

AGRICULTURE AND AGRIBUSINESS IN BURKINA FASO

a report prepared for USAID/Burkina

by

Christopher Alden Mock
The Pragma Corporation

August 1983
revised August 1984

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EDITOR'S INTRODUCTION

The analysis in this report is the output of a 6-week investigation undertaken by Christopher A. Mock. It is one of six technical reports prepared by a team assembled by the Ronco Consulting Corporation in May and June of 1983. The other reports prepared by the team include:

- Business Management and Vocational Training, by Maurice N. Samaan;
- Business Law, by Robert L. Garland;
- Marketing, by Axel Magnuson;
- Banking and Business Finance, by Andrew V. Cao; and
- Le cadre juridique des affaires au Burkina, by Karim Adjibade.

A new government came to power in Burkina in August 1983, after the Ronco team's investigations. Because the new authorities have instituted a number of policy and institutional changes since then, USAID/Burkina preferred to have the technical reports updated before disseminating them. I was hired as an outside consultant to do the updating. In the process of editing this report, I have operated according to the following principles:

- 1) Factual errors - normally arising from policy changes occurring after the period of the original investigations - have been corrected.
- 2) The scope of analysis, organization and writing style remain unaltered from the author's original work.
- 3) The recommendations and qualitative assessments - based on extensive interviewing of businesspersons, government and donors - remain those of the original author.

So this report remains the creative work of its original author, Christopher A. Mock. I have adopted a minimalist role, largely confining my meddling to a historical updating of the document.

Steve Haggblade,

Cuagadougou, August 1984

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LIST OF ACRONYMS

ADS	- Agricultural Development Support Project
APICOMA	- Atelier Pilote de Construction de Materiel Agricole
ARCOMA	- Atelier Regional pour la Construction de Materiel Agricole, replaced by CNEA
AVV	- Autorite des Amenagements des Vallees des Volta
BIA	- Bureau des Intrants Agricoles
CNCA	- Caisse Nationale de Credit Agricole
CNEA	- Caisse Nationale d'Equipement Agricole
CNPAR	- Centre Nationale de Perfectionnement des Artisans Ruraux
DEP	- Direction des Etudes et Projets
DIRC	- Direction des Institutions Rurales et du Credit
DSA	- Direction des Services Agricoles
FDR	- Fonds de Developpement Rural
FJA	- Formation de Jeunes Agriculteurs
GOUV	- Government of Upper Volta
HER	- Direction des Services de l'Hydraulique et de l'Equipement Rural
IBRD	- International Bank for Reconstruction and Development
ICRISAT	- International Center of Research in the Semi-Arid Tropics
MDR	- Ministere de Development Rural
OFNACER	- Office Nationale des Cereales
ONERA	- Office National d'Exploitaion des Ressources Animales
ORD	- Organisme Regional de Developpement
SAFGRAD	- Semi-Arid Food Grain Research and Development Project
SOFITEX	- Societe Voltaique des Fibres Textiles
USAID	- United States Agency for International Development
UVOCAM	- Union Voltaic de Cooperatives Agricoles Maraicheres

EXECUTIVE SUMMARY

The most striking finding of this report is the impressive supply of energetic, persistent, capable Voltaics in the private sector who have developed viable agricultural and agro-industrial project concepts and enterprises based primarily on local resources. In some cases, these individuals already possess the knowledge necessary for the execution or improvement of their projects, while in other instances, additional training would be useful or essential for successful project implementation. Nevertheless, despite the impressive supply of these three critical factors--energetic and capable people, viable project concepts and the availability of local resources to serve as the basis for these activities--the realization of these projects is blocked by numerous significant constraints. The key to enabling these activities to proceed, and thus to expanding private sector activities in these areas, is not necessarily to stimulate or to promote, but simply to eliminate constraints, to remove blockages which prevent entrepreneurs, including farmers, from doing what they would otherwise do. In addition, in many instances, indirect support measures would be extremely useful to enable entrepreneurs to perform their functions better, to expand their activities in ways which they have already contemplated or to diversify their operations.

Agriculture constitutes the foundation of the Voltaic economy. Over 90 percent of the population derives its income from agricultural activities, and in recent years, agricultural products have accounted for 85-90 percent of the country's export earnings. Agribusiness enterprises, both large and small scale, also dominate the business sector. Well over half of the major Voltaic industries are directly involved in the production of agricultural inputs or in the processing and distribution of agricultural and livestock products. In most of

larger agro-industries, there is substantial, if not majority, private participation, and the informal agribusiness sector is most likely entirely private. Furthermore, almost all agriculture is conducted by private farmers. Clearly, agriculture and agro-industries represent the foundation of the private sector in Upper Volta, and any attempts to facilitate the expansion of the role of the private sector must include measures aimed at stimulating agriculture and at promoting both large and small agro-industries, as well.

Parastatals also play an extremely important role in Voltaic agriculture and agribusiness. In fact, most of the major agro-industries include some government capital participation; however, the percentage of state participation varies widely, as does the effect of this participation. In some instances, it introduces special constraints to the management of these firms, while in other situations, state participation brings unique advantages. These enterprises should be viewed as agro-industries with particular objectives to achieve. In some cases, these objectives may be questionable and may need modification. However, basic donor policy towards these firms should be to assist them in achieving their objectives more efficiently and effectively. In most cases, this means assisting in improving the management of the firms, and in encouraging the government to reduce or remove special constraints imposed by its participation.

Upper Volta is one of the poorest countries in the world, but the country does possess certain resources which are not yet fully developed and some opportunities which can serve as the basis for significantly expanding production and productivity within the agricultural sector. These may be classified into six principal categories: (1) the impressive entrepreneurial talent and initiative of the rural population; (2) a significant proportion of undeveloped,

but cultivable land resources, and underutilized forest and rangeland; (3) water resources which can be much more fully exploited; (4) limited utilization of "modern" agricultural inputs, which can significantly increase output; (5) extensive, low-grade phosphate reserves which may serve as the basis for the expanded domestic production of fertilizer and the reduction of fertilizer-imports; and (6) the prevalence of extremely traditional cultivation techniques and the limited use of a more efficient technique, animal traction cultivation, which if significantly expanded, could considerably increase land utilization, labor productivity, and rural incomes.

The specific commodity categories which show the greatest potential for further development include a variety of fruits and vegetables, livestock and livestock products, (mainly cattle, sheep, poultry, swine and goats), cotton, cereals, and groundnuts. The existing agro-industries which seem to offer the most attractive possibilities for expansion and diversification include the production of cotton fiber, cotton seed oil, and cotton seed cakes; fruit and vegetable processing; phosphate fertilizer production; and the processing of livestock products.

The expansion of private sector activities in Voltaic agriculture and agro-industry is constrained by numerous formidable obstacles. The most striking obstacle for both agriculture and agribusiness appears to be the lack of availability of credit. For farmers, little short-term or medium-term credit is available except for investment in animal traction livestock and equipment. Agribusiness managers face the same financial constraints--viable plans for the improvement, expansion, or diversification of operations are constantly restricted or halted by the absence of capital. The industrial credit which is available is usually reserved for enterprises other than agro-industries, which are perceived as being more risky and less profitable.

Besides this dramatic lack of availability of credit, agricultural activities are constrained by numerous additional obstacles, the most important of which include the following: (1) difficulties in obtaining inputs, mainly the products not imported by SOFITEX, the cotton parastatal or problems in obtaining inputs in non-cotton producing areas, which are not reached by SOFITEX's rather effective input distribution program; (2) shortages of certain agricultural equipment, especially tractor services, and the frequent late deliveries of other equipment, mainly animal traction plows and carts; (3) inadequate basic infrastructure, mainly secondary roads, which was cited by a Voltaic extension expert as the principal problem confronted by the Voltaic extension system; (4) the absence of an appropriate technical package for the cultivation of different crops in the various regions of the country, and debates over the effectiveness of the most widely used fertilizers and animal traction equipment; and (5) the lack of facilities in many of the extension service units, the ORDs.

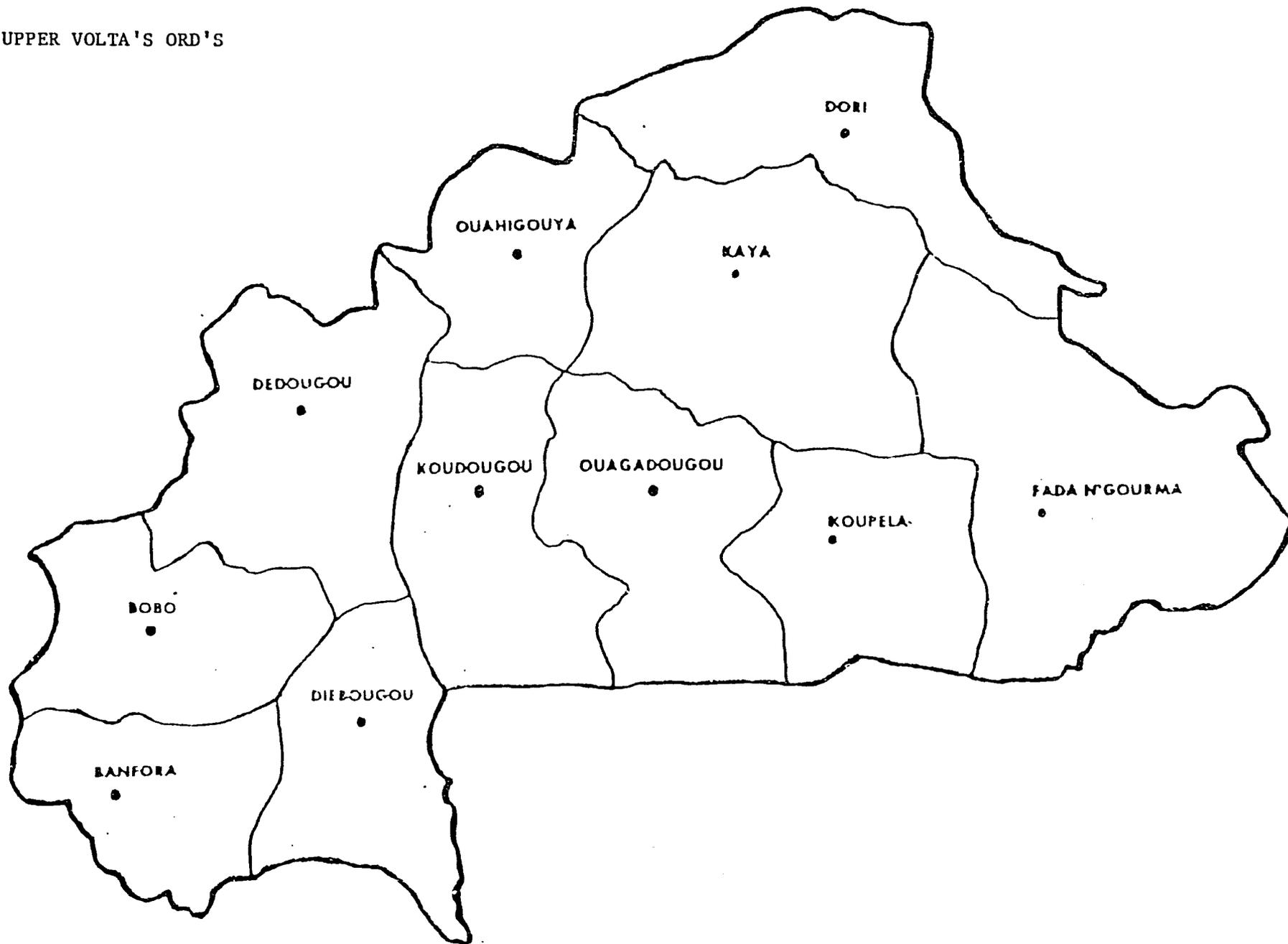
As is the case for agriculture, agro-industries face numerous constraints inhibiting private sector activities. In addition to the lack of financial resources, these constraints include the following: (1) deficiencies in the quality of management skills displayed by many of the managers, and the absence of any effective means of upgrading these skills; (2) the lack of availability or inaccessibility of data and information on both domestic and foreign markets; (3) inadequate infrastructure, especially roads, particularly in the eastern region; (4) certain government policies in pricing, margin controls, and import and export taxation; (5) complex import and export procedures, which sometimes act as a disincentive to trade or result in commodity and livestock losses.

In order to assist in removing these constraints, it is recommended that a series of actions be undertaken. These include the following measures:

1. The supply of credit for both agricultural and agro-industrial activities should be significantly increased. This includes both short and medium term agricultural credit delivered through the CNCA, the agricultural bank, as well as credit fund especially designed for agro-industries, or increased industrial credit specifically earmarked for agribusinesses. To deliver this increased supply of credit, the institutional capacity of the participating banks must be upgraded through funding for personnel increases and training for these personnel.
2. Technical assistance should be provided to loan applicants for the preparation of their credit proposals for both agricultural and agroindustrial projects. This could be provided through the Chambers of Commerce, or a similar business organization.
3. A series of agribusiness information offices should be established to assist entrepreneurs, through the provision of data and information, in formulating their production and marketing plans, both for Voltaic and foreign markets. These could be established in conjunction with the Chambers of Commerce.
4. A management consulting service should be established to assist existing agribusinesses in analyzing problems and improving specific aspects of their operations. This might be administered by the Chambers of Commerce.
5. Funds should be provided for the development of a series of management seminars for agribusiness managers of both large and small enterprises; this could be implemented under the auspices of the Chambers of Commerce.
6. The wealth existing documentation on agriculturally related topics should be consolidated, catalogued, and stored in a microcomputer system for use by Voltaic entrepreneurs, government offices, researchers, and donors. This system, the Agriculture and Agribusiness Research and Data Access System, might also include feasibility studies such as those already prepared by the Ministry of Rural Development (MDR), and thus might serve as a means of matching investors with potential projects.
7. An office of agribusiness should be formed within the MDR, to oversee the planning and implementation of the various activities designed to facilitate the development of agribusiness, to coordinate these with the activities of the Ministry of commerce, and to serve as a point of contact for agribusiness enterprises in their relations with the MDR and other offices of government.
8. Three studies should be funded, including assessments:
 - a) of small-scale agro-industries;
 - b) of the various producer and trader associations (for possible implementation of future private sector project activities); and
 - c) of the particular problems faced by women entrepreneur in agricultural and agro-industrial activities.

9. AID funding should be allocated for the construction of a limited number of secondary roads in areas where important new economic activities might be made possible by the improvement of the road system. Top priority would be the 100 kilometer stretch between Kantchari and Kodjari, the location of the phosphate mines in the undeveloped eastern region.
10. Funds should be provided for the strengthening of the extension system, including an assessment of the overall needs of the system, and support for specific actions designed to meet these needs.
11. It is recommended that AID encourage the Government of Upper Volta to remove present obstacles to the private importation and distribution of fertilizers, pesticides and herbicides. AID and GOUV should provide additional support to private input traders through the provision of credit for the purchase of stocks and assistance in construction storage facilities.
12. It is recommended that AID assist the GOUV in its efforts to coordinate the multiplicity of agricultural research activities currently underway in Upper Volta, to provide improved information exchange among researchers, and to define priorities for future research.
13. Additional funding should be provided to the CNPAR and its regional institutes, which provide training for small-scale village metal workers in the design, construction, and repair of agricultural equipment.
14. AID should consider funding a major livestock project, which would initially include an assessment to the precise needs of the sector, and would most likely focus on improving the veterinary support system and on strengthening the extension system's capacity to upgrade farmer's techniques in livestock production and range management.¹

UPPER VOLTA'S ORD'S



I. INTRODUCTION: OBJECTIVES AND METHODOLOGY

A. Objective

The basic objective of the agriculture/agro-industry section of the Private Sector Assessment is to evaluate the Voltaic agricultural resource base, to describe current activities in both agriculture and agro-industry, and to identify the principal obstacles to the effectiveness of agricultural and agro-industrial enterprises, as well as the key areas of greatest potential opportunity. The ultimate goal is to define ways in which agricultural and agro-industrial activities can be expanded, thereby increasing their contribution to the development of the Voltaic economy.

A secondary, closely related objective is to evaluate the role of the Ministry of Rural Development, the parastatals, and private individuals and enterprises in agriculture and private individuals and enterprises in agriculture and agribusiness. This analysis will help to determine whether certain functions now performed by government and quasi-governmental organizations can be more effectively undertaken by private entities. The areas of most particular concern are the production and distribution of key agricultural inputs, the absence of which can obviously serve as a critical limiting constraint to agricultural production and therefore a fundamental obstacle to the development of the agro-industrial sector.

This analysis will lead to the identification of concrete actions which can be taken to remove current obstacles to agricultural and agro-industrial development or to assist in realizing existing potential in these areas. These actions might be undertaken by Voltaic Government, USAID, other donors or even the private sector itself.

B. Methodology

Throughout this study, the author worked closely with Mr. Rigobert Tindano of the Ministry of Rural Development (Ministère de Développement Rural, MDR). His professional assistance was invaluable, and his energetic, indefatigable spirit was much appreciated.

Our methodology included six different kinds of activities, which we undertook together in most instances. First, we reviewed an extensive collection of documents, in both French and English, concerning primarily the Voltaic

agricultural sector, agricultural institutions, and specific types of agricultural activities. We also reviewed the limited number of documents which were available concerning existing or potential agro-industries in Upper Volta, as well as a body of literature concerning private sector activities in Africa and in developing countries in general. Second, we conducted an extensive series of interviews with officials in a broad array of public and private enterprises. These included Voltaic government officials in the MDR, the regional rural development offices (Organismes Régionaux de Développement, ORDs) and various parastatals; Voltaic and expatriate managers of agro-industries; expatriate advisors and technicians on various donor projects and Voltaic tradespeople and would-be entrepreneurs. Most of these interviews were conducted in Ouagadougou and Bobo-Dioulasso, while a more limited number took place in Banfora, Orodara, and villages surrounding Bobo-Dioulasso. It is unfortunate that the limited time and funding did not allow the agricultural sector team to visit the other major agricultural regions of the country (the central plateau, where the Agricultural Development Support Project will be focussed, the eastern region, and even the northern Sahelian region). In all of these regions, a broad array of agricultural and agro-industrial activities is being pursued, with significant potential still unrealized and considerable obstacles to their development and to the increased participation by the private sector in these activities.

Third, we made numerous factory visits where we viewed production operations in progress. The factories visited included SOFITEX (cotton), CITEC (cotton seed oil), SOSUHV (sugar), GMV (wheat mill), SAVANA (jams), URCABO (fruit and vegetable cold storage and packing), BRAVOLTA (beer), and CNEA (Caisse Nationale d'Équipement Agricole, formerly ARCOMA), APICOMA, SOGEFIA, and SOVICA, all manufacturers of agricultural equipment.

Fourth, we conducted a series of interviews with private farmers in Orodara and in villages surrounding Bobo-Dioulasso. In most cases we visited their farms to review their operations and to discuss their acquisition of inputs, major problems which they encounter in their present activities, and their successes and failures in any attempts to expand or diversify their operations.

Fifth, we made several visits to town markets and stores to gain at least an impression of the types and quality of agricultural products available and their prices, as well as the types of processed agricultural products available and their origin, since most are imported. In these markets we sought and found a variety of different agricultural inputs, including plows, pesticides, herbicides, and fertilizers, although for the most part fertilizers are distributed by the government.

Sixth, we visited one training center, the CNPAR, where students are trained in the construction and repair of agricultural equipment and in the repair of agricultural processing equipment (mainly small grain mills). The center also acts as a small factory, producing a limited amount of finished equipment, such as plows, and provides selected parts for assembly at APICOMA, one of the major agricultural equipment manufacturers.

Finally, the relative brevity of the mission and the breadth of the requested subject matter forced us to almost neglect one extremely significant component of the agro-industrial sector, the "informal" sector which comprises a multitude of small agri-businesses located mainly at the village level. We searched for documents and data but found almost none. We visited several small cereal mills, but lack of time prevented us from investigating further. Since the informal sector is a major focus of private sector activity in the agricultural sector and an appropriate area for future expansion, future USAID sponsored consulting/research activities should be directed to this area.

In some cases these various investigations yielded concrete information and data, and in other instances, brief impressions. Unfortunately this was all that the breadth of the task and the limited time allowed. The results of these investigations and the conclusions derived from them are presented in the following section.

A selected list of documents reviewed appears in the bibliography included in the overall Private Sector Assessment Report. A list of individual institutions, and firms visited during to Bobo-Dioulasso is presented in Appendix 1.

II. OVERVIEW OF THE AGRICULTURAL SECTOR

The agricultural sector serves as the foundation of the Voltaic economy. Over 90 percent of the population resides in rural areas and earns its incomes pursuing agricultural activities.² In recent years, agricultural products and their derivatives have accounted for 85-90 percent of the country's exports. In 1981 the main exports were cotton (41 percent of total exports), livestock (18 percent), sheanuts (a wild tree crop used as a basis for makeup and soaps, and which represented 15 percent of total exports), sheep and goat skins (almost 5 percent), meat products (2 percent), and fruits and vegetables (2 percent).³

Unlike many developing countries, Upper Volta's agricultural imports have remained relatively low, less than 25 percent of total imports in the past decade.⁴ In part this is due to reliance on the consumption of locally grown food grains, the principal food staple, and the relatively modest recourse to cereal imports. Although average caloric intake remains substantially below minimum nutritional requirements⁵, the bulk of the cereal that is consumed in Upper Volta is locally produced. Since 1975 the country has produced, on an average, close to 90 percent the cereal it consumes each year.⁶ Principal agricultural imports in 1981 included cereals (5 percent of the total); milk products, and eggs (5 percent); cooking oil (2.0 percent); and fruits and vegetables (1.6 percent).⁷

About one-third of the country's area is considered suitable for crop production; of this portion only 27 percent is actually cultivated.⁸ The cultivation rate is low largely because much cultivable land is located in unhealthy, onchocerciasis-infested areas and much is left in fallow to avoid soil depletion. Some cultivable land, particularly in the southwestern region, may be unutilized because of a lack of mechanized equipment and the shortage of financial resources required

to develop it. Much of the remaining two-thirds of the country's non-cultivable area is considered suitable for forests and range-land.

Rainfall is low, extremely variable, and highly concentrated in brief periods of time in most of the country except the southwest. In the arid northern Sahelian region, average annual rainfall ranges from 400-600 mm. In the central plateau area, the main cereal producing region, rainfall averages about 700-1000 mm. It is only in the southwestern region that rainfall is relatively abundant, averaging 900-1400 mm. per year.

Throughout most of the country, the soils are typically shallow, acidic, often deficient in phosphorous and easily subject to erosion. In the southwest, however, the soils are much heavier and more fertile than in the other three regions.

Farms are typically extremely small, averaging under five hectares, while the vast majority are in the one to three hectare range. Farm cash incomes are extremely low, averaging about \$10-\$20 per household, per year and ranging from no cash income (subsistence farming) in much of the central plateau and the east, to \$100 in the southwest cotton areas.⁹ The main crops produced are cereals, which account for 90 percent of cultivated area. The principal cereals include red and white sorghum, millet, and maize. Typical farms in the less arid zones produce some yams, cassava, several types of vegetables in small garden plots, and possibly some peanuts (in the west and center) or cotton (mainly in the western region). Farming practices rely principally on manual labor and simple hand tools with little use of "modern" inputs such as fertilizer, (except on cotton, and to a lesser, but still significant,) extent on cereals.¹⁰ The use of animal traction for cultivation has spread rapidly in recent years, but still it is estimated that as of 1981 only 11 percent of Voltaic farmers employ oxen or donkey power.

Finally, living conditions in Upper Volta, particularly in rural areas, are extremely difficult. The rate of infant mortality is one of the highest in the world: between, 31-40 percent of Voltaic children die before the age of five.¹¹ Adult life-expectancy is only 43 years, compared to an average of 57 in all other African, low-income countries.¹² The adult illiteracy rate - 95 percent - is also one of the highest in the world.

Despite these overwhelmingly difficult conditions, the Voltaic Government (GOUV) has set two main priorities for the agricultural sector: food self-

sufficiency and food security. Other top priorities recently articulated by the GOUV include increased employment, increased incomes and improved living standards for the rural population, import substitution (especially in cereals), and export expansion and diversification. To meet these objectives, GOUV stresses the need for:

- 1) the intensification of rainfed agriculture;
- 2) increased development of irrigated agriculture;
- 3) the opening of new lands for habitation and cultivation;
- 4) extended use of improved technology (especially fertilizer, pesticides, animal traction and improved seeds); and
- 5) the organization of farmers into pre-cooperatives to facilitate the delivery of extension services, the provision of inputs and credit, and the storage and marketing of agricultural outputs.¹³

This brief analysis of the highlights of the Voltaic agricultural sector is intended to serve as a framework for the following analysis of the principal opportunities and problems encountered in developing the sector and, more explicitly, expanding the role of the private sector in agriculture and related industries. More detailed information can be found in four of the most recent and complete descriptions of the sector:

- 1) the USAID-funded Development Alternatives Study, Agriculture Sector Assistance Strategy for Upper Volta;
- 2) IBRD's Upper Volta Agricultural Issues Study;
- 3) the OECD/CILSS-funded study headed by N. Rochette, Le Developpement des Cultures Pluviales en Haute-Volta, and
- 4) the USAID project document, Investment Rationale for the Agricultural Development Support Project.

III. THE ROLE OF THE MINISTRY OF RURAL DEVELOPMENT IN AGRICULTURAL PRODUCTION, MARKETING, AND PROCESSING

The basic task of the Ministry of Rural Development (MDR) is to assure that national agricultural priorities (outlined above) are achieved. The Secretary General of the MDR (the third ranking official) directly oversees the operations of the ORDs, the regional development organizations, which are most directly charged with assisting farmers in a variety of ways. In addition, he oversees the activities of several of the major parastatals, including OFNACER (the National Cereals Office), FAAC (Fonds d'Assistance des ARCOMA et COREMIA, the agricultural equipment producers), and AVV (a major resettlement and rural development project in the areas freed of onchocerciasis). Finally, he is also responsible for the Fonds du Développement Rural (FDR), a financing mechanism funded largely by IBRD, but to which AID has also contributed. In its initial stage (1972-76) the FDR aimed mainly to improve water resources through the construction of dams, wells and irrigation facilities in various village projects. But under the second funding phase (1977-81), to which USAID contributed, the activities were broadened to include support for the development of small private rural enterprises, including cereal mills, rice mills, small artisanal industries, small stores, and village cereal storage facilities.

Within the Ministry there are four technical and organizational offices, which work closely with the ORDs and the rural population, as well as overseeing the activities of the parastatals involved in agriculture. These include the following offices:

1) Direction des Services Agricoles (DSA), which is responsible for a variety of activities aimed at stimulating crop production. This includes assessing the needs for inputs (mainly fertilizers and insecticides) not imported

by SOFITEX, the single largest input supplier. In the past, the DSA, through its Office of Agricultural Inputs (Bureau des Intrants Agricoles, BIA), has actually imported and distributed urea and certain insecticides at the ORDs not located in cotton-producing areas. But this division of responsibilities may soon change. By late 1984, it is expected that the new IBRD fertilizer project will be signed, and under it SOFITEX will be charged with the importation of all fertilizers, herbicides and pesticides as well as with their distribution to ORD headquarters. The BIA, though, will remain responsible for maintaining an overview of the utilization of all agricultural inputs. Another major function of the DSA is to provide technical backup to the ORDs in crop production techniques, but it is questionable whether they actually play an effective role in this area. Finally, the main agricultural training school, Matourkou, is under the aegis of the DSA, as is SOFITEX, the cotton parastatal.

2) Direction des Services de l'Élevage et des Industries Animales (DSEIA), the office of livestock and livestock-based industries, which oversees the national veterinary and livestock production school and several experimental/training institutes concerned with leather tanning and poultry production. The national livestock marketing parastatal, ONERA, is also under the aegis of the DSEIA. The DSEIA itself operates a slaughterhouse with cold storage facilities, while ONERA maintains a fleet of refrigerated trucks for the domestic marketing and export of meat products.

3) Direction des Institutions Rurales et du Crédit (DIRC) which is charged with three main functions. First, it maintains a broad overview of the rural credit situation and oversees the activities of the national agricultural credit bank, the Caisse Nationale de Crédit Agricole (CNCA). Second, it is responsible for coordinating all activities relating to cooperatives and for promoting the

precooperative movement, the Groupements Villageois, through organizational and training sessions at the village level. In 1982, there were 3,584 GVs in Upper Volta, encompassing about half of the country's village.¹⁴ Third comes the fruit and vegetable marketing cooperative, UVOCAM, which although not strictly speaking a parastatal is partially staffed with GOUV officials and is under the auspices of DIRC.

4) Direction des Services de Formation des Jeunes Agriculteurs (FJA) is an office which trains young people, age 14-17, in agricultural skills. The office supervises a training school for instructors and a system of 562 training schools throughout the country. Under the ADS project, USAID will be providing support for this system.

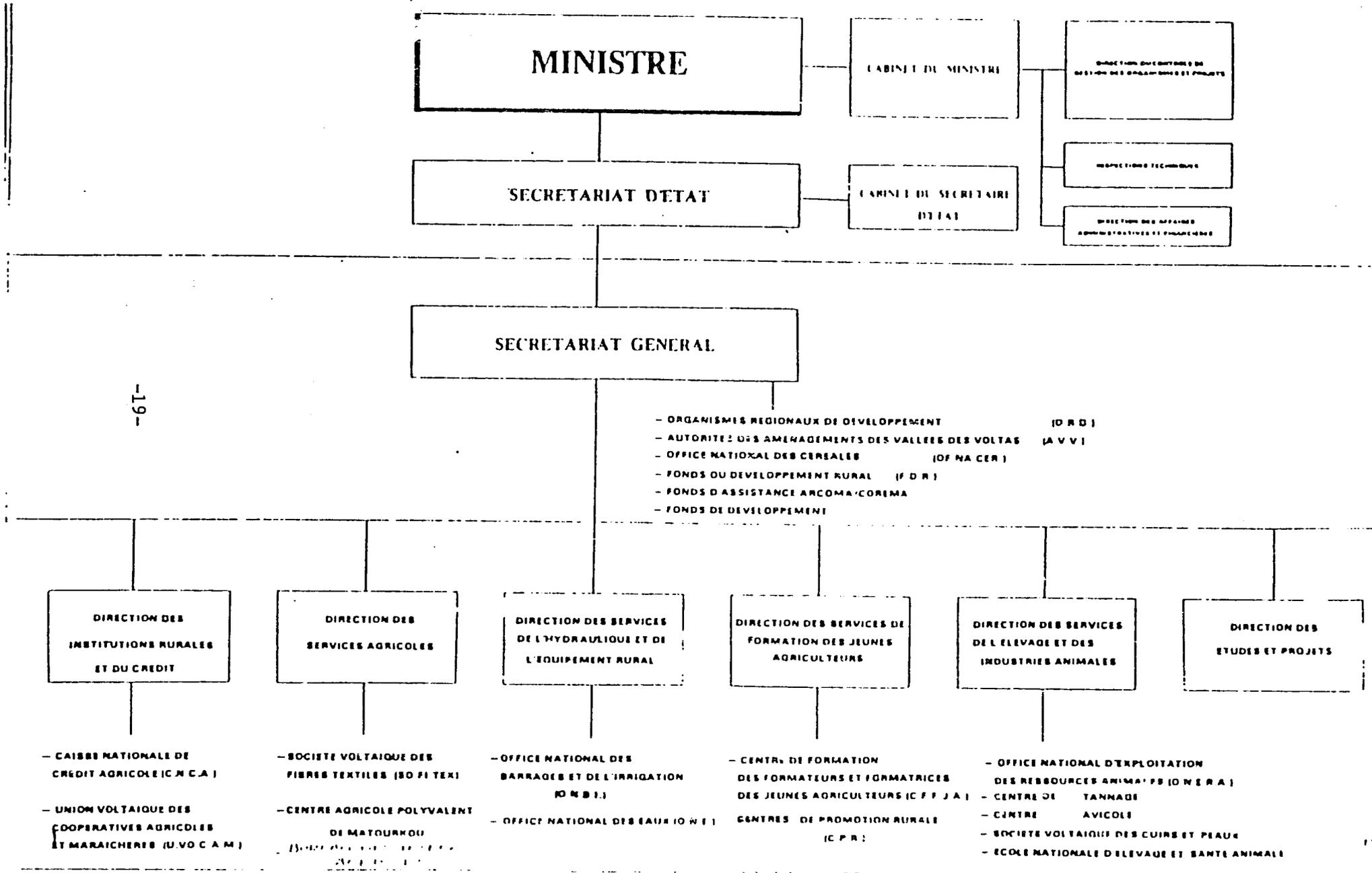
5) Direction des Services de l'Hydraulique et de l'Equipement Rural (HER) is responsible for planning the development of water resources and supervising the construction of wells, dams, and irrigation facilities.

6) Direction des Etudes et Projets (DEP). In principle, the Office of Studies and Projects is responsible for policy analysis and research, as well as project identification, monitoring and evaluation. However, the office does not currently have the staff or capability to conduct the analytical and research activities with which it is charged. Strengthening this capability is a major goal of the ADS project. Until now the office has been primarily engaged in gathering and distributing descriptive information about projects in the agricultural sector and providing support to visiting donor missions. Recently the monitoring and identification functions have been strengthened, and the office currently maintains an extensive list of projects identified by various offices within the Ministry. For some potential projects, detailed feasibility studies have already been prepared, while for other

the basic concept and a few details about production potential, markets, and expected costs are noted. While this list was intended to serve as a framework for directing donor funding and allocating government funding, it might also serve as a basis for attracting private funds or encouraging private participation, if credit were available.

The activities of the MDR in each region of the country are coordinated and/or implemented by the eleven ORDs. The essential tasks of the ORDs is to serve as the extension service and to assist farmers in learning and adopting improved agricultural techniques. To facilitate this task, they work with DIRC in organizing the farmers into GVs. The GVs serve as: a) the major focus of extension efforts; as well as the b) the institutional intermediary through which credit needs are evaluated and to which credit is allocated; and c) the village intermediary through/^{which}most input orders are transmitted to the ORDs and to which inputs are delivered. The ORDs themselves act as the second level intermediary in the input demand/delivery process, not only by transmitting orders to producers and importers but also by acting as an intermediate delivery point and then in delivering inputs, including agricultural equipment, to the village level GVs. (In cotton producing areas, this is done in conjunction with SOFITX). In the credit process, the ORDs actually serve as financial intermediaries between the CNCA and the GVs. The CNCA actually lends to the ORDs which, in turn, on-lend to farmers. Finally, the ORDs rent agricultural equipment, such as sprayer applicators for herbicides and pesticides, to farmers. Some also have tractor services for rent, although in many cases farmers can only obtain tractors through the Department of Public Works (Departement des Travaux Publiques), because of the shortage of tractor in the ORDs.

ORGANIGRAMME DU MINISTRE DU DEVELOPPEMENT RURAL



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Despite the broad and absolutely critical role of the ORDs, many function with almost no funds except for salary payments. Only those supported by donor projects have the equipment to perform their functions or the financial capability to serve as a financial intermediary. Others simply do not have the trucks to deliver inputs, transport for the agents to visit farmer groups, or the financial resources to provide seasonal credit. Thus some, like the Ouagadougou ORD, provide no seasonal credit at all.¹⁵ Similarly, some with limited financial resources and unpaid loans to equipment manufacturers and input importers are also unable to obtain inputs. As a result, farmers in these areas are often unable to find necessary inputs, even if they are able to pay cash.

An organizational chart for the MDR, including all its offices and services, and their relationship to the various parastatals appears in Diagram 1, below.

As the above analysis illustrates, the MDR and its various offices are involved in a variety of functions which may be summarized as follows:

1. Information and data gathering about activities in the agricultural sector and coordination of these activities (an activity receiving USAID support);
2. Support and conduct of agricultural research and training, as well as policy analysis (a capacity being developed under the USAID/ADS project);
3. Technical assistance and advice to farmers;
4. The planning and construction of agricultural infrastructure;
5. Participating in the setting of priorities in the agricultural sector and formulating plans for the realization of these objectives;
6. Identification of specific project activities and establishing priorities for their execution; serving as a clearing house for donors with funds to invest in the agricultural sector;
7. The assessment of input needs through the GVs, which exist in only half of Upper Volta's villages and to which not all farmers belong, even in the villages where they are present. This function is shared with SOFITE in cotton areas and performed by the ORDs alone in other areas;

8. The importation, for the moment at least, of certain inputs such as urea, some pesticides and herbicides; and also
9. The physical distribution of inputs which, until recently, has been handled in conjunction with SOFITEX in cotton-producing areas and independently in non-cotton areas. (But by the end of 1984, as part of the new IBRD fertilizer project, it is expected that SOFITEX will handle the importation of all fertilizers, herbicides and pesticides as well as their distribution to ORD headquarters);
10. The evaluation of credit request from the GVs and the transmittal of these through various ORD levels, to the CNCA;
11. Serving as a financial intermediary between the CNCA and the GVs; acting as loan recipient from the CNCA and as lender to GVs and as a credit agent in the reimbursement process;
12. Very limited direct participation in agricultural processing, mainly through the Office de l'Elevage's slaughter house, tannery, and leather curing activities. (The latter two function also as research and teaching institutes);
13. The organization of and support to pre-cooperatives (GVs), mainly to maximize the effectiveness of the limited services available through the ORDs and other agricultural offices. (The GVs now handle many of the functions which extension agents formerly handled. With the GVs, agents can reach 20-30 farmers in one visit, rather than having to contact each individually.

As this summary clearly indicates, the MDR performs several basic functions which are similar to those performed by the U.S. Department of Agriculture (items 1-4, and even item 5). USAID assistance through the ADS project is directed mainly at these functions, which serve to strengthen the performance of the agricultural sector as a whole, and increase the productivity and incomes of private farmers who, in fact, constitute the vast majority of the actors in the private sector in Upper Volta.

As indicated in the above outline, the MDR is not itself directly involved in agricultural production, marketing, or processing, except for a few livestock activities. The MDR does oversee the parastatals which are involved in some of these activities. However, almost none of these parastatals are solely government enterprises, but include a significant, sometimes majority, proportion of private capital, both Voltaic and sometimes foreign. (See Section V below).

IV. THE ROLE OF THE PRIVATE SECTOR IN AGRICULTURAL PRODUCTION, MARKETING, AND PROCESSING

Almost all agricultural production in Upper Volta is conducted by private farmers. Probably less than 1 percent of cultivated area is farmed by public enterprises and most of these even have private participation. For example, the vast sugar plantation developed by SOSUHV includes 3,900 hectares, which represents only 0.16 percent of Upper Volta's cultivated area. Furthermore, SOSUHV includes 31 percent private participation. There are numerous other government-sponsored attempts to develop new crops and import-substituting industries, like tobacco and wheat production. Still these include only a minute portion of Voltaic agricultural production and often directly incorporate private farmers. For example, the tobacco company, MAVOCI, purchases 15 percent of its tobacco through contracts with small private farmers, to whom the organization also gives technical support.

Because about 90 percent of the Voltaic population earns its livelihood from agriculture and this is almost entirely in the hands of private farmers, it is clear that agriculture represents by far the most important component of the private sector in Upper Volta. Therefore, almost all actions currently aimed at increasing agricultural production are directly or indirectly aimed at the private sector. Closely related, the vast majority of growth-stimulating possibilities are based directly or indirectly on agricultural activities, whether import-substituting, export-expanding, or simply income-generating activities which improve the welfare of the population. Therefore, the most effective way to realize this potential is to provide basic support to the agricultural sector. It may seem to be a slow, indirect process, lacking in originality and innovation, but it is absolutely essential.

Domestic food distribution is largely conducted by private producers and merchants. Several parastatals handle a portion of the marketed crop, but this is generally a minor percentage. For example, OFNACER, the cereals office, generally handles only 0.5-2 percent of the total cereal crop produced, and between 5-15 percent of the marketed surplus. It is important to emphasize that sales to OFNACER are entirely voluntary; although OFNACER does try to influence prices through buying and selling in free markets at trigger prices, farmer sales are free and uncontrolled, unlike the situation in many developing countries.

The state exerts a greater influence in the marketing of export crops, mainly cotton and sheanuts. Farmers sell almost all of their cotton crop to SOFITEX, partly in exchange for inputs previously delivered.¹⁶ Sheanut dealers are also obliged to sell a certain proportion of their crop to the CSPPA, but are free to dispose of the remainder as they wish. (See the Marketing Report/Private sector Assessment for further details on GOUV's role in export marketing.)

In summary, despite the activities of certain parastatals in agricultural marketing, most domestic distribution of agricultural products operates in a free and uncontrolled fashion. Even in the case of certain favored export crops, like peanuts, where the government fixes official prices and handles exports, producers are free to avoid this channel and sell their crops domestically, if better prices can be found.

V. THE ROLE OF PARASTATALS IN THE AGRICULTURAL SECTOR

In the Voltaic context, parastatals are usually defined as any organizations with government participation which are not under the direct control of a government ministry, or an office thereof. The actual degree of autonomy of many of the parastatals is not entirely clear; however, the parastatals are, in fact, freed from most management regulations governing Ministry operations, such as salary structures and personnel practices. The degree of autonomy of their management varies considerably according to a variety of factors, such as:

- 1) the capabilities and personalities of the directors appointed and the ministry officials to whom they ultimately report;

- 2) the profitability or successfulness of the enterprises; and

- 3) the importance of the enterprise to the national economy.

Nevertheless, the management autonomy of the parastatals is limited by the fact that the parastatal directors are appointed by the Council of Ministers; for agriculturally-related parastatals this is largely on the advice of the Minister of Rural Development. Similarly, almost all the agricultural parastatal directors report directly to an office of the MDR or the MDR Secretary General himself. The main exceptions are several of the agricultural equipment manufacturers, APICOMA and CNPAR, which report to the Labor Ministry (Fonction Publiques), and several processing companies which report to the Ministry of Commerce, including VOLTEX (textiles), COVOLTA (cookises, candy and chewing gum), and SOVOLTA (leather goods).

Theoretically, most Voltaic parastatals were originally intended to be financially self-sufficient, revenue-generating organizations designed to accomplish specific economic and social tasks. These were tasks which the government deemed to be in the national interest and for which there was thought to be

inadequate private capital, a shortage of private technical or entrepreneurial talent, or a lack of private initiative or interest in undertaking these activities.

The participation of the government in these ventures was based on several quite logical premises, including the following: (1) that a government contribution might act as a "magnet" to attract additional private participation, either Voltaic or foreign (mainly French); (2) that public participation would enable the enterprises to be eligible for donor financial and technical assistance; (3) that government participation would signify official support for the activities, thereby giving additional assurance to other investors that operations would proceed without unexpected government obstructions. In certain cases, government participation was actually sought by private entrepreneurs, not only for the funds alone, but for assurance which this might give to other private investors and for the accessibility to donor assistance which government participation facilitates. A specific example is one offered by SERAGRI, a private Voltaic-French firm. They are currently organizing a 5,000-hectare sorghum production project with a processing facility to produce ethanol alcohol and animal feed. They are constructing a financial package in which they are seeking the participation of GOUV (40 percent), IFC (IBRD) (15 percent), and Total and Shell Oil companies (15 percent each).

There are approximately 25 agriculturally-related organizations (with some degree of state participation) in Upper Volta. The degree of government participation varies considerably: the companies with less than 25 percent participation include SHSHV (CITEC) (cotton seed oil and cakes), with 16% state

participation; SIBB (cookies, candy, and chewing gum) 16 percent; and SOVICA (plows and carts), 19 percent.¹⁷ . Aside from the several public service institutions (such as ONBI, the National Office of Dams and Irrigation), ten organizations have more than 75 percent state interest. These include GMV, the livestock processing and export organizations, certain agricultural equipment manufacturers CNLA (formerly ARCOMA/COREMMA), APICOMA, and CNPAR, and the rock phosphate exploitation venture, Voltaphosphate, financed with German assistance.

The intention of the government was that eventually its participation would be reduced or eliminated, once the enterprises were successfully established. Thus, state participation was to serve in part as a sort of "infant industry" assistance. However, so far the intended reduction in the state participation has rarely occurred. In fact, only one parastatal showed decreased state involvement. At SOVICA state participation dropped from 37 percent to 19 percent from 1962-63. In this case, private Voltaic investors picked up the share holdings released by GOUV. (Other cases may, indeed, exist but adequate data was not available to research this issue.) In several cases, state participation increased considerably, but mainly in replacing foreign investment. The primary cases here are SOFATEX (where GOUV replaced much of the capital of CFDT, the French cotton company) and SOSUHV.

A complete listing of the main parastatals involved in agriculture and agro-industry is provided in Table 2, (Section VII.). The table also provides information on the source of capital participation and the percentage from each source, including private Voltaic capital, private foreign capital, and state capital. Where data were available, information is also presented which shows changes in the structure of capital participation; that is, changes in the

percentage of participation by the state or by private investors.

Many of the agro-industries which GOUV has helped to finance were considered to be highly risky, innovative, experimental ventures designed to promote structural change in Upper Volta's agricultural and agro-industrial sectors. One prime example of this type of venture is the integrated sugar cane production and processing parastatal, SOSUHV, which introduced a new crop on a vast scale and created a new processing activity, sugar refining and cubing. Further, it created dramatic new employment possibilities in a region where previously few such possibilities existed: it created 2,065 new permanent full-time jobs, and 3,500 temporary contract jobs during the six-month sugar production and processing season.

Table 2 does not include most of the public-service type organizations, which were never really expected to be financially self-sufficient. Examples of these include:

- 1) the ORDs, which now are essentially extension and input delivery organizations which assist in credit administration; and
- 2) AVV, the resettlement project which assists migrants in establishing agricultural and related enterprises in oncho-freed lands.

An underlying concept of the Voltaic parastatals was that gradually their functions would be shifted to the private sector. As noted above, in terms of shifting financial participation, this intention has been fulfilled to only a limited extent. This may be more a reflection of the lack of available private capital and access to credit for agriculture and agro-industries in Upper Volta than the government's intransigence in changing its role.

Some of the parastatals ... and government public service organizations... have, in fact, modified their roles significantly. Notable examples of this are the following:

- 1) the elimination of the ORD role in cereals purchasing;
- 2) AVV's shifting of most of its credit activities to the CNCA; and
- 3) the reduction of some of OFNACER's activities in cereal security, storage, and price stabilization. This is being accomplished through the program of "cereal banks", private village-level grain storage facilities through which cereal output is purchased at harvest and later resold to villagers at modest mark-ups in local free markets. Thus, some of OFNACER's responsibilities are actually being transferred to small-scale, private sector rural enterprises.

The most salient features of the Voltaic parastatals and the most notable negative and positive effects observed in some parastatals are summarized in the following outline.

Possible Negative Features and Impacts of parastatals

1. Overstaffing and political involvement in staff appointments.
2. Padded wage structures, due to their freedom from government wage structures and from financial controls.
3. The placement of low-paid, salaried, tenured government employees in management roles; the lack of performance-based incentive and reward systems. This may serve as a disincentive to hard work and creativity (rational risk-taking), and sometimes may result in apathy and passivity-- a "why bother" mentality.
4. The absence of pressure to produce a profit (when technically and economically possible), because of the knowledge that the government will tolerate and absorb financial losses.
5. Unnecessary overstaffing with expatriates, resulting in inflated salary structures, reduced local employment possibilities, and continued attitudes of dependence of lack of self-confidence.

Possible Positive Features and Impacts of Parastatals

1. The mobilization of private local and foreign capital, as well as donor capital and technical assistance.
2. The creation of activities which promote national or regional economic and technical goals; the macro-level perspective to define these goals and set priorities in addressing them. The most notable of these goals in Voltaic parastatals are the following:
 - a) employment generation;
 - b) import substitution;
 - c) export expansion;
 - d) food security;
 - e) food sufficiency;
 - f) regional development in specific geographic regions; and
 - g) balance of payments maintenance through foreign exchange generation or reduction in foreign exchange expenditure.
3. The identification of new areas of economic activity or improved ways of accomplishing current activities, and the creation of structures to promote these activities.
4. The assumption of risk in experimental new ventures.
5. The promotion of training, sometimes through explicit training activities, sometimes through on-the-job training, often through contact with expatriate counterparts.
6. Provision of a sense of security through government backing or the implied assurance of government support to partly or largely private activities.
7. The contribution of capital to partly or largely private ventures which could not otherwise be created, due to the lack of capital or credit, or to the inaccessibility of existing credit.

In conclusion, Eliot Berg recommends a "lower level of preoccupation" with the issue of parastatals--the fact of their existence, their role in manufacturing, and the need for divestiture. Instead, he recommends increased donor assistance in minimizing the negative effects of parastatals and strengthening their efficiency and effectiveness.¹⁸ This is, in fact, the role that the USAID mission in Upper Volta is currently executing with some of the parastatals, such as OFNACER, where USAID is funding two experts to assist in improving OFNACER's

financial management and accounting procedures, their grain stock management, and implementation of their grain pricing objectives. USAID should expand their efforts in providing this type of management assistance to Voltaic parastatals, and to purely public institutions, as well. Helping to bridge the "management gap", which is increasingly being recognized as a critical constraint to economic development efforts in the third world, is indeed one of the most useful and important roles which USAID can play in Upper Volta.

VI. PRINCIPAL RESOURCES AND OPPORTUNITIES
FOR PRIVATE ENTERPRISE IN AGRICULTURE

Despite the extremely difficult climatic and soil conditions in Upper Volta and its relatively meager resource base, there exist innumerable opportunities for developing that base and significantly expanding productivity and overall production within the agricultural sector. The task addressed in this section of the study is to review existing documentation on these opportunities. However, numerous additional judgments based on field observations during the mission have also been included.

Based on our field visits and the written material reviewed, it seems that the most striking resources, or opportunities for resource development by the private sector, may be classified into six main categories:

- 1) entrepreneurial talent and energy of the rural population;
- 2) underdeveloped, but cultivable land and underutilized forest and rangeland;
- 3) undeveloped water resources;
- 4) limited utilization of "modern" inputs, which can significantly increase agricultural output;
- 5) vast low-grade phosphate reserves which may serve as the basis for domestic production of much of the currently imported fertilizers; and
- 6) the prevalence of extremely low-productivity, manual cultivation techniques, and the limited utilization of animal traction cultivation, which, if significantly expanded, might considerably increase land utilization, crop productivity, and rural incomes.

1. Entrepreneurial talent and energy:

The single most striking impression gained during the agricultural/

agribusiness assessment was of the entrepreneurial initiative of the rural population. The farmers encountered were energetic and persistent in seeking to fulfill their objectives, despite almost impossible odds, and they had the technical and creative capability to conceptualize and formulate agricultural projects, including small and medium sized private farming and agribusiness activities. The mission unfortunately had little time in the field and limited contact with farmers, and visited only the western and central regions of the country. But this impression of untapped entrepreneurial talent is supported by experience of other observers in different areas, including Partnership for Productivity experts in the eastern region and Save the Children officials in the northern region.

2. The availability of a significant quantity of underdeveloped but cultivable land and underutilized forest and rangeland: Presently only 27 percent of Upper Volta's cultivable land is actually being farmed. Cultivation is most intense in the central plateau and parts of the eastern region, where 71 percent of the rural population resides and 70 percent of the cultivable land is under cultivation. In the southwest zone and the southern central plateau, the richest agricultural zones, only 18 percent of the cultivable land is being farmed and only 22 percent of total rural population currently resides there. This is due partly to the former prevalence of onchocerciasis, from which the region has recently been freed. The parastatal agency AVV (Autorité des Amenagements des Vallées des Volta), with USAID assistance, is currently opening these lands for settlement and providing credit to small farmers and small private enterprises, mainly agro-industries, which are in the process of being established in this area.

The regional distribution of cultivable and cultivated land, and population settlement is summarized in Table 1 .

Table 1

REGIONAL DISTRIBUTION OF FRANCE AND FOREST LAND
CULTIVABLE AND CULTIVATED LAND, AND RURAL POPULATION, 1975

Agro-Climatic zone	Total Area (000 Ha)	Range and Forest Land (000 Ha)	Cultivable Area (000 Ha)	Cultivated Area (000 Ha)	Percent of Cultivable Land Under Cultivation 4 - 5	Rural Population (000)
1. Sahelian Zone-Far North (under 350 mm)	3,700 (14%)	2,405 (45%)	980 (11%)	140 (6%)	14%	354 (7%)
2. Sahelian Sudanian Zone 350-600 mm North Central- North Eastern strip	6,300 (23%)	4,000 (25%)	1,925 (22%)	674 (28.5%)	35%	1,501 (29%)
3. Sudanian Zone (600-800 mm) South Central- Eastern strip	9,100 (33%)	5,500 (33%)	2,850 (32%)	1,008 (42%)	35%	2,209 (42%)
4. Sudano-Guinean Zone (600- 1,400 mm) Southwest, ex- treme southern strip	8,100 (30%)	4,340 (27%)	3,160 (35%)	558 (23.5%)	18%	1,163 (22%)
TOTAL	27,000	16,245	8,915	2,380	27%	5,227

Derived from Rochette, p. 174

In assessing the possibilities for developing this apparently unutilized land, great attention must be paid to traditional systems of land ownership, production and fallowing. Some apparently neglected lands are actually carefully supervised under traditional fallow systems. However, the increased use of improved cultivation techniques and "modern" inputs should reduce the need for much of this land fallowing.

3. Undeveloped water resources: Upper Volta displays considerable unrealized water development potential in two main areas:

- a) the construction of dams, which has proceeded at a much slower pace than expected (of 40 new dams which ONBI planned in 1974, as of 1982 only nine had been constructed);
- b) the development of irrigation facilities, which as of 1982 had been constructed on less than seven percent of the area considered irrigable (10,000 hectares out of 150,000).¹⁹ Furthermore, many of the government-developed irrigation schemes have been badly maintained, with the main exception of the SOSUHV sugar project facilities. Most of the successful irrigation schemes have been small-scale privately-financed operations. Many of the farmers encountered on this mission were anxious to develop irrigation facilities, had access to nearby rivers or dams, and had developed realistic and profitable farm plans to produce irrigated fruits and vegetables. Yet development of such small-scale private irrigation schemes offers great potential, particularly since they enable farmers to utilize their land much more fully by providing them with a highly profitable dry-season activities.

4. Limited use of "modern" inputs: Farming techniques in most of Upper Volta are labor-intensive with relatively little use of improved seeds, fertilizers,

herbicides (where appropriate), or pesticides. It is clear that if the improved seed varieties which already exist were used more widely, in conjunction with appropriate quantities of fertilizer and chemical inputs, as well as improved management practices, production in most crops could be raised by, in IBRD terms, "enormous amounts".²⁰ Furthermore higher-yielding varieties of most crops in different soil and climatic regions of the country have not even yet been developed. Increased research efforts and dissemination of these results could clearly result in significant increases in national agricultural output.

5. Phosphate reserves which may serve as the basis for an expanded domestic fertilizer industry, and the reduction of fertilizer imports:

Upper Volta possesses extensive reserves (estimated at 65 million tons) of low grade phosphate, of which only a tiny fraction (about 2,500 tons) is mined each year. Under a German-financed project, Project Phosphate, phosphate is ground and sold for direct use on non-cotton fields. Because of its low solubility, this fertilizer shows little immediate impact and requires several years to show visible yield effects; thus its acceptance by farmers has been limited.

The World Bank is currently investigating the technical viability and economic feasibility of producing an improved fertilizer based on this local rock phosphate. The Bank is examining various different options, including the construction of plants for the granulation of rock phosphate and the blending of a phosphate-based fertilizer, as well as the development of an acidulated rock phosphate-based fertilizer. The latter, which is currently at the laboratory-testing stage, could replace NPK in certain conditions and would probably be less harmful to Voltaic soils.²¹ However, it is uncertain whether

the production of such a fertilizer, even if technically feasible, could prove to be commercially viable. If a blending plant is constructed or if an acidulated rock phosphate fertilizer can be developed for commercial use this could result in a significant reduction of Voltaic fertilizer imports; concomitantly, foreign exchange expenditures would be reduced, and there would be initial generation of new employment possibilities.

6. Limited use of animal traction: There are significant issues concerning the technical appropriateness for Voltaic soil conditions of the animal traction equipment currently used in the country. Nevertheless, once these technical questions are resolved, it is clear that animal traction can offer a means to significantly increase land area under cultivation, yields, and labor productivity, as well as soil fertility, farm incomes and even the nutritional status of the rural population. According to the best available estimates, only about 11 percent of Voltaic farmers use animal traction: almost all of the remainder cultivate with hand-hoes, thereby limiting typical farm size to less than two hectares.²² Most of the animal teams are used on cotton (42 percent) and sesame (21 percent), and mainly in the southwestern region. The limited use on other crops, mainly cereals, and in other regions, as well as the steady demand for animal traction and ease of adoption by Voltaic farmers, offer a clear opportunity for increasing national agricultural output and productivity. However, to realize maximum gains from the use of this technology, it is critical that the current status of animal traction in Upper Volta be reviewed. Studies already available through ICRISAT and AID researchers in the Eastern region should be carefully assessed to determine whether the equipment currently distributed is appropriate for Voltaic soils and farming systems, and whether the loan packages being accepted by Voltaic

farmers are appropriate to the timing and size of the economic gains which they actually realize after the adoption of animal traction techniques.²³

In addition to these principal opportunities for further developing Upper Volta's basic resource base, there are several promising areas for increasing the production of crops currently under cultivation and diversifying into new crop activities. There are five product categories and their derivatives which seem to offer the greatest potential, and several other possibilities, as yet undeveloped, which also show promise for the future.

The areas of greatest potential appear to be the following:

- 1) Fruits and vegetables: Upper Volta already produces a great variety of high quality fruits and vegetables, including mangoes, citrus, papaya, melons, grenadine and other fruits, as well as onions, green beans, tomatoes, asparagus, peppers, cucumbers and numerous other vegetables. Most are produced under traditional conditions, with little use of fertilizers and pesticides. Improved practices and increased input use could dramatically increase output. The main constraint at present is the inadequate marketing system; for example, an estimated 50 percent of the mangoes rot before reaching markets. While the size of the domestic market for mangoes is uncertain, it is clear that there is significant unfulfilled demand. (A mango which costs 10 CFA/kg. in Orodara in the west can, at the same time, cost 250 CFA/kg. in Fada N'Gourma, in the eastern region.) Possibly more significant is the potential export market - not only in Europe, but it may also be possible to increase the current modest level of mango exports to Togo, Ivory Coast and other surrounding countries. Fruits and vegetables currently represent less than 2 percent of Upper Volta's exports; with better cultivation practices, distribution systems, cold storage and packaging, their contribution to the economy could probably be significantly expanded. The first step, however, is to conduct some precise market analyses,

particularly of foreign markets.²⁴ At the present time, producers seem to have no knowledge of where to obtain such information.

One particularly interesting possibility exists in expanding potato production. Like most of the other vegetables, it is a dry season crop which could serve as a valuable staple supplement to the diet of the lower income rural population.

2) Livestock and Livestock products: A major element in the Voltaic economy (the source of about 10 percent of the GNP and over 25 percent of exports), the production of livestock and derivative products offers potentially attractive possibilities for intensification and expansion. The Voltaic livestock sector comprises mainly cattle, which account for over half of the annual meat production, as well as sheep, goats, swine and poultry.²⁵ Most livestock is raised under traditional conditions with low rates of fecundity, little attention to animal nutrition, low productivity, inadequate veterinary support, and high mortality. Furthermore, there are significant expanses of underutilized rangeland suitable for more intensive livestock production. Despite the relatively ineffectual role of ONERA, the livestock marketing board, a thriving private export trade exists, with most animals trucked or shipped live by rail to Togo, Benin and Ivory Coast. It is thought that the relatively high GOUV border tax on livestock acts as a disincentive to trade and perhaps even to production.²⁶ Since livestock has recently been emphasized as a top area of GOUV priority, authorities should weigh carefully and the possible positive production/trade effects of a reduction of the export tax. Of course, they must at the same time consider Voltaic costs of production relative to other countries as well as price elasticities, since under certain conditions one can make a case for the maintenance of the current export levy.

It is imperative that the veterinary service be reinforced; if the GOUV is not successful in convincing the IBRD or other donors to support their recent request for the upgrading of the animal health support system, this could be an extremely useful role for USAID to undertake. Although such aid would appear to be direct support for public sector institutions, it is an indirect, but absolutely critical way of supporting and expanding private sector activities in livestock production, marketing and processing.

The development of the private livestock industry could be stimulated by several other interventions, which include the following: (1) the improvement of the road network, especially in the eastern region. This would enable Voltaic producers to take advantage of the sizeable and growing Nigerian market;²⁷ (2) increased access to credit for the purchase of animals and the establishment of small-scale feed lots; (3) assistance in analyses of market demand, and in forage development, range management, livestock production and animal disease control, as well as improved technical assistance and extension in these areas.

An AID-financed study by John Holtzman provides a detailed analysis of the particular potential for the further development of the production of sheep, goats, chicken and guinea hens, a local fowl. This could be of special interest to USAID because production is centered on the central plateau region, the main target area of the ADS project, densely settled area with mediocre soils and erratic, low rainfall. Currently, both production and marketing, even to surrounding countries, is performed by small-scale private entrepreneurs, occasionally with technical assistance from a few donor funded projects (AID/Africare in Seguenega and FED). Although no attempts have been made to measure either domestic or foreign markets for sheep, goat or poultry products, it is

thought that urban demand in Upper Volta, as well as in other nearby countries (especially Ivory Coast), has been rising rapidly enough to support a considerably expanded local industry. Export activities have, however, been dampened by several factors, which include: (1) several significant recent export tax increases on sheep and goats; (2) inappropriately high and cumbersome foreign transport costs and "fees", mainly extra-legal payments to customs officials, to police at the numerous check points, and to railroad official. Apparently, this fee extraction is most prevalent in the Ivory Coast; (3) inadequate railroad receiving and loading facilities, and inappropriate railroad cars (without ventilation, or with exposure to sun, wind and rain). This results in great weight loss by sheep and goats, and up to 30 percent mortality in poultry.²⁸

The size of the domestic market for eggs is apparently unknown.⁴ However, with the expansion of the poultry industry, the increase in egg production and availability offers an obvious means of upgrading the protein content and quality in the Voltaic diet, where currently 70 percent of protein is derived from cereals and tubers.²⁹

3) Cotton: The case of cotton represents one of Upper Volta's true "success stories". During the last ten years both yields and output have more than doubled; and cotton is the country's single greatest foreign exchange earner, increasing from 30 percent of total export earnings in 1970 to 41 percent in 1981.³⁰ Furthermore, it is the most important source of cash income for small farmers in the southwestern region, where its production is concentrated. Cotton production also provides an element of financial security in an otherwise highly uncertain, risky environment, due to the efficiency of SOFITEX, and the comprehensiveness of its integrated operations (assured input

delivery with credit, and an assured market for output, as well as a reliable source of transport for output to market).

Despite this progress over the last decade, much potential exists for the further development of cotton production and processing in Upper Volta. This potential exist in the three critical areas: (1) intensified and expanded cotton production; (2) expansion of domestic production of cotton-based products; and (3) expansion of the export of cotton fiber and cotton-seed cakes.

Cotton is typically produced by small farmers who cultivate perhaps one-half hectare of cotton on their two to three hectare farms. Although SOFITEX has done an excellent job in encouraging the use of "modern inputs: (animal traction, fertilizer, improved seeds and pesticides), production could still be increased considerably through five main actions: (1) increased use of pesticides, which could increase current yields by up to 20 percent;³¹ (2) improved extension advice, which is currently not under the control of SOFITEX but is under the aegis of the ORDs, where the agents sometimes fail to emphasize cotton relative to other crops and frequently are not competent technically to advise on its cultivation; (3) resolution of the debate over the most appropriate type and dosage of fertilizer, and closer monitoring of farmers' practices to assure that they follow technical recommendations (currently many farmers apply as little as half the recommended fertilizer dose); (4) increased security in village cereal availability, which can be achieved through improved production techniques and the resultant higher yields, and increased village-level storage facilities, through such measures as the "cereal banks" programs. When the risk of having an inadequate staple food supply (mainly cereals) is reduced, for both good years and bad, farmers will be more willing to devote more area to cotton;³² (5) a more liberal policy of cotton pricing,

including more frequent and greater price increases. Prices tend to remain at the same levels for several years, then increase, in recent years at least, by about 11-13 percent.³³ More frequent, preferable annual, increases more closely tied to the overall performance of the economy (especially the approximately 10 percent annual inflation rate) and to the relative profitability of other agricultural activities (the opportunity cost of producing cotton) would seem advisable in order to induce farmers to maintain their cotton area. (Total area in cotton has, in fact, stagnated over the past ten years).

Another major source of increased cotton production would be the cultivation of larger plots of cotton, especially on the larger, more modern farms. Presently few larger farmers cultivate cotton because of the lack of availability of labor for harvesting and the high cost of labor. (Small farmers harvest mostly with family labor and their plot sizes are restricted to the area which can be handled by the family alone). A small harvesting machine, appropriate for medium size cotton plots of, for example, 2-20 hectares, would eliminate this labor constraint and enable a dramatic increase in cotton output. According to M. Coquil, SOFITEX's Secretary General, such a machine may exist in France. If not, AID appropriate technology experts might investigate the possibility of funding the development of such a machine.

In addition to generating more cash revenues for farmers and foreign exchange receipts for the country, a significant increase in cotton output would provide raw materials for the local cotton-seed oil industry, SHSHV (CITEC), which is currently operating at about 50 percent of its oil producing capacity because of lack of cotton seed, a SOFITEX by-product. Because of this shortage of cotton seed and lack of other reasonably priced raw materials for oil production, CITEC is supplying only 35 percent of the Voltaic market in vegetable oil;

furthermore about two million CFA in vegetable oils are currently imported, and the value is increasing annually. While the potential for expansion depends critically on Upper Volta's local comparative advantage in oilseed production and oil extraction, one can find grounds for cautious optimism. Local CITEC oil production currently competes successfully with imported oils, and unit extraction costs should decline with expansion of output due to the present large excess capacity at CITEC.

Another cotton by-product whose production could be considerably increased through expanded cotton output is cotton seed cake. Presently about 80 percent is exported; these exports could be expanded and, equally important, the cake could serve as a critical foundation for an expanded, more intensified Voltaic livestock industry. Of course intensification of livestock production is an intricate undertaking, particularly in a country like Upper Volta where most production is based on extensive rangeland feeding. But it is encouraging at least to note that cotton seed cake is available in substantial quantity, it is exported and does constitute a resource which might open up options should Upper Volta wish to move in the direction of intensified feedlot operations.

4) Cereals: Although Upper Volta produces about 90% of the cereals it consumes, improved cultivation practices and increased^s input use could increase production further, probably on the order of 10 percent.³⁴ Even this seems a conservative estimate, given the traditional practices, low input use, and lack of attention to seed variety development. Increased cereal production could serve as the basis for selected specialized, new enterprises, including: (1) sweet-sorghum based ethanol alcohol production, mainly for blending with gasoline fuel, thereby reducing gas imports (a project currently being developed by a private Voltaic firm, SERAGRI, possibly with IFC participation);

(2) animal feed production, especially for intensified poultry schemes; (3) the production of raw materials for the beer industry, including malt (currently imported), rice, and sorghum and maize starch; (4) domestic "early" corn production for human consumption, for which there is apparently a sizeable unfilled demand; and (5) the production of sorghum and maize for export to nearby countries where significant demand currently exists.³⁵

5) Groundnuts: Improved production techniques, including especially increased fertilizer use and expanded acreage, could significantly increase groundnut yields and production, as well as improve soil fertility when produced in rotation with cereals. The domestic private market is strong (in June, 1983, free market prices were at 150 CFA/kg. as opposed to the official price of 138 CFA/kg.). Thus, there are few sales to the official marketing board, few exports, and no raw materials for CITEC peanut oil production. (Formerly CITEC used some of its unused capacity peanut oil production but now has halted its production due to the high domestic free market price of peanuts and the resultant lack of sales to the marketing board.) If the profitability relative to other crops is sufficiently attractive,³⁶ producers could increase peanut production resulting in a price decrease, which might enable resumed peanut oil production and more widespread availability of groundnuts to the lower income population for whom it is an excellent, convenient and relatively cheap source of protein. Increased production, if profitable, could also serve as the basis for expanded production of peanut cake for livestock consumption.

In addition to these specific commodities, there are numerous crops which may have considerable potential for expansion but which are presently only pilot projects or currently at the project identification or appraisal stage. In fact, the MDR/DEP maintains a comprehensive list of these projects,

and of new project ideas with definite potential. Two of the more promising of these include the following: (1) the intensification of indigenous kenaf cultivation, and the upgrading of production technology, especially through the seed selection and improvement. This would form the basis of a local sack producing industry, which could serve the entire agricultural sector, as well as non-agricultural enterprises. Currently, almost all sacking is imported and, reportedly, there are frequent shortages; and (2) the development of date palm production in the Sahel. This project has not yet been appraised, but could offer attractive potential for the northern region, where agricultural opportunities are extremely limited.

Another area of considerable potential is soybean production. SERAGRI, a Voltaic-French private firm in Ouagadougou, is currently undertaking a soybean production project which will eventually produce soymilk for both domestic consumption and export to other West African countries. Another experimental new project being planned by SERAGRI is geese production in the southwest region. The geese carcasses will be exported to Abidjan, but the main output will be "paté de foie" (liver paté); Air Afrique and UTA have already promised to purchase all of the currently planned production. This, we were told, is a potentially lucrative activity with an enormous market in France.

VII. MAJOR VOLTAIC AGRO-INDUSTRIES AND THE POTENTIAL FOR THEIR FURTHER EXPANSION

Agro-industries based primarily on Voltaic agricultural produce constitute a major, perhaps dominant, component of the country's industrial sector. Complete, data required to document this, for example on employment, contribution to the GDP, or capital assets, were unavailable. However, of the major Voltaic manufacturing firms listed in the latest (1980) Ministry of Commerce directory of Voltaic industries, 58 percent were agribusinesses where agribusiness is defined as any manufacturer or service supplying inputs to agriculture, processing or distributing agricultural output.³⁷ In another Voltaic industrial directory, 44 percent were agro-industries.³⁸ However, both studies admitted that they did not include information on all major enterprises; furthermore, neither described the activities of smaller industrial enterprises (those with less than 10 employees, the informal sector), of which a majority are probably agriculturally based.

The major large agro-industries are involved in a wide variety of activities, including the following: cotton ginning (SOFITEX); cottonseed oil and cottonseed cake production (SHSHV/CITEC); sugar production (SOSUHV); wheat milling (GMV); beer, soft drink, and ice cream production (Bravolta and Sovobra); livestock slaughtering and packing (Office of Elevage); the production of jams, fruit juice, syrups, and concentrates (SAVANA); fruit and vegetable cold storage and packing (UVOCAM); cigarette production (MAVOCI); the production of cookies, candy and chewing gum (five different companies); leather tanning, the production of leather goods, and preservation of animal skins (seven different companies); and bakeries producing wheat based breads and pastries. In addition, there are several major large industries which produce agricultural

inputs, including rock phosphate fertilizer (Voltaphosphate), and animal traction equipment (ARCOMA/COREMA, APICOMA, SOVICA, SOGEFIA, and ACMD).

Besides these major agro-industries, there are numerous other medium sized industries producing thread and cloth (VOLTEX), pasta (VOLTAPAT), homogenized milk and yoghurt (Monatère de Koubri), and milled rice (the Kou Valley project and others). Table 2 provides a complete listing of the major agro-industries in Upper Volta, as well as most of the less important large and medium sized agribusinesses.

The areas of greatest potential for the expansion of key existing agro-industries in Upper Volta are the following:

1. Cotton fiber, cotton seed oil and cotton seed cake production

As detailed in Section VI, increased cotton production would stimulate several cotton-based industries where significant export markets exist (cotton fiber and cotton seed cakes especially) or where there is unfulfilled domestic demand (cotton seed oil).

2. Fruit and vegetable processing

The SAVANA operation has numerous problems in technical areas, production operations, financial management, access to capital, and marketing. Nevertheless, these problems are capable of resolution. With improved management, SAVANA could capture a much larger domestic market in juices, jams, and fruit bases for ice cream, sherbet, and even yoghurt. Even more attractive is the international market in "exotic" fruit products, such as those based on mangoes, papaya, passion fruit, guava and tamarind. Except for the recent study of the European market for mango concentrate (by Van der Kruijs), SAVANA management has virtually no information on these markets and is uncertain as to how to locate the necessary data.

Table 2

Principal Voltaic Agro-Industries and their Source of Capital Participation

Agro-Industry	Major Products and Byproducts	Source of Capital			Date of Data	Comments
		Private Vol- taic	For- eign	State		
Abattoir Frigorifique	Slaughterhouse: cattle, sheep, pork, goats.	0	0	100	1983	Under MDR.
ACMD: Atelier de Construction Metallique et Divers	Agricultural Equipment, pipes, water tanks, truck and tractor trailers.	51	49	0	1983	
APICOMA: Atelier Pilote de Construction de Materiel Agricole	Agricultural equipment (for animal traction) and carts	0	0	100		Includes donor support. Reports to Ministry of Labor (Fonctions Publiques)
ARCOMA/COREMMA: Atelier Regional de Construction de Materiel Agricole/ Cooperative Regional de Montage de Materiel Agricole.	Agricultural Equipment (for animal traction) and carts.	0	0	100		Includes significant donor financial support.
BRAVOLTA: Brasseries de Haute Volta	Beer, soft drinks ice cream.	5	95	0	1983	
CENAO: Centre National Avicole de Ouagadougou	Poultry feedlot; poultry and egg production.					Under MDR.
Centre de tannage	Leather tannery and production.	0	0	100	1983	Under MDR.
CIMC	Leather Production	100		0		Under MDR.
CNCA: Caisse Nationale de Credit Agricole	Agricultural credit	0	46	54	1983	
		0	61	39	1981	

Agro-Industry	Major Products and Byproducts	Source of Capital			Date of Data	Comments
		Private Vol- taic	For- eign	State**		
C.N.P.A.R.: Centre National de Perfectionnement des Artisans Ruraux.	Training in manufacture of animal traction equipment and repair of grain mills. Manufactures antrac equipment parts for APICOMA.	0	0	100		Primarily a training school. Includes limited donor support. Reports to Ministry of Labor.
COPROCUIR	Tannery, leather production, and leather goods.	100		0		
COVOLTA	Cookies, chewing gum, candy.	16	49	35	1983	Reports to Ministry of Commerce.
GMV: Grands Moulins Voltaiques.	Wheat flour	3.5	21.3	75.2	1982	
		8.5	40.5	51	1979	
		10	47	43	1970	
KOU Valley	Rice mills	0	0	100		
MAVOCI: Manufacture Voltaique de Cigarettes.	Cigarettes	15	85	0	1981	Trains farmers in tobacco production.
		14	86	0	1979	
Monastère de Koubri	Milk, yoghurt	0	100	0	1983	Religious monastery.
OFNACER: Office National de Céréales.	Cereals marketing and storage	0	0	100	1983	Includes significant donor financial support
ONERA: Office National de l'Exploitation des Ressources Animales.	Livestock marketing	0	0	100	1983	
SAVANA: Alimentation de la Savane.	Jams, fruit, juice, fruit concentrates for ice creams and sherbets, fruit syrup concentrates, tomato paste.	49	0	51	1983	
		49	0	51	1979	

Agro-Industry	Major Products and Byproducts	Source of Capital			Date of Data	Comments
		Private Vol- taic	For- eign	State **		
SERAGRI: Société d'Etude et de Pealisations	Agribusiness project identification and management, road and irrigation construction, feasibility studies, agent for CIBA/GEIGY.	50	50	0	1983	GOUV and donor capital in selected projects
SHSHV (CITEC): Société des Huiles et Savons de Haute Volta	Cottonseed oil, sheanut oil and soap, cottonseed cakes	17	67	16	1982	
		12	80	8	1967	
SIBB: Société Industrielle de Biscuiterie et de Bonbons.	Cookies, Chewing gum, candy.	84	0	16	1979	
SICOPAD	Cookies, chewing gum, candy.					
SOCONAF	Cookies, chewing gum, candy.	0	100	0	1983	
SOFITEX: Société Voltaïque des Fibres et Textiles.	Cotton fiber and seed	1	36	63	1983	
		1	44	55	1979	
		0	99	1	1978	
SOGERIA: Société de Fabrication Industrielle Africaine	Animal traction plows carts, water tanks, truck and tractor trailers.	33	67	0	1983	
SOSUHV: Société Sucrière de Haute Volta	Sugar cane, granulated and cubed sugar.	0.1	26.1	73.8	1982	
		5	79	16	1979	
SOVIC	Tannery, leather production, and leather goods.	100		0		
SOSU-SOUROU: Société Sucrière de Sourou.	Sugar			33		

Agro-Industry	Major Products and Byproducts	Source of Capital			Date of Data	Comments
		Private Vol- taic	For- eign	State**		
SOVICA: Société Voltaïque Industrielle de Construction Agricole.	Agricultural equipment (for animal traction) and cards.	81	0	19	1983	
		63	0	37	1982	
		67	0	33	1978	
SOVOBOR	Society of Bakeries	100	0	0	1983	
SOVOBRA: Société Voltaïque de Brasseries.	Beer, soft drink, ice cream.	73	27	0	1982	
SOVOLTA	Tannery, leather production, and leather goods.	16	49	35		Reports to Ministry of Commerce.
SOVOCO: Société Voltaïque de Confiserie.	Cookies, chewing gum, candy.	25	75	0	1979	
SVCP: Société Voltaïque des Cuirs et Peaux.	Treatment and export of animal skins.	0	53	47	1981	Under MDR.
UVOCAM: Union Voltaïque des Coopératives Agricoles et Maraîchères.	Fruit and vegetable storage (including cold storage), packing, and marketing.	100	0	0*	1983	* Government support through assignment of GOUV officials to management structure Membership composed of private cooperatives.
VOLTAPAT: Société Voltaïque des Pates.	Pasta	52	48	0	1982	
Voltaphosphate	Rock phosphate fertilizer	0	0	100	1983	Includes significant donor financial help.
VOLTEX: Société Voltaïque de Textile.	Thread, cloth, cloth products.	1.1	25.3	73.6	1983	Reports to Ministry of Commerce.
		1.1	25.3	73.6	1979	

Sources: Interviews with industry officials; Industries Voltaïques, 1980; and Entreprises Industrielles, 1982.

** State ownership includes both direct GOUV share participation plus other institutions more than 51% owned by GOUV.

However, they were recently contacted by several European importers who requested samples of "exotic" jams and fruit concentrates, as well as by Ivoirian fruit juice importers.

3. Expanded local production of Voltaic rock phosphate-based fertilizer

The IBRD is currently investigating the technical issues concerning the appropriate formula and processing required for the production of a blended or granulated fertilizer using Voltaic rock phosphate as the basic raw material. The IBRD is also investigating the possibility of developing a fertilizer based on acidulated rock phosphate, but presently the technical feasibility of this option is considered improbable. The bank will then evaluate the technical and economic feasibility of building a blending or granulating plant and, if considered feasible, the Bank may finance the construction of such a plant. If this occurs, not only would increased exploitation of Voltaic phosphate provide a significant stimulus to the economy of the eastern region, but fertilizer imports would be reduced, thereby resulting in important savings of foreign exchange.

4. Processed livestock products

Although the domestic market has only been measured very approximately,³⁹ there appears to be excellent potential for expanded Voltaic consumption of a variety of livestock products, such as milk, yoghurt, and meats and poultry. The export market in nearby African countries is probably much greater, especially in the Ivory Coast. However, presently most of these industries are not highly developed, and their development will depend, in part, on the establishment of an adequate infrastructure, especially refrigerated storage and transport facilities.

Some of the other key agro-industries have impressive and, apparently, efficient operations. But they already are meeting most of the Voltaic domestic demand, and export opportunities for their products are not attractive. The most notable examples of these industries include SOSUHV (the sugar plantation and refinery) and GMV (the wheat flour mill).

Finally, much of the private agro-industrial sector is composed of small industries, involved in activities such as cereal milling, bread baking, sheanut butter production, peanut oil extraction, local (dolo) beer production, rice hulling, weaving (based on thread produced by women from their own cottonfields) and soumbala production, a product made from nere (a local fruit) seeds, which is an important ingredient in sauces.⁴⁰ Little is known about these industries--their numbers, their regional distribution, their operations, their markets, their profitability, their problems and most important, the constraints which they face. Any assistance to private sector agro-industries should include these enterprises. However, before defining the types of assistance which should be provided, AID should undertake an assessment of these industries and their precise needs.

VIII. THE MARKETING OF KEY AGRICULTURAL INPUTS

Three of the most widely used agricultural inputs in Upper Volta are fertilizers, pesticides and animal traction equipment. Since each is marketed in a different manner, each will be addressed separately.

1. Fertilizer Marketing: Most of the fertilizer used by Voltaic farmers is imported by SOFITEX. This includes mainly a compound fertilizer, NPK, about half of which is used on cereals.⁴¹ In cotton producing areas this fertilizer is delivered to farmers by SOFITEX itself. In non-cotton areas, SOFITEX sells the NPK fertilizers to the ORDs, which then distribute it to farmers.

Currently, the second major importer of fertilizer is the MDR/DSA, which is the major urea importer. The urea they import is then sold to the ORDs, through which it is distributed to farmers. Smaller amounts of fertilizer are also imported by various of the large parastatals such as SOSUHV, UVOCAM, and AVV. Data on the total quantities of fertilizer imported from 1976-1983 are provided in Table 3.

A third major source of fertilizer in Upper Volta is the locally produced rock phosphate. This is sold by the producing company, Volta-phosphate, to the ORDs, the Fonds de Developpement Rurals, SOSUHV, and to private distributors, who account for two percent of total sales.

The current fertilizer marketing system, though is scheduled to change shortly. Under the new IBRD fertilizer project, expected to be signed before December 1984, SOFITEX has agreed to import all fertilizer, pesticides and herbicides - the DSA will do so no longer. SOFITEX will

Table 3

Fertilizer Imports and Production
(tons)

	1976	1977	1978	1979	1980	1981	1982	1983
1. SOFITEX imports (mainly NPK)	5,108	8,800	12,109	14,000	20,000	14,000	16,000	20,000
2. MDR-DSA imports (mainly urea)	70	444	1,913	4,291	204	1,025	?	500 (est.)
3. Voltaphosphate (rockphosphate production)	--	--	68	1,025	600	19,720	600	
4. Ammonium Sulphate	3,307	3,500	420	3,100	2,502	--		
5. Potassium Chloride	441	147	89	231	522	--		
6. Potassium Sulphate	41	27	--	83	30	--		

Sources: Bureau des Intrants Agricoles (for SOFITEX and Voltaphosphate data).
Regards, p. 11. (for other fertilizer data).

further guarantee delivery of all materials, including Voltphosphates, to ORD headquarters. The ORDs will then, as now, assure distribution to individual farmers. In practice, the private marketing of imported fertilizers is currently strongly discouraged because SOFITEX and government sell compound fertilizer and urea at 50% and 36% subsidy, respectively, making it extremely difficult for private traders to import and sell at a profit. Nonetheless, private traders do bring in some compound fertilizer from Ghana; and they handle significant quantities of unsubsidized inputs such as insecticides and pesticides⁴². They also play a role in distributing the fertilizer imported by SOFITEX and DSA. In the central Ouagadougou market, for example, there is a merchant selling NPK fertilizer, which he purchased at the Ouagadougou SOFITEX outlet. He reported that sales were usually restricted to quantities of up to three tons. He resold this openly in the market in 50 kg. sacks or in small packages (375grams). He reported that he purchased the 50 kg. sacks at 3,500 CFA and resold them at 3,750 (7 percent markup). However, on the smaller sacks the markup was much greater--90 percent. (The 375 gm. sacks sold for 50 CFA each.)

Voltaphosphate also reported that its customers, some of whom are private merchants, felt free to buy and then resell small quantities of fertilizer. However, several merchants recently bought larger quantities (100 tons) and received such pressure from their local ORDs, which opposed the private sales of the fertilizer, that the merchants asked Voltaphosphate to reclaim the fertilizer.

The logic behind this strong government intervention in the trade is apparently based on three main beliefs: (1) that there are economies of scale in fertilizer importation (mainly price benefits with larger orders); (2) that the farmers must be protected from "exploitation" by private merchants who might charge higher prices; and (3) that farmers need ORD advice on the

appropriate type and dosage of fertilizer and should not be prey to the pressures of unknowledgeable profit seeking merchants who might give inappropriate information on fertilizer utilization.

Although these premises (especially the second and third) are somewhat questionable, government distribution of fertilizer might be acceptable if, indeed, it were an effective system. In fact, in the cotton areas covered by SOFITEK, the system is quite effective. However, in the non-cotton areas there are apparently frequent shortages of all fertilizers, but especially of urea, which is distributed through the DSA. The shortages probably derive partly from bureaucratic inefficiencies, but also mainly from DSA's inability to pay for urea imports and the ORDs' inability to buy them from DSA. Another cause of the insufficiency of DSA urea imports is apparently the lack of adequate storage facilities at the main import and distribution points, Ouagadougou and Bobo-Dioulasso. The expatriate advisor to Project Phosphate reported that in Koupela, alone, in 1983, 400 tons of urea were requested, whereas only 500 tons were imported for the entire country. (Koupela is one of eleven ORD administrative regions.) As Table 4 shows, estimated requirements for urea in 1983-84 are 4,800 tons. It seems highly unlikely that under the present system this demand can come close to being fulfilled, which is why the system will shortly be altered, with SOFITEK handling all importation and distribution to ORD headquarters.

To encourage efficiency of the new system, it would be highly desirable to liberalize fertilizer marketing and to encourage private distribution. Since price benefits can be gained through bulk ordering, the aggregating of individual orders by SOFITEK should result in substantial cost savings. And the gradual reduction of the fertilizer subsidy - targeted at 10% per year - will effectively remove the most important obstacle to private importation

Table 4

Projection of Fertilizer Requirements

1983 - 1987

(tons)

1983/84	1984/85	1985/86	1986/87
19,200	23,040	27,648	33,177
4,800	5,760	6,912	8,294
800	1,000	1,200	1,400
100	120	144	172
24,900	29,920	35,904	43,043

Source: Bureau des Inventifs Agricoles.

of agricultural inputs. Private competition in importing and distribution can only improve the efficiency of the proposed system.

Even under a revised system allowing a more substantial role for private fertilizer distribution, the ORDs could continue to offer fertilizer in their centers at prices which they consider to be reasonable. They would still have an important role to play in distribution and sales to isolated, low population density areas where private merchants might not be interested in operating.

However, private merchants also have a definite role to play, in local fertilizer distribution. They can be more responsive to farmers' needs by providing fertilizer on time, when it is otherwise unavailable, and by packaging it in a form which is appropriate to farmers' needs (as is the case of the Ouagadougou merchant whose customers were willing to pay 90 percent more for small lot sizes of NPK). Similarly, they might provide services otherwise unavailable, like daily sales in local markets, rather than in the less conveniently located ORD sales outlets, where sales procedures are sometimes unpredictable, and inefficient for farmers. (An extension agent in Bobo-Dioulasso related that farmers often come long distances to purchase inputs at the ORD outlet only to find the outlet unexpectedly closed or without stocks. Several farmers confirmed this.)

Unfortunately, government and SOFITEX practices are sometimes such that they limit the role played by the private sector in fertilizer distribution. In some cases, this interference results in decreased fertilizer availability in certain areas.⁴³

The new system of fertilizer distribution should encourage local

private distribution of inputs. If fertilizer distribution is indeed opened up for wider private sector involvement, there will most likely be the need for two main forms of support. These include: (1) lines of credit to private merchants in order to purchase stocks; and (2) credit for the construction of adequate storage facilities, or the construction of such facilities by the government and subsequent rental to private merchants.

2. Pesticides: The distribution of pesticides is much less controlled by GOUV than the distribution of fertilizers. The main importer of pesticides is SOFITEX, which imports a wide variety, most of which it is allowed to resell to private farmers or to merchants, on request. The only exception apparently is the product Endrin, which is considered too toxic to allow private distribution and must be obtained through the ORDs, where extension agents can, in principle, supervise its application.

In addition to SOFITEX's activities in the importation of pesticides, private importation is also allowed. Two of the major private importers are SOFACO and SERAGRI, the local agent for Ciba-Geigy.

Pesticides imported by SOFITEX are distributed by the parastatal to the cotton producers, to the ORDs, and to private merchants. However, apparently stock is often unavailable to the farmers through the ORDs. Farmers in Bobo-Dioulasso reported that they had been unable to obtain needed pesticides through the Hauts-Bassins (Bobo-Dioulasso) ORD, one of the richer and more efficient of the ORDs. Instead they purchased the products in the private market at a 25 percent premium, which was of no concern to them since they were pleased just to have access to the product. Other farmers in Orodara also reported unavailable supplies of both pesticides and fertilizers, which they wished to use on their fruit trees.

3. Animal Traction Equipment: The marketing of animal traction equipment is performed through the free market (for cash sales) or through the ORDs (for credit sales). Prices are not controlled and, in fact, vary widely. (ARCOMA prices are reportedly 42 percent higher than APICOMA prices for some identical equipment).⁴⁴

The source of credit for animal traction equipment is the CNCA; major activity in agricultural credit is the provision of animal traction equipment. The credit allocation system is somewhat cumbersome, with numerous levels at which requests are evaluated and rejected. These levels include the initial screening by the GVs, several screenings by different levels of officials in the ORD system, and finally the CNCA. There is apparently much unfilled demand for animal traction equipment, although there are sizeable inventories accumulating at many of the factories and, in fact, significant underutilized capacity in several. This unfilled demand is reportedly due to the limited availability of CNCA credit for the purchase of equipment. in fact, CNCA's

IX. MAJOR CONSTRAINTS TO THE EXPANSION OF THE ROLE OF
THE PRIVATE SECTOR IN AGRICULTURE AND AGRO-INDUSTRY

A. Agriculture

Based on our inquiries, the most important and striking obstacle to the development of private sector activities in Voltaic agriculture appears to be the lack of availability of credit. This includes short-term seasonal credits, which are virtually unavailable in ORDs which do not have special donor backing, and medium-term credit, except for animal traction equipment. In fact, the only type of credit which seems to be readily available through the CNCA is for animal traction. Some loans are extended for other activities, but in the aggregate, the impact is limited. It was indeed dramatic that numerous farmers encountered in the Bobo-Dioulasso area, who had developed viable plans for undertaking new agricultural activities, seemed to have considerable technical competence, had access to necessary resources (such as water for irrigated schemes), and even had title to cleared land. One farmer in Bobo-Dioulasso had 200 hectares of cleared land, but was only able to exploit 40 hectares, due to the lack of financial resources. Another farmer, a veterinarian with a government position, wished to undertake livestock activities. In 1981 he paid \$1,200 to OPEV to develop a rather sophisticated feasibility study which was submitted to BND (formerly the bank which handled agricultural activities). Despite the assurance provided by his salaried position and his technical expertise in the subject, he has never even had a response from the bank.

In addition to the need for credit for agricultural production activities, there is also a shortage of funds for the purchase of transportation equipment for the marketing of agricultural products. Numerous farmers and farmer groups

described their difficulties in attempting to rent trucks; repeatedly they recounted that while they waited for trucks to become available, their crops rotted. Others--for example, farmers in Orodara and Bobo-Dioulasso, in the south western region--knew of definite, highly profitable markets for particular commodities in the central and eastern regions of the country, but could not obtain transport facilities to deliver their crops to these regions. Several farmers and farmer groups expressed an interest in purchasing small trucks, but said that credit was not generally available for this purpose.

A second major constraint to the expansion of private activities in agriculture is the lack of availability of inputs, especially urea fertilizer, but also certain pesticides and even NPK in areas not serviced by SOFITEX. ORDs which are not financed by donor projects simply have inadequate stocks to meet farmers' needs. This derives partly from MRD/DSA's inability to finance urea imports, as well as the inability of the ORDs to finance purchases from SOFITEX. In addition, inputs often arrive too late in the growing season for optimal utilization; in other cases, the cumbersome process of obtaining the inputs from the ORDs discourages farmers from even attempting to obtain and use the inputs. Farmers recounted how it was often necessary to make numerous trips to the ORDs, where frequently the officials responsible for input sales were unexpectedly absent. The office would be closed during normal sales hours, or the stocks of the desired inputs would be depleted.

A third major problem frequently observed and cited was the shortage of certain agricultural equipment and the late delivery of other items. There appears to be an absolute shortage of tractors, which are essential in land-clearing and for crop production on the larger farms. Few of the ORDs apparently have tractor services for hire, which is normally a function of an

extension service. The lack of credit constrains farmers from purchasing even the smaller tractors which are critical to timely operations on the medium-sized farms, especially given the shortage of agricultural labor which prevails in Upper Volta. Frequently there are shortages and late delivery of animal traction equipment, especially that produced by ARCOMA/COREMMA. This is apparently due to poor management at these factories and thus, inability to meet their orders on time. SOVICA, a major cart manufacturer, has also experienced production delays which result in late deliveries to farmers; this often means that farmers miss the lucrative "transport season" when they can generate cash income with their carts, thereby enabling them to meet their credit repayment obligations. SOVICA's late deliveries to farmers appear to be due to production scheduling and inventory management problems; production was held up due to a shortage of imported French parts--mainly axles.

A fourth major obstacle to the development of the agricultural sector and the expansion of private activities in the sector is the inadequate capital infrastructure, mainly roads. When asked to cite the major problems facing the central ORD, where Ouagadougou is located, the ORD Director emphasized that the most severe problem is the extremely bad quality of the road system in the region, which is one of the most developed areas of the country. The often impassable secondary, and even primary, roads can prevent extension agents from reaching their farmer-clients and inhibit the delivery of inputs, as well as the disposition of outputs. The central ORD Director noted that even when roads are passable, the quality of many is so bad that he has difficulty in hiring private truckers, when needed, to deliver inputs. The truckers are afraid of ruining their trucks on the rutted, rocky roads. The inadequate road system appears to be a major problem throughout the country; however, it is particularly severe in eastern region.

A fifth principal obstacle to private sector activities in agriculture is the absence of an appropriate technical package for the cultivation of different crops in the various regions of the country, under varying soil and climatic conditions. Furthermore, there is a continuing and unresolved debate, not only about the appropriate fertilizer dosage, but about the efficacy of the currently used fertilizers and whether they are contributing to the longer-run degradation of Voltaic soils. According to field observations described in the DAI report, farmers see an immediate yield response when using NPK for cotton or cereals, but, in subsequent years, see significant acidification effects. For this reason, according to these observations, many farmers who once used NPK have stopped using it.⁴⁵ Another serious problem is the lack of knowledge about the appropriateness of the animal traction equipment which is currently being used in Upper Volta. While there have been some specific studies of the impact of this equipment on soil structure in particular regions, the results do not apply to all regions and the results are not, in any case, conclusive. Some experts believe that the equipment presently used is also a major contributor to the degradation of Voltaic soils.⁴⁶

The sixth and final major obstacle to the expansion of private sector agricultural activities in Upper Volta is the inadequate funding and lack of facilities in certain ORDs. Some ORDs apparently have relatively adequate facilities, funded by major donor projects. Others, without donor funding, have financing only for salary payments. As a result, they have few transport facilities for input delivery and extension visits, inadequate funding for the purchase of inputs, and a shortage of storage facilities for the handling of inputs. Some ORDs have ruined their credit ratings with animal traction equipment manufacturers, and thus have difficulty in obtaining the equipment for farmers in their region.⁴⁷

Furthermore, extension agents are overwhelmed with a multitude of tasks not normally associated with extension functions. These include the assessment of input needs and ordering of inputs, evaluation of credit applications, delivery of inputs, and monitoring of farmers' credit repayment.

B. Agro-Industry

As in the case of agriculture, the most dramatic and serious obstacle to the expansion of private sector activities in agro-industry is the lack of capital and the lack of availability of credit. Repeatedly, well-conceived firms with reasonably efficient operations explained that their current activities are obstructed, and often halted, due to capital shortages. Sometimes these capital shortages may be due to ineffective financial management, but often they are caused by or exacerbated by delays in financial flows from outside organizations, over which there is little or no control. Furthermore, numerous firms had logical, or even creative, viable concepts for the expansion or the improvement of their operations, but had no access to capital or credit for the execution of these concepts. A few of the numerous examples include the following:

(1) SAVANA's inability to obtain \$33,000 to purchase a machine to package individual servings of jam. There is an assured market for these individualized packages with two airlines, UTA and Air Afrique, which have requested the product from SAVANA, as well as what SAVANA staff believe to be a large potential market in the Voltaic hotel industry;

(2) SOVICA's inability to obtain credit to procure the equipment with which to begin producing axles for their animal drawn carts. In May, 1983, when the author visited the plant in Bobo-Dioulasso, production and delivery of carts had been halted due to significant delays in the delivery of the axles

from France, caused by shipping problems and strikes at the producing plants. Production of the axles at SOVICA would not only give the firm greater control over its operations, but would obviously result in several other economic benefits, including reduced foreign exchange expenditures and some increased employment possibilities;

(3) URCABO, the regional vegetable marketing cooperative, a branch of UVOCAM, spends close to \$15,000 per season renting trucks from UVOCAM. Often trucks are unavailable or arrive late, resulting in significant losses of commodities purchased from the farmer members. URCABO needs greater control over its transport operations; it should be allocating fewer funds to truck rental and should be investing some of these funds in the purchase of at least one or two trucks, which could eliminate transport bottlenecks during critical peak periods. However, to accomplish this, credit would be needed and it is simply not available;

(4) URCOOMAYA, another regional branch of UVOCAM, lacked funds in 1981 to hire the vehicles to deliver its potato crop to Ouagadougou; as a result, apparently great quantities of potatoes rotted.⁴⁸

Although there is a limited quantity of credit available within the Voltaic banking system, apparently the credit which is available is more readily allocated to ventures which are not based on agriculture. Agro-industries are perceived as being more risky and less profitable than other possible ventures. Furthermore, bankers, even at CNCA, the agricultural bank, lack the technical agricultural skills to assess prospective ventures and, for this reason, may respond negatively to agribusiness proposals or fail to respond altogether.

A second major category of constraints to the expansion of private

sector activities in agribusiness is the sometimes deficient quality of professional management skills displayed by many of the agribusiness managers. Both the Voltaic and expatriate managers seemed most concerned with, and most adept at, plant management--the physical operation of factories. Managers displayed much less skill at defining and measuring markets and at matching products and markets. Nor did they generally display an awareness of the importance of these factors.

There was also a prevalent lack of attention to appropriate financial management and a laxness concerning profitability. For example, URCABO lacked the funds to purchase commodities from its member cooperatives; at the same time, over half of its generous and impressive cold storage facility was empty. Apparently there were restrictions imposed by UVOCAM concerning the rental of these facilities; they could only be rented to member cooperatives, where demand was often insufficient, and could not be rented to individual farmers, where there was considerable demand. URCABO could easily have generated working capital for the purchase of commodities through the rental of the empty cold storage facilities to these farmers. Sometimes this laxness about efficiency and profitability may be due to the structure of compensation schemes, whereby managers in the mixed public-private enterprises may be salaried government employees, without performance-based incentive and reward system.

A third principal constraint to private activities in agribusiness is the lack of data and information about both domestic and foreign markets. The data available, for example, in government offices, embassies, and donor missions, are often not accessible to private sector entrepreneurs, who also may be unaware of the data's existence or simply do not know where the data can be

found. Closely related, even when foreign markets are identified, managers generally are uncertain as to how and where to locate contacts with marketing agents in these countries. For example, SAVANA managers had, apparently with good reason, defined the United States as a potential market for its "exotic fruit" extracts (guava, passion fruit, mango and tamarind) which serve as the basis for ice creams and sherbets. They had no notion of how to explore the market and establish contacts with American importers, and they asked the author for assistance in these areas.

The fourth major obstacle to agro-industrial activities is, as is the case with agriculture, the inadequate system of infrastructure, especially roads. The principal network of roads in Upper Volta is generally of good quality. However, in certain sections of the country, especially the east and north, the main roads are sometimes impassable and often require extremely slow driving speeds. Nevertheless, the major obstacle is the secondary road network, where the low quality can inhibit or prevent efficient product distribution to potential markets, or can significantly raise distribution costs. The road system presents particular problems for the smaller agribusiness firms in outlying areas, which face constant difficulties in transporting raw materials, equipment and spare parts to their production sites.⁴⁹

A fifth major category of constraints to agribusiness development in Upper Volta is government policies in pricing and margin controls, and in import and export taxation. In many cases, controlled prices are set so low as to discourage private sector participation in a product's production or distribution. Similarly, low official prices can serve to depress production, divert sales to the black market, or result in losses for the enterprises, which later are often subsidized by the government. SOSUHV, the sugar plantation

and refinery, presents a striking example of the effects of inappropriate pricing policies. In recent years, the official price of sugar has been set too low to permit the company to cover its production costs, even though the company's operations appear to be quite efficient. This has resulted in the need for government subsidization of the company, illegal exports of sugar to neighboring countries (effectively a subsidization by the Voltaic government of consumers in those countries), and occasional sugar shortages within Upper Volta. Furthermore, restrictive margin controls, designed to maintain low prices for poor consumers, often dissuade private entrepreneurs from distributing particular products, especially to outlying areas where transport costs are higher. Thus, policies aimed at consumer protection sometimes result in the consumers being unable to even obtain protected products. Import duties, too, present a constraint to private enterprise. In some cases, duties for raw materials and parts are set so high that it is cheaper to import finished goods and not even undertake the production of these goods in Upper Volta. This problem was cited by the managers of SOGEFIA, an agricultural equipment manufacturer. When asked whether they intended to produce small grain mills, they explained that although there is a significant market for the mills in Upper Volta and the company would be interested in their production, because of the structure of import duties on the raw materials and equipment, it would be cheaper to import the finished mills than to produce them in-country. Finally, export taxes sometimes act as an obstacle to private sector activities. For example, the case of the high export tax on livestock was frequently noted to be a disincentive to exportation, or alternatively, an incentive to export livestock illegally, through the black market, to surrounding countries.

The sixth principal category of constraints to private sector activities

in agro-industry is the complexity of border procedures, which acts as a disincentive to exporting and an obstruction to importing. Complex, lengthy border formalities and delays are a particular problem for agribusinesses dealing with perishable commodities and live animals; livestock exporters complain that these delays often cause unnecessary weight loss in larger animals, and a high mortality rate in poultry.⁵⁰

X. RECOMMENDATIONS FOR ACTIONS TO FACILITATE THE
EXPANSION OF THE ROLE OF THE PRIVATE SECTOR IN
AGRICULTURE AND AGRO-INDUSTRY

Despite the formidable obstacles confronting Voltaic entrepreneurs, there are numerous attractive opportunities in the agricultural and agro-industrial sectors. These opportunities can only be realized by removing at least some of the obstacles, or diminishing their impact, and, in conjunction, by providing indirect support to Voltaic entrepreneurs. To accomplish this, it is recommended that the following measures be undertaken:

1. The most essential action to be taken is to increase the supply of credit for both agricultural and agro-industrial activities. The lack of availability of credit in both areas is the most fundamental obstacle to current private sector activities and the expansion of these activities.

For agriculture, two main types of credit are needed. The first is short-term seasonal credit, which is virtually unavailable to most farmers, except through SOFITEX for cotton production. The second type of agricultural credit needed is medium-term credit for investments other than those relating to animal traction. Currently, most of CNCA's funds are directed towards medium-term investments for animal traction livestock and equipment. Farmers seeking funds for investments in irrigation facilities, pumps, small and large tractors, trucks, farm building construction, and the purchase of animals or trees relate that such funds are almost impossible to obtain.

This credit should most logically be directed through the CNCA, which is a relatively effective institution and which currently has the mandate for agricultural credit delivery. However, in order to eliminate certain problems which presently reduce the effectiveness of the credit delivery system and to

enable CNCA to handle a larger volume of resources, several measures must be taken. First, the credit administration process must be streamlined, with the role of the ORDs in the credit process reduced.

Currently, most credit requests are first evaluated at the village level by the Groupement Villageois (GVs), then by the several layers of personnel at ORD level, and finally, at the CNCA. Similarly, funds are lent by the CNCA to the ORDs, who then on-lend to the GVs, which then allocate the funds to individual farmers. This multi-layered process should be simplified, with the role of the extension agency in credit administration and recuperation reduced considerably. The ORDs can assist and support the CNCA in credit activities, but the CNCA should bear primary responsibility for agricultural credit and the ORDs should focus on extension activities.

Closely related, the second measure necessary to enable CNCA to handle an increased volume of credit is to strengthen its institutional capacity through funding for training and for increasing the number of personnel involved in credit administration.⁵¹ Training is needed especially in the evaluation of credit applications. Apparently, now many credit requests go unanswered or are rejected because the personnel assessing the applications are unable to perform an adequate technical, economic, financial, and marketing evaluation. Although it may be necessary to continue to rely on the ORDs for the technical appraisal of requests, AID should help to provide training for CNCA agents in at least the economic, financial and marketing aspects of project analysis. While a few CNCA personnel might be able to attend overseas courses like the IBRD Economic Development Institute (EDI) courses in project analysis, a greater impact could be achieved by conducting similar training in-country for all of the CNCA personnel involved in the evaluation of credit proposals.

Clearly, if the quantity of credit administered by CNCA is significantly increased and some of the present administration and recuperation functions are transferred from the ORDs to CNCA, the number of CNCA agents who handle these tasks will have to be significantly increased. The funding for training these agents, as well as their salaries, would be an appropriate activity for AID.

For agro-industry, the quantity of credit must also be significantly expanded and, as in agriculture, the capacity of the administering institution must be concomitantly upgraded. Voltaic agribusiness entrepreneurs repeatedly told the authors that very little credit is allocated to agro-industry through the existing banking system. According to them, this is largely due to the fact that agribusiness projects are perceived as being more risky than other investments; with a limited quantity of credit funds, logically they are allocated to the apparently less risky ventures. Closely related, the perhaps exaggerated perception of risk and the lack of funding to agro-industry proposals is also due to the inability of the banking institutions to appraise the proposals.

AID's response to these problems should be two-fold. First, a line of credit ear-marked for agro-industrial activities should be administered through an existing institution, like the BND, or alternatively, through the Development Fund proposed in the management report of this Private Sector Assessment. Again, assistance must be provided to the administering institution in training its personnel to effectively evaluate credit requests--in this case, rather specialized agro-industrial proposals. A few Voltaics from the lending institution might attend the IBRD/EDI course in agro-industry project analysis, but as in the case of agriculture, training should also be provided in-country for all of the analysts involved in evaluating agro-industrial credit proposals.

In the provision of agro-industrial credit, special care must be taken that

it is made available not only to the larger agribusinesses, but also to the small organizations which comprise the "informal" sector. An institution which is effective at reaching these small businesses appears to be Partnership for Productivity (PfP), which offers both small loans and technical assistance in preparing proposals, and in managing businesses. If PfP's operations could be expanded to cover the entire country, and if management could be transferred to the Voltaics, with expatriates serving as advisors rather than top management, AID might consider a significant increase in the funding to PfP so that it could serve as the main conduit for credit to agribusinesses in the informal sector. Alternatively, PfP might assist a Voltaic institution, such as the BND or a new group established for this express purpose, in the administration of credit and even technical assistance to small agribusinesses.

2. A second area in which AID might provide assistance which would facilitate private sector activities is in providing technical assistance to loan applicants in preparing their feasibility studies and loan proposals. Currently, PfP executes this role with its own clients. For other enterprises, there seem to be few alternatives to OPEV assistance, which seems costly.⁵² For agro-industry, such assistance might be channelled through the Chambers of Commerce, where AID might fund the establishment of small teams of analysts to assist applicants in preparing their proposals. Funds should cover the cost of the training of these analysts, their salaries, and simple office equipment costs, such as calculators, photocopy machines, and typewriters. The office would then charge the clients a fee, which could cover a major portion of the recurrent office costs.

3. A third extremely useful area of AID funding might be the establishment of an Agribusiness Information Office, most likely attached to the Chamber of Commerce. The Office would be intended for use by agribusiness entrepreneurs,

including farmers, in formulating their production and marketing plans. Initially it would contain data on Voltaic agricultural and agribusiness production, prices throughout the country, and consumption patterns, as well as general demographic and economic data. In addition, it would make available similar data on potential markets, including initially those in West African and European countries, but later in other regions such as the USA, and the Middle East (where potential markets have already been defined by SAVANA, but information about them is unavailable), as well as other regions of the world. Currently, such information is virtually inaccessible to most Voltaic enterprises, although some of this kind of information can be found within the country in a multitude of Voltaic ministries, government and quasi-governmental offices, foreign embassies, donor offices and libraries, and multi-lateral organizations. This information should be centralized and, wherever possible, made accessible to private entrepreneurs. The Office should also include information on government regulations, Voltaic and foreign, on quality standards, import duties, export taxes, and any other issues relating to trade.

4. AID should consider funding the establishment of a Management Consulting Service to assist existing agribusinesses and other enterprises in analyzing areas of weakness and improving specific aspects of their operations. For example, SAVANA needs such assistance now in defining its market and in planning a marketing strategy. High quality services of this type, either private or public, are not readily available in Upper Volta. This service could be administered through offices in the regional Chambers of Commerce and would require the payment of fees for its assistance. The staffing would consist mainly of Voltaics with management training and experience; their training might be upgraded by attendance at a short

course (one to three months) for middle level or top level managers, such as the courses given at Harvard Business School, or the Harvard short courses for agribusiness executives, given periodically in different locations around the world. The team might also include the participation of US business experts from an organization such as the Executive Service Corps. United States business relies heavily on the vast U.S. management consulting industry, which provides objective, specialized expertise for the improvement of specific aspects of their operations. This kind of service should be made available to Voltaic enterprises at a reasonable price.

5. It is recommended that AID fund the development of a series of management seminars on specific management topics, such as organizational strategy, production planning, inventory planning, financial management, farm and plant management, and marketing strategy. There should be specific sessions on agribusiness management, which gives attention to the unique risks of agribusiness (due largely to such uncontrollable factors as weather, and plant and animal mortality), and the importance of timing and coordination (due mainly to the exigencies of plant and animal biological cycles and the perishability of agricultural products). Possibly, materials and instructors may be borrowed from institutions which have already developed courses in these areas, including the Harvard Business School agribusiness program and Executive Seminars, the IBRD course in agro-industry, the agribusiness program at INCAE (the Nicaraguan business school affiliated with Harvard), and the Arthur D. Little Inc. agribusiness management program for LDC officials. These seminars might be conducted under the auspices of the Chambers of Commerce. Two types of sessions will be needed: one series for managers of the larger, modern enterprises, and one series for the managers of the small businesses in the informal sector, who must be also given access to this training.

Finally, it is essential that the seminars be primarily based on the case method, which is the most rapid and effective means for practitioners to improve their operational skills.

6. One of the most useful roles which AID might play would be to assist in consolidating and cataloguing the multiplicity of reports and data files which exist within Upper Volta on a variety of agricultural and agro-industrial topics. Research has been done and data have been collected by myriad government offices, private organizations, research groups, Voltaic and foreign students, donor groups and consultants. There is little dissemination of most this information, especially within the Voltaic government and certainly not to the private sector. These materials could be synthesized, translated into French where necessary, and then catalogued in a micro-computer.⁵³ Terminals for re-call could be placed in strategic places such as MDR/DEP, Chambers of Commerce, the ORDs and the Ministry of Commerce. This system, which might be termed the Agriculture and Agribusiness Research and Data Access System, could provide a valuable document base to the Agribusiness Information Offices in the Chambers of Commerce, for it would provide access to the numerous studies like those already completed by AID consultants on a variety of topics of direct relevance to private sector agribusiness development in Upper Volta. Currently, these reports, which are mostly in English, are stored in different USAID offices or in the USAID library and receive little circulation. The system might also include the feasibility studies and project identification documents prepared by MDR officials, and currently collected by MDR/DEP. Some are excellent preliminary studies of projects for which no funding or only partial funding has been found. Not only would the concepts and analyses be useful for potential entrepreneurs, but small investors might find partially funded ventures in which they

might participate and partners with whom they could form joint ventures.

7. It is recommended that within the MDR an Office of Agro-industries be formed, which would work closely with relevant offices within the Ministry of Commerce. The Office's primary task would be to oversee the planning and implementation of the various activities designed to facilitate the development of agribusiness, to coordinate these with activities of the MDR and Ministry of Commerce, and to serve as a point of contact for agribusiness enterprises in their relations with MDR and other offices of the government.

Currently, there is no office or personnel which have such an overview of the activities and needs of the agribusiness sub-sector, although various offices under the MDR include processing and marketing activities, such as UVOCAM and ONERA. The first task of such an office might be to assist in the establishment of the Agribusiness Information Office at the Chambers of Commerce and the micro-computerized agriculture and Agribusiness Research and Data Access System.

8. Under the auspices of a Voltaic office, ideally the Office of Agro-Industries described above, AID should consider the funding of three research projects, which include the following:

a) an assessment of small-scale agro-industries, about which very little is currently known, but which play a major role in agricultural marketing and processing. The objectives of the study would be to identify problems, needs and constraints to the operation of these enterprises, and to suggest ways to improve their efficiency and effectiveness. Since these small-scale entrepreneurs are not presently included in most business associations, like the Chamber of Commerce, another goal would be to determine how to reach these businesses so as to ensure their inclusion in any technical assistance efforts, like management seminars and assistance with feasibility studies, and in any new credit programs;

b) an assessment of the various producers and traders associations (such as the Small Ruminants Traders Association of Ouagadougou), business groups (such as Chambers of Commerce and Lions Clubs), and socio-political and special interest groups (such as women's groups). The objective would be to identify structures through which technical assistance and credit might be delivered, and from which information about private sector needs and problems might be obtained. Working through groups such as these to achieve necessary improvements enables the government and AID to play an indirect role in assisting the private sector to achieve its own objectives. For example, there is a need to improve the railroad loading facilities for livestock; rather than construct these facilities, GOUV and AID might extend a loan to the Ruminants Association and other livestock groups to enable them to play a more independent role in the construction and management of these facilities according to their own specifications; and

c) in conjunction with MDR/DEP, an assessment of the participation of women in the agricultural sector and in both small and large scale agro-industries. Originally this task was included in the terms of reference for this study, but it was later eliminated, since the time allocated for the study would not have permitted the author to do a serious analysis of the subject. Presently, AID is planning to fund several studies which address the role of women in particular sub-sectors, such as grain marketing. However, no over-all, in-depth assessment of their activities in the entire agricultural/agribusiness system is envisioned. The objective of this study would be to assure that women's contribution to agricultural production, marketing and processing be facilitated and maximized, and certainly not constrained by unnecessary blockages. More specifically, the goal would be to assure that women receive equal access to extension assistance, credit, training and inputs in their agricultural production activities, as well

as equal access to credit, management assistance, and training in their agri-business enterprises.

9. It is recommended that AID finance the construction of a limited number of rural secondary roads in areas where inadequate roads constitute the primary constraint to the development of otherwise attractive economic activities in surrounding regions. Top priority would be the 100 km. stretch of road between Kantchari, on the Fada-Niamey route in Upper Volta's eastern region, to Kodjari, the location of the phosphate mines. While the IBRD is currently assessing the feasibility of a fertilizer granulating or blending operation using this phosphate, and Voltaphosphate has been exploiting this phosphate for years as the basis for a local fertilizer, no plans have been made to upgrade the quality of the road, which is impassable much of the year, and which requires vehicle speeds of about 20 km. per hour even when it is passable. Erhard Leuchtmann, the director of Project Phosphate, termed the road the "limiting factor to the development of the region, forgotten by the big donors."⁵⁴ Not only would the construction of this road significantly reduce the cost of phosphate exploitation and fertilizer production, but it would also stimulate economic activity in this isolated but major section of the eastern region, as well as facilitate expanded trade with Niger, Benin and Nigeria. The cost of this specific road was estimated, in three different feasibility studies which were recently done, to range between \$1.5-\$5 million, depending on the type of construction.

10. It is recommended that AID fund an assessment of the Voltaic extension system, in order to strengthen its capacity to support and develop the agricultural and agro-industrial sector. The appropriate role and objectives of the ORDs should be clarified and simplified, and the ability of the ORDs to achieve these objectives should be realistically evaluated. The problems and needs of the individual ORDs should be itemized and prioritized, with a view towards a possible future AID

project to strengthen the ORD system. Alternatively, such an assessment would be of great value in assisting other donors in determining where their contributions to the extension system might be most effectively invested. Currently there are several donors assisting specific ORDs in different ways. There is inadequate coordination and exchange of information about these efforts. Even the donor-funded ORDs exhibit notable problems which are not being adequately addressed by the donor's support. Other ORDs are receiving little, if any, external support, and thus have extremely limited means to execute their tasks. After the conclusion of an assessment of the appropriate objectives, the problems, and the needs of the extension system, it is recommended that AID consider funding a major project to improve the effectiveness of the system. This is an absolutely fundamental, primary step to facilitating the activities of private sector entrepreneurs in agricultural production, marketing and processing.

11. It is recommended that AID encourage the GOUV to make more feasible the importation and distribution of fertilizers, pesticides and herbicides by private traders. As in the present system, SOFITEX and various organizations and projects could continue importing for their own needs, and the MDR could import any products for which the need is not met by the private sector. The ORDs should also continue to serve as input suppliers, augmenting the private system where gaps exist, and setting up a competitive situation in which the public and private systems would be induced to perform with increased efficiency.

Not only should be GOUV liberalize the private trade of inputs, but it should facilitate this role. Lines of credit for the importation of goods may be necessary, as well as credit for the private construction of storage facilities, or alternatively, government construction of such facilities, which would then be rented out to private merchants. The Bureau des Intrants Agricole (BIA), whose role is presently being reformulated, could play a critical role in

maintaining an overview of input needs estimates, in determining the appropriate level of MDR imports, and in coordinating the supply stocks of the different ORDs. The BIA could also oversee the activities of the private merchants, perhaps by installing a licensing system which would assure that the merchants handling the various inputs be qualified to explain their usage accurately to customers.

12. It is recommended that AID encourage the formation and provide technical assistance funds for the support of a National Agricultural Research Commission, whose principal task would be to oversee and coordinate the multiplicity of agricultural research activities currently underway in Upper Volta, to provide a more effective means of information exchange between the numerous researchers, to define priorities for further research, and to seek and coordinate funding on areas of top priority. Perhaps this suggestion could be channeled through IVRAZ, an institution recently created for this purpose. Two topics for priority consideration by research coordinators are the following: (1) appropriate fertilizer requirements for different climatic regions of the country, and under varying cultural practices; particular attention should be given to the long-term soil acidification effects of the fertilizers currently in widespread use throughout the country; and (2) appropriate animal traction equipment design and utilization, also with a focus on different soil types in different regions of the country, and the soil degrading effects of the present equipment most widely used. In these two areas, as well as in other important areas of agriculture, there are numerous Voltaic and expatriate experts, project managers, researchers, consultants, and entrepreneurs with experience, data, and observations on particular issues. However, there is little exchange of information, and often little awareness of the existence of such information. The Commission could play a leading role in consolidating this information and using it to determine research priorities and to apply to policy decisions. Another useful task which the Commission

staff might undertake would be the investigation of the existence of a small-scale cotton harvester (possibly in France) or the development of one, with donor funding.

13. AID should provide additional funding to CNPAR and its regional branches, the training institutes for small scale village metal-workers who are trained to design, construct, and repair agricultural production and processing equipment, like plows and grain mills. Currently, students at the school can--with minimal, outmoded equipment and facilities--produce custom designed plows at half the price of similar equipment at ARCOMA, which does not even produce custom equipment. The schools and their graduates also produce various parts which are then purchased by APICOMA for assembly with parts which the latter produces. In addition to the need for funding for the CNPAR system, credit should be made available for the graduates, who often find it impossible to obtain funds to purchase tools and raw materials for the establishment of their shops in the villages. Any new credit funds earmarked for agro-industry should obviously be accessible to small-scale entrepreneurs like these.

14. Finally, AID should consider financing a major livestock development project. Voltaics show considerable skill and experience in handling livestock and there is an expanding, although as yet unmeasured, domestic market for livestock products. Furthermore, the markets for livestock and livestock products in neighboring countries are much larger and expanding even more rapidly. AID should first assist GOUV in conducting an assessment of the precise needs of the livestock sector. However, it seems likely that two fundamental components of such a project would include improvement of the veterinary support system, with increased focus on preventative veterinary medicine, and assistance in improving the extension systems ability to upgrade farmers' techniques in livestock production and range management.

FOOTNOTES

1. Editor's note: The World Bank has recently agreed to fund a \$30 million livestock project addressing animal health, animal production improvement and integration of livestock and agricultural activities.

2. Development Alternatives Inc. (DAI) Agricultural Sector Assistance Strategy for Upper Volta, Washington, DC: DAI, March 1982, p.11.

3. Banque Centrale des Etats de l'Afrique de l'Ouest (BCEAO), "Indicateurs Economiques," no. 314, March 1983, p.25.

4. IBRD, Upper Volta Agricultural Issues Study, Washington, DC: October 29, 1982 p.204.

5. See FAO, Production Yearbooks, 1976 and 1982 which show that aggregate caloric intake has averaged about 85% of minimum nutritional requirements over the past two decades.

6. USAID, "Agricultural Development Support Project Paper," Ouagadougou: June 25, 1983, Vol. II, Annex R, p.11.

7. BCEAO, "Indicateurs économiques," no. 314, March 1983, P. 25 and CENATRIN computer printouts of trade data.

8. See Table 1.

9. DAI, Agricultural Sector Assistance Strategy, p.11.

10. Mr. Coquil, SOFITEX Secretary-General, estimates that about half of the fertilizers imported by SOFITEX (the main fertilizer importer) are used on cereal. Interview on June 2, 1983.

11. Elliot Berg, Accelerated Development in Sub-Saharan Africa, Washington, DC: IBRD, p. 17; and DAI, Agricultural Sector Assistance Strategy, p.77.

12. Berg, Accelerated Development, p.177.

13. Regards, pp. 3-5, and April 15, 1983 Agricultural Policy Strategy Seminar, as explained by MDR officials.

14. Rochette, p.75.

15. For short term seasonal credits, the CNCA lends to the ORDs, which on-lend to farmers. CNCA apparently requires repayment after about three months, while the farmers are unable to repay the ORDs until after the growing season, nine months later. Thus the ORDs must have the liquidity to absorb this debt for the intervening period. Since those without donor funding are unable to do this, they simply cannot grant seasonal credit.

16. The major exception to this is the cotton produced in the women's fields, small plots cultivated exclusively by women. This cotton is generally retained by them for on-farm production of thread, which is later woven into fabric.

17. See Table 2.

18. Elliot Berg, Changing the Public Private Mix: A Survey of Some Recent Experiences in LDCs, February 7, 1982, p.120.

19. IBRD Agricultural Issues, p. 60.

20. IBRD, Agricultural Issues Study, p. 6. Similarly, SOFITEX Secretary General M. Coquil estimates that cotton farmers who already use some "modern" inputs distributed by SOFITEX could, through increased use of pesticides, increase national cotton production by up to 20 percent. (Interview on June 2, 1983).

21. DAI, Agricultural Sector Assistance Strategy, Appendix B.

22. ARCOMA data, quoted in Rochette, le développement des cultures pluviales, p.183.

23. Animal traction studies generally show farmers beginning to realize production and income increases in the third or fourth year after adoption; however, most credit schemes require loan repayments to commence in the second year. More serious is the question of whether the Voltaic animal traction equipment and the manner in which they are currently used is contributing to the degradation of Voltaic soils. None of the Voltaic agricultural implement manufacturers has conducted any serious design research to develop equipment appropriate for different soil conditions in the various regions of the country. USAID might play a useful role in organizing a technical advisory committee which should include the numerous researchers, (such as ICRISAT, the farming systems researchers in Upper Volta, IBRD and AID experts with experience in animal traction), equipment manufacturers (not only in Upper Volta, but perhaps in Togo, Mali and Senegal), and equipment users (farmers, extension agents, and Peace Corps Volunteers working on animal traction projects). This committee should assess research results to date and indications from field observations, and determine the actions which need to be taken in the area of equipment design development and use in Upper Volta.

24. One fairly detailed market study has been done on the market for mango concentrate in Europe: Ir. A. Van der Kruijs, "Le concentré de mangues, le marché de l'Ouest," University of Tilburg: IVO, Development Research Institute, July 1982. Some more general exploratory work has been done in the area of fruit, vegetable and fish processing, for example: Robert R. Nathan Associates, Regional Fruit and Vegetable Processing Industries in West Africa, Washington, DC: February 1983; Thong Van Lam, "Report and Recommendations on Industrial Food Processing in the Economic Community of West African States," Washington, DC: USAID, November 1980; and Michael P. Steiner, "Pre-Feasibility Study of Fish Processing in the Economic Community of West African States," Washington, DC: USAID, October 1982. But to clearly identify the scope for agro-processing activities in Upper Volta, this general work will require considerable elaboration.

25. From 1981 meat production estimates in DAI, Agricultural Sector Assistance Strategy, p.68.
26. From GOUV/MDR Proposal for a National Livestock Project.
27. DAI, Agricultural Sector Assistance Strategy, p.15.
28. Holtzman, "Small Ruminant and Poultry Marketing", p.21.
29. IBRD, Upper Volta Health and Nutrition Sector Review, November 12, 1982, p.7.
30. Although this large increase in cotton production was stimulated by extensive input subsidies, this has not resulted in a net subsidy to cotton producers; because producers are taxed, by receiving prices substantially below the world market price, and the overall effect is a substantial net tax on cotton growers. For documentation, see Haggblade, "An Overview of Food Security in Upper Volta," Ouagadougou: USAID, July 16, 1984, p.47.
31. Interview with SOFITEX Secretary General, Mr. Coquil, June 2, 1983.
32. Michel Coquil, Secretary-General of SOFITEX, spoke of the continuing phobia over cereals availability, which originated in the 1973 drought and which still inhibits farmers from planting cotton. From a discussion on May 31, 1983.
33. MDR, Bulletin de Statistiques Agricoles, 1978/79-81/82, p.113.
34. Interview with E. Leuchtmann, Project Phosphate (Voltaphosphate), June 14, 1983.
35. Interview with Elsie Garfield, IBRD, on June 29, 1983.
36. There is considerable uncertainty about the attractiveness of peanut production compared with other crops. Seemingly attractive financial returns do not square well with the recent decline in production, possibly due to the prevalence of disease or simply errors in calculating crop budgets. See IBRD, Agricultural Issues, Annex I, p.6 for details.
37. Industries Voltaiques, 1980.
38. Enterprises Industrielles, 1982.
39. See, for example, Larry Herman and Marty Makinen, "Livestock and Meat Production, Marketing, and Exports in Upper Volta," in Livestock and Meat Marketing in West Africa, Vol. I, Ann Arbor: Center for Research on Economic Development, 1980, p.92; and John Holtzman, "Small Ruminant and Poultry Marketing in the Mossi Plateau of Upper Volta," USAID, May 1983, p.11.
40. Most of these industries were enumerated in: Presumably the structure of activities would vary somewhat in other regions of the country. David Wilcock and Enyinna Chuta, "Employment in Rural Industries in Eastern Upper Volta," International Labour Review, vol.121, no.4 (July/August 1977), pp.455-4

41. According to Mr. Coquil, Secretary General of SOFITEX, data in R. Rochette, Table 24; Agricultural Sector Strategy, p.35. DAI's contention that most fertilizers are used on cotton. DAI, and "Journées de reflexion," p.2. These two sources, though, contradict...

42. IBRD, Agricultural Issues, p.61.

43. A concrete example of this was provided by a Ouagadougou SOFITEX official who related that recently two farmers came from Ouahigouya to Ouagadougou seeking NPK, which they intended to resell in Ouahigouya. To circumvent SOFITEX restrictions on sale lot sizes, they persuaded 20 friends to claim that they needed one ton each, so that they themselves could obtain 20 tons. Now, however, new rules have been implemented to prevent such "abuses"; apparently now SOFITEX/Ouagadougou can only sell to ORDs or to people with ORD verification of need. Thus, in the case of the two farmer-commerçants, government policy will effectively prevent adequate supplies of NPK from reaching Ouahigouya. Discussion at SOFITEX, Ouagadougou, on June 27, 1983.

44. Interview with F. Schwertfeger APICOMA advisor, June, 1983.

45. DAI, Agricultural Sector Assistance Strategy, Appendix B.

46. Conversations with ARCOMA and APICOMA expatriate advisors in June, 1983, and with Dr. John Lewis, USAID livestock sociologist, in Washington, D.C. January, 1983.

47. Interview with APICOMA expatriate advisor, June, 1983. Apparently some ORDs use farmer's credit repayments for animal traction equipment to cover other essential ORD expenses; thus, these ORDs are unable to reimburse the equipment manufacturers. (Credit for animal) traction equipment is lent by the CNCA to the ORDs for on-lending to farmers. Credit repayment is handled primarily by ORD personnel).

48. From the Upper Volta Fruit and Vegetable Marketing Study.

49. David Wilcock describes some of these problems in detail in his report on small-scale enterprises in the eastern region.

50. "Small Ruminant and Poultry Marketing," p.24.

51. Editor's note: The proposed African Development Fund line of credit to CNCA may address this recommendation.

52. The Bobo-Dioulasso veterinarian who wished to start a livestock feedlot paid \$1,200 to OPEV to have a 20-page proposal prepared, of which he himself wrote half. However, apparently OPEV backing is considered useful in obtaining loan approval, although in this case, the veterinarian not only never received a loan, but two years after the proposal's submission, he still had not received a reply from the bank.

53. A similar system is being developed at the Rockefeller Foundation, where agricultural policy materials are being synthesized and catalogued in New York

for ultimate dissemination, upon request, to host country and expatriate policy analysts in developing countries who have limited access to such materials in the LDCs.

54. Interview, Ouagadougou, June 1983.

ANNEX 1

REPORT ON TRIP TO BOBO-DIOULASSO

1. May 30:
- A. Meeting with Chamber of Commerce officials and rapid visit of industrial zone. Brief explanation concerning activities of and site location of the following industries: BRAVOLTA, SOFITEX, MAVOCI, CNIM, SOPIVOLTA, SOVIB, SOVOLCOM, CITEC, SAP, SAVANA, SOGEFIA, and IVOLCY.
 - B. Visit to SAVANA: Mr. Bere Joseph, Technical Director. Manufacturers of fruit juices, juice concentrates, jams, tomato paste, fruit concentrates for ice cream and sherbet. Visited factory operations, constructed with Dutch financial assistance and operated with Dutch technical aid. Operating with one team (eight hours/days); can do three teams. Major problems: (1) passivity in defining and developing markets. Await contacts, especially from abroad, rather than seeking them; (2) lack of information about contacts with foreign markets. Very curious about U.S. market (wanted contacts through us.); (3) lack of funds to buy machine (112 million CFA) to package jams for existing new market (airlines and hotels). Constrained by lack of credit.
 - C. Visit to URCABO: (Regional Member of UVOCAM, fruit and vegetable marketing organization). Mr. Traoré Ibrahim, Director. Visited cold storage and packing facilities. Union composed of 15 member coops, with over 1000 small farmer participants, (average farm size, less than 1 ha). Problems: (1) dependence on UVOCAM to dispatch trucks; delays and spoiled fruit. No control over transport, and marketing facilities; (2) no funds to acquire their own trucks, even though they absorb considerable expenditures each year to rent trucks from UVOCAM. Financially more rational to purchase trucks, but lack credit to do so.
 - D. Visit to Bobo-Dioulasso Market - To view agricultural products quality, prices, marketing techniques.
2. May 31:
- A. Meeting with Individual Entrepreneurs: Talked with numerous dynamic, capable, experienced, creative entrepreneurs with well-defined agricultural and agro-industrial projects and, in most cases, completed feasibility studies. All were constrained by lack of credit. Set up site visits to farms of several entrepreneurs. Talked with one who had initiative, good concept (ice cream production) but no notion of how to define a market and develop a feasibility study. Underscored need for short-term training for entrepreneurs. Referred him to Chamber of Commerce for assistance and training.

- B. Meeting with GIP. Group discussion, then short discussion with Director of CITEC. Main problem: underutilization of capacity due to shortage of raw materials (cotton seed). Buys all of SOFITEX's output. Also talked with Michel Coquil, Secretary General, SOFITEX. Main importer, supplier or inputs and pesticides; markets and gins cotton, exports raw cotton. Main theme: how to raise cotton production. Possibilities: (1) increase pesticide use, achieve 10-20 percent output increase; (2) improve extension; (3) develop harvester for medium sized farmers. (Cotton produced on small farms (less than five ha) in plots of 1/2-1 hectares. Labor not available/too expensive for larger farmers. Perhaps small harvester being developed by French, CCCE.
- C. Visit to SOGEFIA: Mr. Boos, Secretary General. Manufacturers of small agricultural plows and carts. Private (1/3 Voltaic, 2/3 French). Import most raw materials. Problem: (1) marketing of plows. No access to ORD market due to newness of product, or lack of "encouragement" to ORD officials. Good at producing but apparent passivity or lack of sophistication in marketing.
- D. Visit to CRPAR: Centre Regional de Perfectionnement des Artisans Ruraux). Mr. Sikou Amadou, Director. Training school for blacksmiths (agricultural equipment production and repair). Simple operation, excellent results. Produce a plow at 22,000 CFA, vs. 40,000 CFA ARCOMA price. Problem: lack equipment and supplies; (2) graduates have limited funds to set up repair shops, enterprises to produce plows adapted to local conditions. Should be funded.
- E. Discussion with Mme. Tassebedo, private farmer: Dynamic, French-trained woman. Owner of 40 hectares but due to lack of funds, cultivates three hectares, expanding to eight hectares this year. Now produces sheep, pork, and poultry. Needs access to tractor (unavailable for hire at ORD or anywhere else) and credit to develop irrigated banana and other fruit operations.
- F. Discussion with Mr. Amadu Traoré, private farmer: Livestock operation with 250 head of cattle and 10 hectares of land. Needs credit for a small tractor to initiate the cultivation of food and forage crops.

3. June 1:

Banfora

- A. Visit to SOSUHV: group discussions. Major problem with price controls on finished product; artificially low, yielding deficits (though sale price 20 percent lower than in surrounding countries). Later discussions with agronomist. Sales price

of 320 CFA/kg. would cover costs; actual prices recently raised from 250 CFA/kg. to 290-300. Discussed sugar cultivation and processing viewed packaging and cubing/boxing operations.

- B. Visit to GMV: Group visit Mr. Francisco, Director. Excellent operations. Plant operating three shifts per day, 60-70 percent of full (24 hours per day) capacity. Cover about 80 percent of Voltaic market in wheat flour. PL-480 imports of flour (instead of wheat) reduce plant operations and displace workers. Wheat imports are preferred, as they help keep plant operating at fuller capacity. Management plans to expand animal feed production.
4. June 2: A. Visit to ORD, Haut Bassins: Mr. Nebie Ibrahim, Director. Major issues: (1) lack of credit. (2) late deliveries by ARCOMA. Viewed ORD operations and contiguous ARCOMA plant. Talked with extension agent.
- B. Visit to CITEC: Mr. Bama Badouama, Chemical Engineer. Visited factory operations. Major problems: lack of cotton supply, which results in underutilization of plant.
- C. Visit to BRAVOLTA: Discussions with Technical Director. Visited bottling operations. Problem of removal of infant industry protection, whereas SOVOBRA's continues, giving competitive advantages to SOVOBRA. Possibility of developing barley-based malt industry in Upper Volta; malts currently imported.
- D. Visit to SOVICA: Mr. Dayemba, Director. Producer of agricultural carts. Problems: (1) ineffective capacity planning and ordering procedure (production halted due to lack of imported axles); (2) debt ceiling imposed by banks prevents them from producing their own axles, thereby reducing importation of components and achieving greater control over their operations.
- E. Visit to SOFITEX: Headquarters visit. Continued discussions on operations, delivery of inputs, and pricing policies.
5. June 3: ORODARA
Group discussions with merchants and political officials. Visit to farm: mangoes and fruits rotting. No marketing capacity, due mainly to lack of dependable transport and lack of credit for the acquisition of their own trucks. Discussions with farmers. Unable to obtain fertilizers (urea) or pesticides; not available in ORD. Also need and are unable to obtain tractor services.

6. June 4:

Farm Visits

- A. Marc Medah: 200 hectares of cleared land, only 40 cultivated. Educated agricultural engineer, technically highly competent. Problem: lack of credit to purchase pump to produce 160 hectares of early corn. Sophisticated, diversified operation: bananas, mangoes, cereal, pork, rabbits, cattle, sheep, vegetables. Farm on banks of Volta Noire River; adequate water facilities available.
- B. Quattara Seydou
40 ha.; lack of credit pump to produce irrigated fruits and vegetables. Farm on banks of Volta Noire River.
- C. Mr. Some Jacques
Sophisticated farmer with 112 hectares (only five hectares cultivated), small tractor and a seeder. Needs credit to clear land and to cultivate.
- D. Mr. Traore Seydou
Veterinarian who wants to raise livestock. Paid \$1,200 to OPEV to develop feasibility study. Submitted two years ago to BND. No reply. No credit. No agro-industrial development.