experience should include countries in Africa.

Duration and Scheduling

A total of 10 to 12 person-weeks in-country should be allocated for these studies, with an additional two to three weeks in the United States for review of literature, documentation, and other sources of information.

Study 3: Market Information and News Service

As stated previously, USAID/N'Djamena should be able to collect information on existing resources and organizations that might contribute to this initiative. Prior to arrival in Chad, the PID design team member assigned to this activity should spend time in Washington obtaining "lessons learned" from similar projects in developing countries.

Other Studies

Feasibility studies as well as more general studies can be carried out or financed by the agribusiness promotion organization. The specific needs would depend on the availability and quality of information resulting from the studies by BIEP and CILSS. The agribusiness promotion unit could also establish an information network to obtain appropriate technology information from other countries on processing and storage. Finally, assistance would be given to private firms to conduct feasibility studies on specific commodities and marketing ventures. These studies would all add to the total marketing and processing intelligence on Chad.

An additional preparation for the formation of the PID design team is the solicitation of proposals from PVOs for pilot market town development and credit mechanisms, which could include credit and savings associations, micro agro-industries, and artisan associations.

APPENDIX A
ANNOTATED BIBLIOGRAPHY

General Documents

Memo From John Lewis to C. Kassebaum

There are severe marketing constraints in Chadian agriculture, such as too much government control, (which is loosening up, however), and dispersed production. The memo discusses the paradigm of interregional trade between north and south, with supply push and demand pull relative to staple cereals, livestock, and investment. Policy reform is discussed, including time-phased budget support of a livestock banking fund. Use of rivers for barge transport for a few months after rains, and storage and pest control in both the north and the south are also addressed, as well as increased production credit for both farm and off-farm enterprises.

CLUB/CILSS Border Study

This report, published in November 1987, seeks to determine the level of trade between the sub-region and the neighboring countries, including the composition and share of imported products. What factors determine the trade: comparative advantage, monetary system, taxes, different socio-economic and political situations? How does the trade work and how is it organized? What are the advantages and disadvantages to participants such as farmers, merchants, the state, and consumers? The report utilizes a methodology that includes periodic observation, surveys, and gathering statistics on national accounts and taxes.

Report on the Agricultural Marketing Survey in the Cities of Lere, Fianga, and Bongor

This report, written by D. Djongali in 1989, describes the agricultural marketing system in the study area. It analyzes the degree of competition, price differentials between the cities and N'Djamena, the flow of commodities, and the problems of traders.

Findings demonstrate that farmers sell in very small quantities — 2 to 10 koros (4 to 20 kilograms) — during the harvest season and often buy back grain at higher prices during the lean season (financed by selling livestock). The small traders buy two to five sacks of grain and sell either to retailers in the urban markets or to wholesalers. Wholesalers buy grain and store it in warehouses (50 to 100 sacks) for later sale in the city. Transporters charge from CFA 500 to 2,000 per sack for transport between cities, depending on distance, with the highest cost to N'Djamena. Commodities flow internally within the sub-region and outside to larger cities, N'Djamena, and across the borders.

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Price differentials are given for 17 different commodities at each of the three towns compared with N'Djamena. The differentials vary according to the direction of trade flow, the relative cost of transport and handling, and perishability. Problems cited are the lack of capital for traders to buy other products or larger lots of commodities at a time. Also cited are the high transport fees and administrative taxes (wholesalers), limited storage, and conditions of storage.

Also described is the formation of farmers' associations by ONDR. The association buys inputs collectively and later may market produce through the association. The author proposes the establishment of an institutionalized market organization dealing directly with the farmers' groups.

ARD Irrigation

There has been a shift to perishable crops for the N'Djamena market. Producer margins indicate that the market could absorb considerably more of these commodities before producers would be forced out. Marketing is reported as a constraint, with farmers at all sites gearing production decisions to market signals. Increased access to the N'Djamena market will increase the incentive effects of these signals.

Evaluation of Proposed Marketing Interventions in Chad

Written by Dr. Roe Borsdorf, this evaluation describes the marketing system constraints in Chad, including lack of roads, skilled manpower, alternative markets for farmers, funding for development, good storage, and an outreach system to assist farmers. Cultural and sociological conditions among Chadians are discussed.

The report proposes activities for a five-year project, including training in storage handling and marketing, management; market research; and improvement of village-level and on-farm storage; construction of buying stations; construction of warehouses; and credit for farmers.

An Analysis of the Grain Marketing System in Chad

Written by E. Grasberg and A. Hassanein in 1988, this is the most recent A.I.D.-funded study on agricultural marketing of cereals in Chad. It contains a comprehensive description of the production and marketing of cereals including government production policy, crop production statistics through 1987, private and public trade, the ONC and its role and activities, trade patterns, food aid distribution, competition and speculation, price movements and differentials, transportation and communications, farmer

associations for storage and marketing, and government regulations and policies. The report lacks an analysis of market margins between points of sale from the producer to the consumer and a socioeconomic analysis of the traders at various levels and possible elements of collusion.

The report's stated findings include (1) the existence of an entirely free market in cereal grains with no price-setting by government; (2) commercialized production of 20 percent of grain; (3) limited speculation in grain because of merchants' lack of working capital; (4) movement of cereals across the borders to neighboring countries, but no data on the volume; and (5) the limited role of ONC in the market (less than 5 percent of the total volume traded).

The report recommends maintaining the private sector as the principal vehicle of the grain trade, with ONC acting as a large wholesaler and manager of security stocks of 30,000 tons; improving transportation; breaking up the CTT monopoly and assisting private traders with credit and technical assistance; and assisting in the formation of private farmers' storage and marketing associations. The promotion of food processing and of new uses of food to help stabilize the market and the dissemination of market information are also suggested.

Evaluation of Proposed Marketing Interventions for Chad

Written by Dr. Roe Borsdorf, this document addresses the following items market system constraints: cultural and sociological conditions, quality of roads, availability of skilled manpower, and lack of (1) alternative markets for farmers — no competition for village traders, (2) funding for development, (3) good storage — large losses from spoilage, and (4) an outreach system to assist farmers. Activities proposed for a five-year project include training in storage, handling, and marketing; training in management; training in market research; improvement of village-level on-farm storage; construction of buying stations; construction of warehouses; and attention to long range need of credit for farmers.

Projet de Réhabilitation du Secteur Agricole, Etude sur l'Expansion et la Diversification de la Production Agricole

This report, published by the IBRD in 1988, describes in depth the production patterns and marketing by geographic area. There is also revealing information on movements of commodities across the borders of Congo, Sudan, Cameroon, Nigeria, and the Central African Republic. It includes reports of "clandestine" traders who go into remote villages, buy commodities, and then get them across borders by bribing customs officials.

A general statement is made that "marketing is generally very undeveloped, inefficient, and constitutes a fundamental brake on development of the country and the agriculture sector." The transport sector is reported on in some detail, including transport cost by type of vehicle; prices by CTT by region (CFA/ton/kilometer).

Problems of marketing are

- Extreme climatic instability with accompanied production swings and price gyrations. An example is given of prices dropping so low that in 1986-87 thieves stole sacks of grain in Salammat, threw out the grain, and kept the sacks.
- Agriculture is seen not as a commercial activity but as a survival activity.
- Information on crops and markets is very limited.
- Food aid disrupts and exacerbates situation (no evidence given).

Recommendations include expansion of the all-weather road system, information on areas of surplus and scarcity, promotion of off-season crops such as berbere, liberalization of commerce through suppression of customs barriers and extractions, and improvement and establishment of marketing systems.

APPENDIX B
SCOPE OF WORK

Statement of Work for Senior Agricultural Marketing Specialist

Purpose and Summary

The Senior Agricultural Marketing Specialist will provide services for a literature search and broad-based conceptualization of an approach to marketing prior to development of a new agricultural project with a large marketing component. This work will be accomplished in two three-week phases with the Senior Marketing Specialist completing the first and second phases.

Background and Description of Work

The mission recently approved a program rationale, supported by other documents and activities of PVOs currently engaged in agricultural technological transfer, that identified the lack of agricultural markets as a major constraint limiting increases in production and income in the agricultural sector. Although the importance of agricultural marketing is manifest, the mission lacks marketing information and does not know which aspects of marketing are most suitable for further investigation and development. Thus, the mission will require assistance in formulating the steps required before the marketing component of an agricultural project can be developed. This current project will be divided into two phases.

Phase I

This phase will entail the completion of the literature search by the Senior Agricultural Marketing Specialist, including examining the results of several studies financed by the Chadian Government to increase understanding of Chadian agricultural markets. Two additional marketing studies have been financed by separate donors, one of which was USAID-financed. Thus, some information exists or is now being generated, but the mission has not reviewed the scope and quality of outside work.

Phase II

The Senior Agricultural Marketing Specialist will be joined in Phase II by the Private Sector Marketing Professional. This phase will provide the consultants with first hand information on how markets function in Chad as well as an understanding of problems and opportunities for Chadians seeking to market agricultural products. This phase will be devoted to briefing and mission and the marketing expert on the results of the literature search, and meeting with Chadian officials with marketing PVOs with marketing activities, and other donors or international organizations with marketing activities. Both experts will meet with private merchants and visit local markets in N'Djamena and other markets in Chad and Northern Cameroon.

APPENDIX C
AGRICULTURAL PRODUCTION AND PRICE TABLES

Table C-1: Food Crop Production, 1983/84-1986/87

(thousands of metric tons)

	1983/84	1984/85	1985/86	1986/87
Sudanian Zone				
Pearl millet	73.5	87.8	134.9	142.2
Sorghum	178.7	194.2	260.5	259.1
Berberé	6.7	7.8	15.5	17.7
Rice	18.0	1.6	7.6	19.5
Maize	12.9	13.3	16.3	22.6
Subtotal: Cereals	289.8	304.7	434.8	461.1
Groundnuts	76.8	76.6	104.9	97.9
Sesame	7.9	8.8	11.4	10.3
Sugarcane	277.0	208.0	239.0	237.0
Sahelian Zone				
Pearl millet and sorghum	n.a.	23.0	165.6	191.9
Berberé	n.a.	12.0	79.8	24.6
Rice	n.a.	.8	.2	.2
Maize	n.a.	4.2	18.8	2.7
Wheat	n.a.	1.2	5.3	.6
Subtotal: Cereals	163.2	41.2	269.7	220.0
Groundnuts	n.a.	2.4	6.6	8.4
Sesame	n.a.	.1	.1	.9
Total millet	73.5	110.8	300.5	334.1
Other cereals production^a				
Total cereals	453.0	345.9	738.8	726.7
Total area (thousand hectares)	1,009.8	958.7	1,314.9	1,272.8

a. From agricultural projects outside the ONDR operational zones.

Source: ONDR

Table C-2. CHAD: Cereal Market Prices: N'Djamena
(F/CFA per 100 Kilograms, except as indicated)

	Pearl Millet	White Sorghum	Red Sorghum	Corn	Rice	Wheat (50 Kilograms)	Wheat Flour (50 Kilograms)	Peanut	Pearl Millet (CFA per kilometer)	Pearl Millet (\$ per metric ton)
1978										
August	10,000	6,000	4,000	—	13,500	—	—			
1979										
July	9,800	7,300	3,700	8,800	17,800	—	—			
August	9,800	6,500	4,000	9,000	17,800	—	—			
September	7,400	6,300	3,400	7,000	13,800	—	—			
October	6,600	5,800	3,800	6,600	13,300	—	—			
November	7,000	5,200	3,700	6,300	13,100	—	—			
December	7,500	5,600	4,100	6,000	13,300	—	—			
1980										
January	7,300	6,500	3,800	6,500	14,200	—	—			
February	7,500	6,600	4,500	6,800	14,500	3,900	—			
March	8,000	6,500	4,000	—	16,700	3,900	—			
1981										
December	22,000	—	—	—	—	—	—			
1982										
March	19,000	—	—	—	—	—	—			
April	22,500	—	—	—	—	—	—			
November	14,000	—	—	—	—	—	—			
December	12,000	—	—	—	—	—	—			
1983										
January	—	—	—	—	—	—	—			
February	11,500	10,000	8,800	10,500	16,500	—	—			
March	11,500	10,000	8,500	10,000	16,500	—	—			
May	11,900	10,000	7,500	10,000	16,000	—	—			
June	20,000	11,500	11,000	14,000	17,500	—	—			
August	11,000	—	9,000	10,000	16,500	—	—			
September	10,000	9,000	8,500	10,000	16,500	—	—			
October	12,000	—	—	—	—	—	—			
November	13,500	11,000	11,000	—	17,000	—	—			

(continued)

Table C-2 (Continued)

	Pearl Millet	White Sorghum	Red Sorghum	Corn	Rice	Wheat (50 Kilograms)	Wheat Flour (50 Kilograms)	Peanut	Pearl Millet (CFA per kilometer)	Pearl Millet (\$ per metric ton)
1984										
January	12,500	10,000	—	10,000	16,800	3,800	7,250			
February	15,000	13,800	9,800	13,800	18,300	4,300	8,000			
March	15,800	12,000	10,300	11,500	19,600	4,800	9,600			
April	17,500	15,000	15,000	11,500	20,000	4,500	9,000			
May	17,500	16,000	11,500	12,300	18,000	5,900	9,500			
June	27,500	19,800	14,500	12,700	21,500	8,000	10,300			
July	28,000	20,000	17,000	16,000	23,500	7,600	11,000			
August	27,000	20,000	18,500	5,300	21,700	—	11,200			
September	30,000	20,000	17,500	15,000	21,300	8,000	11,000			
October	16,800	15,000	12,000	15,800	21,000	8,500	11,000			
November	17,500	20,000	14,500	12,500	20,000	7,000	10,000			
December	19,000	13,500	14,500	14,500	22,000	9,250	—			
1985										
January	22,000	20,000	18,000	12,000	21,500	8,100	8,400			
February	20,500	19,000	17,500	15,000	24,000	10,000	10,000			
March	20,000	18,000	18,000	15,000	20,500	7,000	8,000			
April	23,000	17,500	17,500	17,500	21,000	7,000	9,250			
May	24,500	19,000	18,750	18,000	21,750	7,000	9,000			
USAID price			6,200		9,800					
June	26,750	21,125	20,500	18,250	22,500	7,250	8,750			
USAID price			6,300		9,850					
July	24,250	24,000	18,750	17,500	18,500	8,250	8,000			
USAID price			6,125		9,750					
August	19,750	N/A	N/A	18,500	23,000	6,000	7,125			
USAID price			6,000		8,500					
September	20,000	N/A	7,000	8,000	17,000	4,250	10,750			
USAID price					8,500					
October	15,500	16,500	9,750	12,750	18,250	4,550	8,250			
USAID price					8,000					
November	11,750	N/A	7,250	12,750	20,000	4,125	8,000			
December	10,500	N/A	8,500	10,500	17,000	4,000	6,500			

(continued)

Table C-2 (Continued)

	Pearl Millet	White Sorghum	Red Sorghum	Corn	Rice	Wheat (50 Kilograms)	Wheat Flour (50 Kilograms)	Peanut	Pearl Millet (CFA per kilometer)	Pearl Millet (\$ per metric ton)
1986										
January	9,500	7,750	7,000	8,500	16,000	3,000	8,000		95	271
February	9,625	9,375	7,125	5,800	16,125	3,000	8,075	24,440	96	275
March	10,250	7,940	6,690	6,125	15,500	2,815	9,875	24,315	103	293
April	9,875	8,625	6,625	11,500	16,000	3,075	11,000	23,000	99	282
May	9,000	6,750	4,875	9,375	15,750	2,840	11,250	21,750	90	257
June	9,125	8,375	7,375	7,000	16,000	2,565	9,000	21,625	91	261
July	9,125	7,940	7,625	9,250	15,750	3,090	8,570	20,500	91	261
August	9,500	9,125	7,065	8,625	16,000	2,565	8,440	20,500	95	271
September	8,500	8,190	6,375	6,000	15,500	2,390	8,565	16,375	85	243
October	8,625	8,565	5,000	5,625	15,000	2,000	6,940	15,000	86	246
November	6,875	6,565	3,875	4,565	14,000	2,065	7,815	10,250	69	196
December	4,750	4,875	2,625	3,375	14,750	2,025	7,040	11,000	48	136
1987										
January	3,950	4,750	3,375	3,440	14,125	1,940	6,875	11,500	40	113
February	4,065	3,565	3,200	3,250	14,375	2,525	6,300	11,125	41	116
March	4,440	3,950	3,440	3,050	14,250	2,350	6,940	10,125	44	135
April	5,520	3,625	3,312	5,375	14,125	2,950	6,415	11,000	55	185
May	5,500	4,565	3,375	4,875	14,625	3,250	6,765	10,750	55	185
June	5,500	4,565	4,000	6,125	14,250	3,000	9,750	9,500	55	178
July	5,875	5,625	3,875	7,500	14,500	2,750	7,750	11,000	59	190
August	7,075	6,875	5,885	6,200	14,625	2,940	7,870	13,000	71	232
September	5,625	4,940	3,815	4,100	14,125	3,375	8,050	12,750	56	185
October	6,000	6,300	4,500	4,000	15,000	3,315	7,465	12,000	60	199
November	6,750	6,750	5,625	4,125	14,750	3,500	8,375	9,750	67	236
December	6,500	5,690	4,850	4,750	13,500	3,975	8,190	9,000	65	241
1988										
January	6,250	5,815	5,375	7,315	15,125	3,765	7,875	10,625	63	222
February	10,000	9,000	8,050	11,000	14,000	4,000	7,375	11,500	100	348
March	11,625	9,750	7,625	11,225	14,375	4,050	7,000	10,000	116	406
April	9,500	7,250	7,125	12,375	14,375	4,000	7,290	11,500	95	336
May	9,875	7,750	8,625	12,750	14,625	N/A	7,615	13,590	99	343
June	11,750	9,750	8,400	11,375	15,200	20,000	7,840	19,250	118	390
July	14,125	12,250	10,560	13,750	16,375	22,500	7,500	20,250	141	451

N/A: Not Available

—: No Data

Note: USAID price is per sack of 45.06 kilograms.

For 1987, corn price is the average of imported and local corn.

For February 1988, prices were collected only once, at the end of the month.

June 1988: Wheat price is per 100 kilogram bag.

APPENDIX D
MEETINGS

**Société Industrielle de Matériel
Agricole au Tchad (SIMAT)**

The Société Industrielle de Matériel au Tchad is located in the outskirts of N'Djamena in the town of Farcha. SIMAT is capitalized at CFA 200 million with 65 percent of shares held by the government (Cotonchad). The remainder is held by the French (see table for further breakdown). The director general is Georges Roches, an expatriate and engineer, with at least one other expatriate on the engineering side. The physical plant and layout is impressive, clean and spacious, with many large metal and woodworking machines. They can fabricate almost any type of farm implement or machine, except for motors. SIMAT is presently fabricating large and small peanut hullers, plows, harrows, carts, and water pumps. The water pump can pump 1,200 liters per hour at a 30-meter lift using one man at a time for 10 minutes (and rotating with at least one other person). A number of agricultural implements, machines, motorized pumps, and generators are also imported and sold by SIMAT. Most of the material goes to Cotonchad and is sold at subsidized prices. The director claimed that local fabrication does not save any money because of the "quality of the labor" and high costs of the materials and electricity. He said that electricity costs CFA 162 per kilowatt hour, compared with CFA 80 in Cameroon. We discussed windmills, and he agreed that this might be a good possibility.

Table D-1. Distribution of Shares of Société Industrielle
de Matériel Agricole au Tchad (SIMAT), Siège social: Farcha

Name - Surname	Shares
Caisse de Stabilisation du Prix du Coton N'Djamena - Tchad	9,999
La Société Anonyme Cotontchad N'Djamana - Tchad	3,000
La Compagnie Française pour le Développement des Fibres Textiles CFDT 13, rue Monceau PARIS	4,400
La Société PROPARCO-Paris	1,000
La Société Française D & E	400
La Société Française LEGRAS	1,000
La Société SOFICAL-TROPIC-PARIS	200
Mr. M'Bogou Ngaguet Tallot N'Djamena, Tchad	1
Total	20,000

SODELAC

Mr. Kana, the owner of the wheat flour mill in Chad, Grands Moulins du Tchad (GMT), sent a letter to the Minister of Agriculture in 1988. He informed the Minister that GMT would resume its activities within two months if SODELAC could supply it with wheat. He has already sent spare parts to Chad, which are in stock in the forwarding agents' warehouses. Only the sensitive electrical apparatus remains to be sent.

Formerly, SODELAC supplied GMT with small quantities of wheat. The greater part of wheat processed by GMT was imported from EEC countries and World Food Program. GMT could adapt its machinery to process sorghum mixed with wheat as do some mills in East African countries.

SODELAC is trying to resume all of its polders as well as its seeds farm. SODELAC does not undertake studies aimed at vegetable farming. Its seed farm experiments with varieties of cereals (wheat, maize, sorghum), potatoes, and beans. SODELAC's near-term objective is to cover 2,000 hectares of polders this year and 4,200 hectares by 1993.

FAC

A two-year study of border trade has been jointly carried out by INRA, UNB, IRAM, and local universities. The purpose of the study is to assess agricultural trade between Chad, Cameroon, and Nigeria. Surveys of ONC have been carried out by BIEP. Donors involved in agricultural studies include OCDE, CILSS, FAC, and IRAM.

Geographic dispersion affects both traditional and modern transport systems. It represents the major constraint on agricultural trade. Another constraint is the lack of agricultural policy coordination between Chad and neighboring countries.

FAC funds a vast number of projects. However, agricultural activities in Chad are covered by two separate agreements: the Sahelian zone agreement, associated principally with cattle raising, and the Soudanian zone agreement, associated with cotton; ONDR is the executive entity. There has been an increase in the amount of funding by FAC for Chad this year, since Chad is on the list of priority countries.

OMVS

Mr. Issa-Kana, the director general of OMVS, described the integrated development program for rice production and marketing in the irrigated perimeter, which includes 10 years of training for the farmers and staff. At the beginning, both economic and social aspects of training were emphasized, but more recently, the social aspects have been de-emphasized. There are many problems related to marketing rice. The paddy must be decorticated

(hulled) before selling. The one rice mill produces at the rate of 4 tons per hour. The total output per year is 20 to 25 tons.

There are approximately 40,000 people in the area covered by OMVSD. There are 50,000 hectares, of which 11,000 to 12,000 are cultivated. There is no gravity flow. All inputs are provided to the farmers, including seed, fertilizer, and chemicals. Each farmer has one hectare of rice. He also farms 4 or more hectares of traditional cropping outside the perimeter. There are 1,500 farm families. OMVS gets two-thirds of the production as its share for providing the land and inputs; the farmer has to supply labor. Low yields of 2 to 2.5 tons per hectare plus the low take-off rate of the mills contribute to the high cost of rice. Mr. Issa-Kana is a rice farmer himself and believes one should be able to produce 5 tons or more per hectare.

UNDP/FAO

Adama Guindo, program officer, and Andre Matin, FAO representative, described briefly three major agricultural projects being funded by UNDP:

- Développement rurale — Ouddi. This project is with SECADEV, and addresses a number of constraints related to marketing:
- Shortage of warehouses at farm and village level. Project assists with construction of granaries (grants) using "classic" construction techniques.
- Transport: project provides carts and is trying to introduce motorized transport. It is a bit strange they are pushing motorized transport when the animal-powered carts are considered too costly by the farmers and traders.
- Seed storage. Constructed 20 warehouses. Project nearly finished.

APPENDIX E

VILLAGE SHOPS: A PRIVATE SECTOR APPROACH TO MARKET DEVELOPMENT

The Problem

Widespread unemployment and underemployment exist in developing countries. Rural youths migrate to the cities even though employment opportunities may not be any better than in the countryside. They leave because agriculture is low-status, low-income drudgery, and there are few if any amenities to make life attractive in the rural areas.

Most rural communities are not able to do things to improve the quality of life for two reasons. They lack the resources and often the organizational and managerial skills. And the investment needed to improve rural life and productivity throughout the rural areas far exceeds the resources of the national governments of developing countries.

Proposal

In order to address the problem it is proposed to establish "village shops" or technology centers throughout the rural areas. These centers would enable rural people to fabricate many of the products they need but are now doing without or importing at high cost. They would also serve as centers for acquiring skills in woodworking, carpentry, metal-working, welding, electronics, sewing, and weaving. They could also serve as entertainment/educational centers through the use of radio, television, and video presentations. Finally, they could channel local savings and outside capital to small enterprises (micro agribusiness and agro-industries) to develop and expand marketing. Under full development or at a later stage, electrification could be established.

Organization

Typically, the national government would provide the equipment, tools, and material resources. The local community would contribute, through self-help measures, the construction of a community building. A major problem is the fair and equitable sharing of facilities and equipment along with their proper care and maintenance. It is therefore proposed that democratically run village societies be established (with the help of PVOs). These societies would organize the construction of community building and market facilities. They would then rent out space to various small artisan shops and businesses. The artisans and small businesses would in turn buy (on installment) tools and equipment made available to them. The payments for the tools and equipment would be reduced if the shop or artisan agreed to provide on-the-job training to the local populace, especially unemployed youth. Training and technical assistance could also be made available from outside the community.

Finally, proceeds from the rental of space and tool and equipment sales would go into a village credit and savings fund. Loans from this fund (leveraged with outside funds) would then be made to individuals or groups

in the community for a variety of economically viable purposes, such as micro agribusinesses, agro-industries, and housing. The advantage of this system is that the people would have a vested interest in making judicious use of the capital and insuring the repayment of loans. Capital equipment would also be efficiently used and cared for under private ownership. The overall result would be a self-sustaining and growing market-town economy.

APPENDIX F
FIELD TRIP TO BOKORO

Upon arrival at Bokoro, we contacted the sous-préfet, Mr. Gabuaya Abdouloulaye, and presented our Ordre de Mission. We then proceeded to the ONDR/SECADEV office to contact Mr. Assad of ONDR. All of the ONDR extension agents were in the field but we talked with Mr. Dago David and Ramadane Madani of SECADEV.

SECADEV

This organization helps to organize farmers and village people into groupements for credit, savings, and development projects. These projects include wells, reforestation (mostly acacia), promotion of women, pharmacies, schools, cereal banks, and repair and maintenance of farm equipment (Projet ACCOR). The latter is a separately funded project headed by a Frenchman, Mr. Herve. They have a shop and yard where they can repair and rebuild carts, harrows, peanut hullers, and seeders. The equipment includes a motor-driven welder. They have a full-time metal worker and a carpenter and plan to train local artisans and youth in these trades by the end of the project. We later met Mr. Herve at the market, where he was negotiating the production of wing nuts used for the carts. A model had been supplied to one of the blacksmiths, who had duplicated it with his rudimentary tools and equipment. The project metal worker would later take the 50 wing nuts to the shop, drill holes, and make threads for attaching the wing nuts to bolts.

Upon inquiry, Mr. Herve said that the blacksmiths did not know how to temper steel, and hence their knives and implements become dull and wear out quickly. He believed that with a little training, they could learn to temper steel at minimum additional cost.

Groupements

This area has a history of people working together for collective benefit. The population of the sous-préfecture was reported by the ONDR to be about 60,000, with more than 10,000 living in the village of Bokoro. There are 141 groupements in the sous-préfecture with total members of 3,900 (20 to 50 per group). According to SECADEV, they have saved a total of CFA 14 million, which is held in a bank in N'Djamena. The groups use their savings to buy soap, tea, sugar, farm tools, and implements, and they sell these items to their members. We talked with the president of one of these groupements about their interest in buying a truck. He told us that they could make money with the truck and, more importantly, have transport available when they wanted it. There may also be an element of pride in being a part-owner of a modern transport vehicle. Upon further inquiry, he said that they had fully discussed the matter of maintenance, driver, allocation of use, costs, and returns. FAC and SECADEV give credit to the groupements for social purposes with no interest charged.

Blacksmiths

An interesting group to observe was the blacksmiths. About 10 were located on the edge of the market, and each had very rudimentary tools and equipment. The focal point for each blacksmith was a small anvil buried in the ground, with a small metal face about 4 inches square and rising to about a foot above the ground. The blacksmiths work sitting down since the forge is simply a hole in the ground filled with charcoal. They use leather bellows. They make and sell various knives, hoes, and other simple metal tools. They did not know what improved equipment they would like to have, because they had never had a chance to observe any. They did know about welding, and they said they could get together to buy a welder if given the opportunity.

The Well

A fascinating enterprise to observe was a group of three to five women selling water that they drew from a well at the edge of the market. The equipment consists of leather bags which are lowered into the well (about 50 meters deep) from a rope suspended over the well on a pulley. Once the bag is full of water, the rope is pulled by a donkey or horse (ridden by a small boy). When the bag reaches the top of the well, two women release the rope and carry the bag to nearby water containers. They sell a small container (about 3 gallons) for CFA 5 and a large one of about 6 gallons for CFA 10. A rough estimate is that the women make about CFA 200 each in a day. One has to think about the possibilities for some type of powered pump and possibly some piping to a few outlets around the village. However, what would happen to the enterprise and the employment of labor, low return though it is? Economic development theory would hypothesize that the women would find alternative and hopefully more productive employment — possibly using limited irrigation to grow fruits and vegetables for their family and cash income.

The Radio Repairman

This person was soldering broken circuits in a medium-sized battery-powered radio. He said that he had acquired this skill several years ago while working for another repairman. He bought and sold radios as well as repairing them. When asked what he had to pay for the use of his space in the market, he said that all he had to do was add on to a neighboring stall and thatched roof. If someone else came along, he could do likewise. In Bokoro and in the entire area, land is virtually a free good.

High Technology in a Low Technology Village

About a year ago, SECADEV brought in a small photo-voltaic unit to power the radio (contact with SECADEV Headquarters in N'Djamena) and lights. The unit is about 1 meter square and feeds a regular 12-volt car-type battery for night use of power. It would be a simple matter to expand the size of the collection unit to run a refrigerator and a small battery charger.

The Market

Wednesday is market day in Bokoro. People and goods begin to come in the day before. Farmers may start out at 4:00 a.m. on the morning of the market if they have a long way to carry their produce. Besides sorgho and millet, considerable peanuts are produced and marketed in the area. The Bokoro region has long been considered to be the granary for N'Djamena. The quantity of fruit and vegetables was relatively small compared to that in N'Djamena. The quality was also lower, especially of tomatoes. A lot of dried tomatoes were being sold, many coming from Bitkine, about 145 kilometers away. One trader had brought fresh lettuce from Bitkine; however, the quality was deteriorating quickly and he said he might have to feed it to the animals if he could not sell it that day.

Grain traders reported that transport costs were possibly a little lower now than last year, since some of the road blocks have been removed. One large trader had eight employees buying small lots of grain from farmers. This individual also claimed to be the owner of the well from which the women were selling water. It was claimed that he allowed this in the interests of the village. Some of the traders ventured that grain prices have dropped some since ONC has quit buying. The traders considered the ONC to be beneficial to both farmers and traders (because it buffered prices).

ONC

Commerçants agrees are still being used to buy grain for ONC in spite of the announced lifting of this requirement. During the past two months, ONC has purchased 4,590 sacks of sorgho and 2,334 sacks of millet at CFA 3,250 and 4,000 respectively. The commerçants reported that ONC has now run out of funds so it has stopped buying.

Grain Mills

There are reportedly six mills in Bokoro, of which one is not working. Each can grind a little more than 1 sack per hour. The one we visited was supposed to have been bought new in 1984 (the owner was not present); however, it looked ancient. We gathered that there is plenty of slack capacity. SECADEV has prepared a feasibility study for the installation of a modern and fairly large-scale mill and flour complex at Bokoro.

General Comments

Bokoro is fertile ground for village development, appropriate and intermediate technology, and institution building. Its economy is very basic, traditional, and with little infrastructure (except for a dispensary). There are no restaurants or bars, and few cultural amenities. It will make a good test case for infusion of market capital and overall village development by SECADEV. A major advantage is the homogeneous population (Bilala) for whom working and collaborating together is a tradition.

APPENDIX G
PERSONS INTERVIEWED

USAID/N'Djamena

Dr. Bernard Wilder, Mission Representative
Kurt Fuller, Agricultural Development Officer
William Deese, Project Development Officer
Paul Morris, Program Economist
Lester McBride, Food Aid Officer
Cary Kassebaum, Program Officer

Peace Corps

Mike Fitzgerald, Agricultural Officer

Government of Chad and Parastatals

Abdelwahid Cherif, Director General, ONDR
Issaka Mousa Agrey, Director General, BIEP
Georges Roche, Director General, Société Industrielle de Matériel
au Tchad (SIMAT)
Ousmane Mahamat Nour Elimi, Administrative Director, SODELAC
M. Issa-Kana, Director General, Office de Mise en Valeur de
Sategue-Deressia (OMVSD)

APPENDIX H
BIBLIOGRAPHY

A.I.D.

- (1) Borsdorf, Dr. Roe. *Evaluation of Proposed Marketing Intervention for Chad*, project AID/TA-C-1162, Food and Feed Grain Institute, Kansas State University, 1974.
- (2) Maxon, R. *Analysis of Grain Marketing in Chad*, project AID/AFR-C-1149, Multinational Agribusiness Systems, Inc. (MASI), Washington, D.C., August 5, 1976.
- (3) Graetz, H., and R. Maxon. *Grain Marketing in Chad*, AID/AFR-C-1149, Multinational Agribusiness Systems, Inc. (MASI), Washington D.C., July 13, 1977.
- (4) USAID/N'Djamena. *Formative Evaluation*, A.I.D. Team PVO Development Initiatives Project, May 1988.
- (5) A.I.D. *Small Farmer Credit Issues Paper*, Draft, February 1973.
- (6) Lewis, John. *Future Chad Program Rationale: Suggested Points of Departure*, Memo, May 14, 1988.
- (7) Waldstein, Alfred. *Study of Irrigation Communities in Chad: Phase II Report*, Draft, June 1988.
- (8) Rice, E.B. *Small Farmer Credit Issues Paper*, Director of the Spring Review, AID/PPC/PDA,, (Draft) February 1973.
- (9) USAID/N'Djamena. *Agricultural Marketing Survey - Lere, Fianga and Bongor*, Djongali, Louahikba, 1989.
- (10) A.I.D. *Program Rationale; Chad, FY 1989 to 1994*, 1989.
- (11) A.I.D. *Private Enterprise Development*, Policy Paper, March, 1985.
- (12) A.I.D. *Financial Markets Development*, Policy Paper, August 1988.
- (13) A.I.D. *Pricing, Subsidies, and Related Policies in Food and Agriculture*, Policy Paper, 1986.
- (14) Sherman and Shapiro. *Dynamics of Grain Marketing in Burkina Faso*, 1988.
- (15) A.I.D. *Program Rationale: Chad FY 1989 to 1994*.

B.I.E.P.

- (16) B.I.E.P. *Propositions pour Ameliorer le Fonctionnement de la "Filiere Céréales"*, 1988.
- (17) B.I.E.P. *Etude de la Filière Riz*, Juin 1988.
- (18) B.I.E.P. Le Grontec, *Etude de la Filière Fruits et Legumes*, December 1988.

CARE

- (19) CARE. *Périmètres Irrigués par pompage dans la region de Kim (Mayyo-Kebbi)*, Chad Sous-Projet, October 1987.
- (20) Kent, Laurence. *Farmer Marketing Groups and the Commercialization of Cheddra Produce*, CARE, November 1988.

Development Alternatives, Incorporated

- (21) Grasberg, E. and A. Hassanein. *An Analysis of the Grain Marketing System in Chad*, Development Alternatives, Inc., February 1988.

Food and Agriculture Organization

- (22) De Kerros, T. *Etude pour la Definition d'une Politique Céréalière au Tchad*, FAO, October 1986.
- (23) Niasse, M. and E.P.J. De Nooy. *Schéma Directeur pour la Mise en Valeur des Petits Aménagements Hydro-agricoles: Tchad*, Rapport Technique, N'Djamena October 1987.

Government of Chad

- (24) Ministère d'Etat à l'Agriculture et au Développement Rural. *Bilan-Programme des Productions Végétales Pluviales et Irrigués du Tchad*, September 1984.
- (25) Ministère d'Etat Chargé de l'Economie Moderne du Plan du Commerce et de la Coopération Internationale. *Commercialisation des Céréales*, July 1974.
- (26) SEDES. *Production et Commercialisation de l'Aide Internationale et de la Production Locale de Céréales*, Les activités de l'ONC en 1985, March 1986.

- (27) Mission de Réhabilitation du Borkou-Ennedi-Tibesti (B.E.T.). *Réunion de Suivi de la Table Ronde de Genève, 1985*, Préfecture du B.E.T., December, 1988.
- (28) Ministère de la Sécurité Alimentaire et des Populations Sinistrées. *Situation fin Decembre, 1988*, Systeme d'Alerte Précoce; Bulletin Mensuel.
- (29) ONDR, *Projet de Réhabilitation du Kanem, Projet de Réhabilitation du Secteur Agricole, sous-projet: Développement des Périmètres Irrigués du Chari*, Decembre 1988.

World Bank

- (30) IBRD and Ministère du Plan. *Projet de Rehabilitation du Secteur Agricole*, Fevrier 1988.
- (31) IBRD. *Aide-Mémoire de la Mission De Préévaluation du Programme d'Actions pour le Développement Social (PADS)*; Octobre-Novembre 1988 (version préliminaire).
- (32) IBRD. Elsie Garfield, *Chad Agriculture*, Memo, June 12, 1987.
- (33) IBRD. *Chad: Economic Situation and Priorities*, October, 1987.
- (34) *Food Security: Chad*, draft working paper, (author unknown), 1988.

Institute for Development Anthropology

- (35) Michael Watts, Christopher Mock, Martin Billings, Peter D. Little, Steven Jaffee, *Contract Farming in Africa*, Vol. I Comparative Analysis (Draft).
- (36) IRAM. *"Inventaire des Mesures de Maitrise des Echanges Exterieurs Céréaliers des Pays D'Afrique de l'Ouest du Cameroun et du Tchad*, Etude, Novembre, 1988.

CILSS

- (37) OECD, CILSS, Club du Sahel. *Cereals Policy Reform in the Sahel Executive Summary*, October 1985.
- (38) OECD, CILSS, Club du Sahel. *Cereals Policy Reform in the Sahel Synthesis Report*, August 1986.

- (39) OECD, CILSS. *Bilan-Programme des Productions Végétales Pluviales et Irrigués du Tchad*, December 1984.
- (40) OCDE, CILSS, Club du Sahel, PROCELOS. *Promotion des Céréales Locales au Sahel: Initiatives locales et environnement macro-économique*.
- (41) CILSS/CLUB. *Marketing, Price Policy, and Storage of Food Grains in the Sahel: Vol. II Country Studies*, August 1977.
- (42) CILSS, Echanges Régionaux, Ministère Français de la Coopération. *Securité Alimentaire en Afrique de l'Ouest*, November 1987.
- (43) Club du Sahel, CILSS, Ministère Français de la Coopération. *Echanges Régionaux, Commerce Frontalier et Securité Alimentaire en Afrique de l'Ouest*, November 1987.

UNDP

- (44) UNDP, Ministère du Plan. *Participation de L'Entreprise Privée au Développement Economique et Social; Compte Rendu de la Table Ronde*; Août et Octobre 1988.

Volunteers in Technical Assistance

- (45) Gerbaud, R. *Rapport Mission Tchad aupres de VITA Washington, March-April 1988*.
- (46) Gerbaud, R. *Recherche d'Exportation des cultures vivrières hors saisons en Europe et le Golfe*, Février 1988.
- (47) Stallsmith, Brooke. *Reevaluation of VITA SME Credit Operation*.
- (48) VITA. *Proposal for Phase III*, November 1988.
- (49) Malley, Ray. *Promoting Small and Medium-Sized Business in Chad: The VITA Private Enterprise Project*. Dimpex Associates, Inc., January 1988.

Other

- (50) Williams, Simon and Karen, Ruth. *Agribusiness and the Small-Scale Farmer*.

- (51) Holtzman, John. *Rapid Reconnaissance Guidelines for Agricultural Marketing and Food System Research in Developing Countries*, Working Paper No. 30. 1986.
- (52) Holtzman, John, Jerry Martin, and Richard Abbott. *Operational Guidelines for Rapid Appraisal of Agricultural Marketing Systems*, AMIS, December 1988.
- (53) Presidential Task Force on Economic Justice. *Every Worker an Owner: A revolutionay Free Enterprise Challenge to Marxism*.
- (54) Faure, E. *Etude de Faisabilité d'une Unité Semi-Industrielle de Transformation par Voie Sèche de Céréales Locales*, SACADEV, 1988
- (55) Draft working paper on Food Security, author unknown, 1988