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# MAIZE VALUE CHAIN ASSESSMENT ATP DRAFT TECHNICAL REPORT NO. I



September 2008

This publication was produced for review by the United States Agency for International Development. It was prepared by Peter Boone, Charles J.D. Stathacos, Rose Lum Wanzie, for ATP project.



**Recommended Citation:** Boone, Peter; Charles J.D. Stathacos, Rose Lum Wanzie, September 2008. *Maize Value Chain Assessment: ATP Draft Technical Report No. 1*. Bethesda, MD: ATP project, Abt Associates Inc.

**Contract/Project No.:** EDH-I-00-05-00005-00, Task Order No. 8

**Submitted to:** Michael Wyzan, Ph.D  
Acting CTO  
Agribusiness and Trade Promotion Project  
USAID/WA/ANRO  
Accra, Ghana



Abt Associates Inc. ■ 4550 Montgomery Lane, Suite 800 North ■  
Bethesda, Maryland 20814 ■ Tel: 301.347.5000. ■ Fax: 301.913.652.9061  
■ [www.abtassociates.com](http://www.abtassociates.com)

*In collaboration with:*  
ACDI/VOCA  
CARANA Corporation

# **MAIZE VALUE CHAIN ASSESSMENT ATP DRAFT TECHNICAL REPORT NO. I**

## **DISCLAIMER**

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development (USAID) or the United States Government



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# ACRONYMS

<b>AFVBF</b>	Afrique Verte, Burkina Faso
<b>APLS</b>	Association des Vendeurs Des Produits Locaux de Sikasso, Mali
<b>ATP</b>	Agribusiness and Trade Promotion Project
<b>BACB</b>	Banque Agricole et Commerciale du Burkina
<b>BDS</b>	Business Development Services
<b>CFAF</b>	Common currency of Communauté Financière de l'Afrique
<b>CICB</b>	Comité Interprofessionnel des Céréales du Burkina Faso
<b>CILSS</b>	La Comité Permanent Inter-états de Lutte contre La Sécheresse dans le Sahel
<b>CIMMYT</b>	International Maize and Wheat Centre
<b>CMDT</b>	Companie Malienne de Developpement et de Textiles
<b>DCA</b>	Development Credit Authority
<b>DGPSA</b>	Direction des Statistiques Agricoles, Burkina Faso
<b>ECOWAS</b>	Economic Community of West African States
<b>FACI</b>	Société de Fabrication d'Aliments Composés Ivoiriens
<b>FAO</b>	Food and Agriculture Organization
<b>FAOSTAT</b>	The statistical database of the United Nations Food and Agriculture Organization
<b>FEWS NET</b>	Famine Early Warning Systems Network
<b>FEPPASI</b>	Fédération Provinciale des Professionnels Agricoles de la Sissili, Burkina Faso
<b>GDA</b>	Global Development Alliance
<b>GREFA</b>	Groupe de Recherche et de Formation en Agriculture et Arboriculture
<b>IER</b>	Institut D'Economie Rurale, Mali
<b>IFDC</b>	an International Center for Soil Fertility and Agricultural Development
<b>IFPRI</b>	International Food Policy Research Institute
<b>IITA</b>	International Institute of Tropical Agriculture
<b>INERA</b>	Institute de L'Environnement et Recherche Agricole, Burkina Faso
<b>LARES</b>	Laboratoire d'Analyse Régionale et d'Expertise Sociale
<b>MT</b>	Metric Ton
<b>MISTOWA</b>	Système d'Information de Marché et des Organisations de Commerçants
<b>NGO</b>	Non-governmental Organisation
<b>NIB</b>	
<b>OPAN</b>	Office des Produit Agricole au Niger.
<b>PO</b>	Producer Organisation

<b>PRODEPAM</b>	Programme de Developpement de la Production Agricole au Mali (USAID-GRN) /Agricultural Production Program in Mali
<b>PPP</b>	Public Private Partnership
<b>QPM</b>	Quality Protein Maize
<b>RESIMAO</b>	Réseau des Systèmes d'Information de Marche de l'Afrique de l'Ouest
<b>ROESAO</b>	Réseau des Operateurs Économiques du Secteur de l'Agroalimentaire de l'Afrique de l'Ouest
<b>ROPFA</b>	Réseau des Organisations Paysannes des Producteurs Agricoles de l'Afrique de l'Ouest
<b>SITRAC</b>	Société Industrielle Pour la Transformation Et la Commercialisation des Céréales, Burkina Faso
<b>SODEPAL</b>	Société D'Exploitation des Produits Alimentaires
<b>SONAGESS</b>	Société Nationale de Gestion du Stock de Sécurité Alimentaire
<b>SOW</b>	Scope of Work
<b>STTA</b>	Short Term Technical Assistance
<b>UEMOA</b>	Union Économique et Monétaire Ouest Africaine also known under its acronym in English acronym WAEMU, for West African Economic and Monetary Union
<b>URCP</b>	Union Régional des Caisses Populaires, Burkina Faso
<b>UPPAH</b>	Union Provinciale Des Professionnels Agricoles Du Houet, Burkina Faso
<b>USAID</b>	United States Agency for International Development
<b>USDA</b>	United States Department of Agriculture
<b>VC</b>	Value Chain
<b>WATH</b>	West Africa Trade Hub
<b>WECAMAN</b>	West and Central Africa Collaborative Maize Research Network
<b>WFP /PAM</b>	World Food Program known by its French acronym, PAM, for Programme Alimentaires Mondale

# ACKNOWLEDGMENTS

The maize value chain study was carried out by Peter Boone of the CARANA Corporation, Charles J.D. Stathacos, consultant to ACDI-VOCA, and Rose Lum Wanzie, the ATP Value Chain Leader and an ACDI-VOCA hire based in Ouagadougou, Burkina Faso.

Peter Boone and Rose Lum Wanzie focused on maize production zones in Burkina Faso and Mali, as well as covering selected urban and assembly markets, processing, and consumption patterns in those two countries. They were assisted in Burkina Faso by independent local consultant Sami Traoré. Charles J.D. Stathacos carried out market research in Cotonou, Abidjan and Accra, focusing on sources of supply, maize end uses, market channels and infrastructure, and prices. The authors also acknowledge the excellent research assistance of Ometere Omoluabi of CARANA Corporation.

The authors acknowledge detailed and constructive reviews of earlier drafts of this report by Raphael Vogelsperger, ATP Value Chain Coordinator, John S. Holtzman, Abt Associates' home office Project Director, and Paul Guenette, ACDI-VOCA's home office manager and technical director.

The authors wish to thank all the maize value chain stakeholders and participants whom we interviewed. We take responsibility for any errors or omissions in the report. The usual disclaimer applies to USAID/WA and the firms and NGO of the Abt Associates' led RAISE PLUS consortium that is implementing ATP.



# EXECUTIVE SUMMARY

## STUDY APPROACH AND METHODOLOGY

The ATP Value Chain team utilized a holistic approach to value chain development. The assessment examined the active alliances with buyers, investors and market intermediaries (transport and logistics, certification agencies, sources of finance, buyers and market associations, etc.) throughout the value chain network. The underlying framework is that these alliances facilitate buyer-seller linkages, encourage greater efficiencies, and ensure that project beneficiaries not only make commercial transactions, but also develop sustainable, close-knit relationships with buyers and market organizations to position the production of, and trade in maize and maize products within the region, for long-term success.

The purpose of the maize value chain assessment is to help frame the implementation of much of the ATP maize value chain development plan over the next four years. This assessment analyzed the basic functioning of the maize value chain with respect to cross-border trade. By interviewing traders, farmers, processors (both small and large scale) and agricultural experts, the maize field team gathered information on market flows and identified key constraints and opportunities along the value chain.

The goals of the assessment were to provide an up-to-date picture of the structure, operation, and performance of the selected value chains; quantify trade flows; and propose areas for concrete, manageable interventions within the scope of ATP that can generate catalytic change.

## STUDY FINDINGS

Maize is one of the key staple food crops in the West Africa region. Maize production has been increasing steadily over the past 25 years and its importance the West African diet is rising. Maize production has risen significantly in the past 20 years in the Bobo-Dioulasso production zone of Burkina Faso and the Sikasso region of Mali.

Maize is now serving as a dual crop in maize growing regions both as a subsistence food and as a cash crop to meet the growing demand for maize flour from urban consumers and from food processing, beer brewing and animal feed companies.

The main maize producing and consuming countries in the region are Nigeria, Cote d'Ivoire, Benin, Ghana, Burkina Faso, Mali, and Togo. The region's maize demand and supply is characterized by deficits and surpluses, driven by varying year to year rainfall patterns in the semi-arid savannah zone of West Africa. Maize deficits are largely met through extra regional imports (commercial imports and food aid shipments) and intra-regional exports which are estimated to be about 15 percent of local regional production.

## CONCLUSIONS AND RECOMMENDATIONS

There are substantial opportunities for expanding intra-regional maize trade. A “cereals without borders concept” will be key element of expanding regional trade of maize and other cereals. Intra-regional maize trade presents a good example of the challenges facing regional trade within ECOWAS and UEMOA.

While maize attracts low or zero tariffs in the West Africa region countries, its trade is impeded by Non-Tariff-Barriers such as those outlined in this report. Thus, for the “maize without borders” strategy to work effectively, it is a necessary but not sufficient condition that tariffs and other borders are removed. This must be accompanied by a harmonized policy and regulatory framework, harmonized standards and other measures as well as a commitment to the eventual elimination of all non-tariff barriers to regional trade.

The next steps for ATP are to:

- Organize in-country stakeholder workshops that bring together the main participants in the value chain – producers, traders, processors, and researchers – to discuss constraints and formulate solutions to upgrading the value chain and expanding cross-border trade.
- Given the widespread problem of low yields and poor storage, identify progressive producers who can take advantage of high yielding seeds and fertilizer packages and make them the models to be replicated.
- Assist in the application of improved storage techniques that have been developed by research stations such as IITA and support pilot projects where conditions are optimal for implementation.
- Devise strategies for getting the private sector to expand use of maize for value-added agro-processing (food products, beverages, poultry feed, etc)
- Organize a meeting of key policymakers and government officials to discuss the problem of trade across borders and what can be done to promote the free movement of maize.
- Survey selected points on borders between the central corridor countries to monitor trade flows of maize, paying particular attention to seasonal changes in the direction of maize movement.

# I. INTRODUCTION I

## I.1 METHODOLOGY

The value chain assessments selectively cover countries in the central corridor of West Africa, including Burkina Faso, Mali, Ghana, Cote d'Ivoire, Benin, with Burkina Faso and Mali representing main production zones and the coastal countries' demand poles. The main surplus producing regions visited in Burkina Faso were in the Southern and Southwestern areas of Sissili, Bobo-Dioulasso and Banfora. In Mali, the assessment was carried out mainly in the Southern Region of Sikasso. The ATP interviewed producers, producer organizations, processors and traders in Benin, Cote d'Ivoire, and Ghana.

**FIGURE I: REGION OF ATP MAIZE VALUE CHAIN ASSESSMENT**



Source: USAID

The Maize VC team conducted structured, informal interviews at all levels of the value chain, and conducted selective site visits and made direct observations of marketing infrastructure and activities, movement of goods along key transport corridors, processing firms, and sales outlets.

The methodological basis for this assessment is **The Value Chain Assessment Process**<sup>1</sup> and this 1st round of fieldwork is the first step in an overall process to establish value chain baseline information. The ATP Value Chain Team approach to value chain development is based on an assessment of the active alliances with buyers, investors and market intermediaries (transport and logistics, certification agencies, sources of finance, buyers and market associations, etc.) throughout the value chain network. These alliances leverage extensive networks, facilitate buyer-seller linkages, and ensure that project beneficiaries not only make commercial transactions, but also develop

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<sup>1</sup> See <http://www.microlinks.org> for the USAID technical framework for value chain development

sustainable, close-knit relationships with buyers and market organizations to position the production of, and trade in maize and maize products within the region for long-term success.

## **I.2 PURPOSE OF THE STUDY**

The purpose of the maize value chain assessment is to help frame the implementation of much of the ATP maize value chain development plan over the next four years. ATP staff and maize VC assessment consultants will, with stakeholder input, develop action plans that serve as rolling design documents, which get reviewed and updated annually.

This first maize assessment analyzes the basic functioning of the value chain with respect to cross border trade. By interviewing traders, farmers, processors (both small and large scale) and agricultural experts, the maize field team gathered information on market flows and identified key constraints and opportunities along the value chain. The team also conducted interviews with representatives of producer organizations and trade associations whose members are involved in maize production and trading.

The principal goals of the assessment were to prioritize the key constraints; provide an up-to-date picture of the organization, operation and performance of the selected value chains; quantify trade flows; and propose areas for concrete, manageable interventions within the scope of ATP that can generate catalytic change.

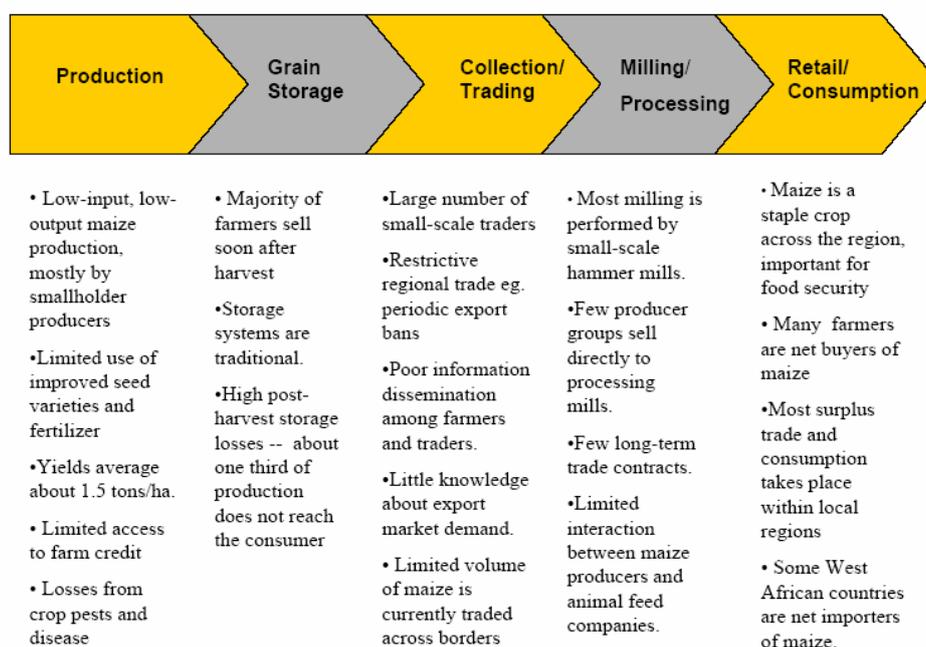
Following this report, the maize VC assessment team will present the findings of this value chain assessment in a regional workshop, and have them validated by regional stakeholders such as ECOWAS, UEMOA, CILSS, together with regional production, trade, and commodity organizations. Input from these regional maize value chain stakeholders and organizations will enable ATP to formulate specific action plans that will support implementation of policy priorities, and policy harmonization efforts already underway. The ATP maize value chain team will also identify critical policy leverage and identify priority ATP catalytic intervention points, where modest resources are likely to have a significant impact on policy formulation and implementation. The VC assessment also suggests specific grant-worthy organizations and possible Public-Private Partnerships / Global Development Alliances (PPPs/GDAs) to pursue.

## 2. VALUE CHAIN ANALYSIS

### 2.1 CURRENT MAIZE VALUE CHAIN SITUATION IN WEST AFRICA.

The analysis of the maize value chain's participants identified opportunities for upgrading the maize marketing system and documented the constraints that stand in the way of producers and firms from making improvements. The analysis included interviews with stakeholders who will benefit from investments in upgrading and have the incentives, technical, infrastructure/ organizational and /or financial skills and resources to help drive/make these investments. The analysis also investigated the different activities and actions required to make improvements throughout the value chain from improved seeds to producers, better storage techniques both on and off the farm, more value-added processing, and added efficiencies on the wholesale-retail level all the way to the consumer. The "current situation" for the key steps of the maize value chain in West Africa is summarized below in Figure 2

**FIGURE 2: CURRENT SITUATION OF MAIZE VALUE CHAIN IN WA BASED ON ATP FIELD ASSESSMENT:**



On the production side, maize farmers in West Africa typically follow low-input, low-output maize production systems, characterized by limited access to agricultural credit; limited and / or inefficient use of fertilizers, high-yielding maize varieties and improved seed, and sub-optimal pest and disease control measures. The limited and / or inefficient use of fertilizers is often linked to 1) applications below recommended rates, 2) inappropriate timing of application, 3) use of formulations not appropriate nor recommended for maize (fertilizers used are those often intended for cotton, and 4) high farm-gate price. Farm yields are typically in the range of 1 to 2 MT per hectare. Most farmers plant maize as part of a mixed farming system, intercropping and rotating maize with other crops such as cotton.

The majority of farmers sell soon after the harvest, when maize prices are lowest. Maize storage systems are often traditional, with limited aeration and often not following technical recommendations for fumigation. In terms of marketable produce, about a third of all maize production is lost after the harvest, the bulk of it at farmer – individual and village/organization level. Losses are due mainly to weevils.

Collection and trading is characterized by a large number of small-scale traders. Little is known about export market conditions in the region, and only a relatively small percentage (about 15%) is trade across borders. In the market, traders now own and use mobile phones as a major source of information in their business but market infrastructure and access to market information needs to be improved. There are very few written contracts for maize sale in the region.

Added value industries such as beer, pasta, couscous, and poultry production are expanding, but investment and loans are hard to come by. Finally, maize consumption is increasing on the household level but is sold in markets that are dilapidated and need improvement to meet good health standards and minimize losses.

While each of the corridor countries have specific opportunities and constraints there are many similarities along the value chain. The analysis that follows will discuss these in detail.

## **2.2 KEY PARTICIPANTS IN THE REGIONAL MAIZE VALUE CHAIN**

The maize marketing channel is characterized by farmers who cultivate on their own or work through producers' organizations. Further up the value chain, there are rural assemblers, retailers/small-scale traders, wholesalers/semi-wholesalers, large-scale traders, millers, feed manufacturers, breweries and food processors. Their activities within the chain are described below.

### **2.2.1 FARM-LEVEL MAIZE PRODUCERS (FARMERS) /PRODUCER ORGANIZATIONS**

The majority of the maize production in the central corridor of West Africa is by smallholders, most of who produce 1 to 2MT of maize per cropping season, and sell their maize at harvest to local traders. In countries such as Benin where per capita maize consumption is high, farmers keep much of their maize for household consumption, storing in their houses or in traditional granaries, but depending on the size of the harvest sell some maize to local traders to get cash. <sup>2</sup> In the cotton growing areas of Benin, which are located in the northern half of the country, farmers have shifted from sorghum to maize to take advantage of the positive response of maize to cotton fertilizers they already use. They are also eating more maize instead of sorghum, which had been the traditional preferred staple in the past. As in Mali and Burkina Faso, the trend of turning to maize because of its better marketability is also evident among cotton producers in Ivory Coast who are shifting to maize given low cotton prices and the demand for maize by poultry producers in Abidjan. There is variation in the way farmers use and sell maize among the maize producing countries covered by this assessment.

For Burkina Faso and Mali farmers, maize is more of a cash crop than in the coastal region from Togo to Nigeria where maize is the dominant food crop. In Burkina Faso about 75 percent of maize produced finds its way into the market, equivalent to 659,300MT for the 2007/2008 crop, and 650,000MT for the 2006/2007 crop. In Mali it is reported that about 80 to 90% of the maize is

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<sup>2</sup> The IFPRI-LARES (Laboratoire d'Analyse Régionale et d'Expertise Sociale) Small Farmer Survey shows that maize is cultivated by 89 percent of the farm households in Benin who sell 46% of their crop as a marketable surplus.

marketed, an estimated volume of 480,000 to 540,000MT. The exact volumes marketed are not known nor transactions registered.

In Ghana and Ivory Coast, maize is an important food crop but the diet is more mixed as yams, cassava, plantains and rice are also important staples in the diet. In Benin, maize is the main staple, with production for the country estimated at over 1 million MT, making it the highest per capita producer of maize. Farmers in Benin who are near the border with Nigeria produce maize as a cash crop for that huge market, with Nigerian traders coming to Benin to buy maize for both human consumption and for use in feed.

In all central corridor countries, farmers generally sell to rural assemblers who come to the villages and then sell to larger traders in major and/or secondary markets. Some farmers sell through their producer associations whereby they pay for fertilizer on credit received through contracts entered into with large wholesalers and processors. Some farmers put maize in storage for the buyer who makes regular purchases at the current market price plus a 10% premium.

One of the major problems for producers is on-farm maize storage. Storage techniques are rudimentary with farmers either using traditional granaries or storing in their homes, where losses due to the combined effects of insects and fungi and can range from 20-50%, depending on the region and the level of ambient temperature and humidity.<sup>3</sup>

One of the most important opportunities throughout the region is for farmers to increase their yields by planting higher yielding varieties. With yields of local varieties at only 1-2MT per hectare and improved varieties showing yields of up to 5MT per hectare in on-farm trials, there is great upside potential. Scientists in Ghana, at IITA in Nigeria, working in cooperation with CIMMYT and through the West and Central Africa Collaborative Maize Research Network (WECAMAN), are developing high yielding varieties that are now becoming available to farmers. But there are constraints. First, improved seed is costly.<sup>4</sup> Secondly, new varieties often require fertilizer, which is also costly<sup>5</sup> but provide higher net returns. Thirdly, there may be different harvest times for different varieties and the new variety must be adaptable to the seasonality of rains and dry periods of different production zones.

One important element in improving the value maize chain for producers is to help them create forward linkages with agricultural processors, who need regular supplies and rely more and more on vertical integration of their supply chains. Processors can enter into contracts with individual farmers or producer associations to get pre-determined quantities of maize at guaranteed prices, and in return provide farmers with inputs (e.g., seed and fertilizer) and credit. Even small and medium-scale processors can expand their relationships with producers in order to develop a more efficient value chain by entering into contracts and providing credit. Since farmers are not able to produce collateral they have little access to formal credit from financial institutions that could otherwise help to finance their maize production and post-harvest storage.

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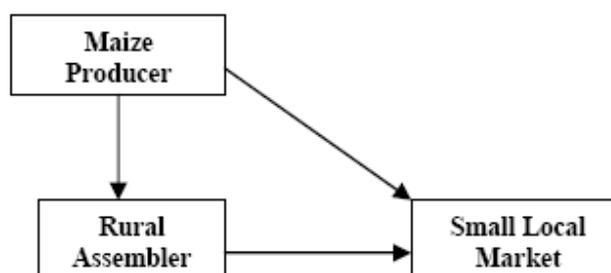
<sup>3</sup> According to the FAO report [African Experience in the Improvement of Post-harvest Techniques](#), in the case of Benin. Losses rate reached 15% to 30% at farm level, resulting in programs to make improvement to traditional granaries.

<sup>4</sup> 500CFAF/kg for composites, 1000 to 1500CFAF/kg for hybrids produced locally, and 3750CFAF/kg for imported hybrid varieties.

<sup>5</sup> With recommended fertilizer application of 200kg NPK (14-23-14) + 150kg Urea (46-0-0) + 50kg KCl or K<sub>2</sub>S<sub>04</sub> (0-0-60) per hectare, on-station yields range from 4 to 7MT/ha for open-pollinated/composite varieties, and between 7 – 8MT/ha for hybrids. Depending on the location, the cost of a 50kg bag of fertilizer ranges from 16,000 to 20,000CFAF.

## 2.2.2 RURAL ASSEMBLERS

Rural assemblers sometimes referred to as collectors, play an important role in collecting maize surpluses from smallholder producers for resale to a wholesaler. In Benin the rural assemblers are local traders who know the local producers. They typically go to villages with hired pickup trucks and buy surpluses from farmers, which could be several sacks or even up to 1MT. In Burkina and Mali, these assemblers are mostly independent operators at primary markets who assemble and transport maize for sale in the secondary or urban markets, or are commissioned to purchase maize for one or more wholesalers or brokers. They are usually provided with money and bags as well as with instructions concerning prices, quantities, quality, timing and trucking.



Some maize farmers who have the means will work around the assembler and take their surpluses directly to the market by renting a vehicle or even sharing a taxi to sell even a few sacks directly.

## 2.2.3 WHOLESALERS/SEMI-WHOLESALERS

While rural assemblers are important intermediaries in the maize trade, there are significant alternative trade activities with farmers sometimes selling directly to semi-wholesalers<sup>6</sup>. The diagram below -- which is specific to Burkina -- shows how wholesalers operate in different marketing channels, local, regional and long-distance. The ATP found that traders, producers, processors and transporters have joined forces to achieve greater economies of scale and streamline their operations in order to more effectively serve their clients, and are currently looking into expanding their operations into warehouse storage and processing activities. Individuals purchase between 60 and 600MT of maize, which they store temporarily in rented or makeshift stores on office verandas. The maize is then resold locally to a wholesale distributor/trader. Gross profit margins of 10 to 15CFAF/kg of maize are often achieved. Some members own 40 and 70-ton trucks for maize movements, and transportation is equally organized for hire if required. Depending on the season, gross profits of 150,000 to 250,000CFAF were estimated for a 40ton truck hire from Bobo-Dioulasso-Burkina Faso to Tamale in Ghana.

Wholesale traders store maize for 5 to 6 months, and then sell at higher prices to retailers, processors or exporters.

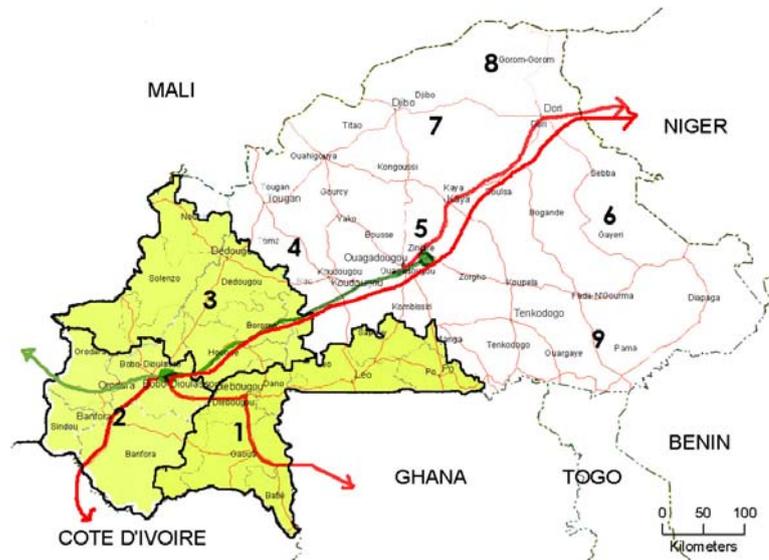
Information on prices, demand and supply from other markets as well as other information relevant to their businesses are obtained through personal networks. The wholesalers who own computers could be accessing market information through the Tradenet.biz platform, but do not regularly use them due to poor Internet services. Most farmers are fairly informed about the market, and prices were observed to be discreetly determined by the semi- / wholesalers.

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<sup>6</sup> a semi-wholesaler is both a small-scale wholesaler and retailer

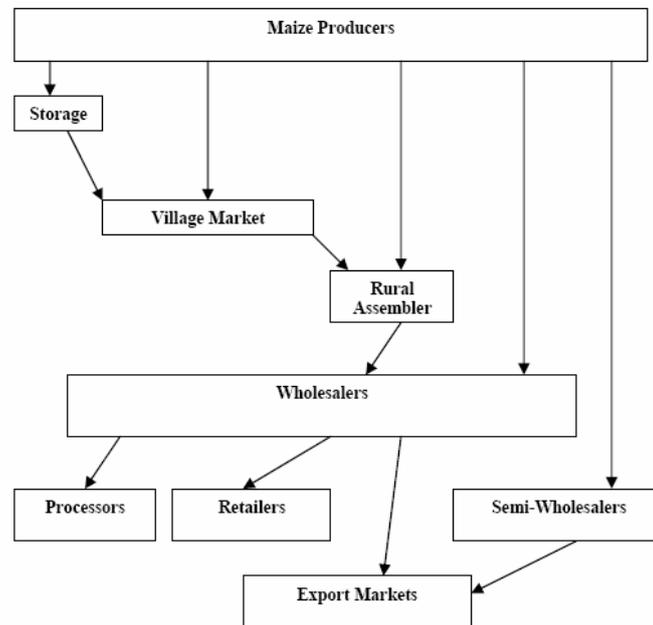
The principal regional maize trade corridors in Burkina are shown on the map below, with the red lines indicating export from major production zones to demand poles and the green lines indicating trade between major markets. The major production zones for maize in Burkina are zones 1, 2, and 3 as shown on the map.

**FIGURE 3: BURKINA FASO TRADING ZONES AND EXPORT AREAS**



Source: FEWSNET

As shown below, the marketing channels <sup>7</sup> in Burkina Faso vary depending on the market end point, with commercial relationships becoming more complex as maize is sold outside of the producing villages.



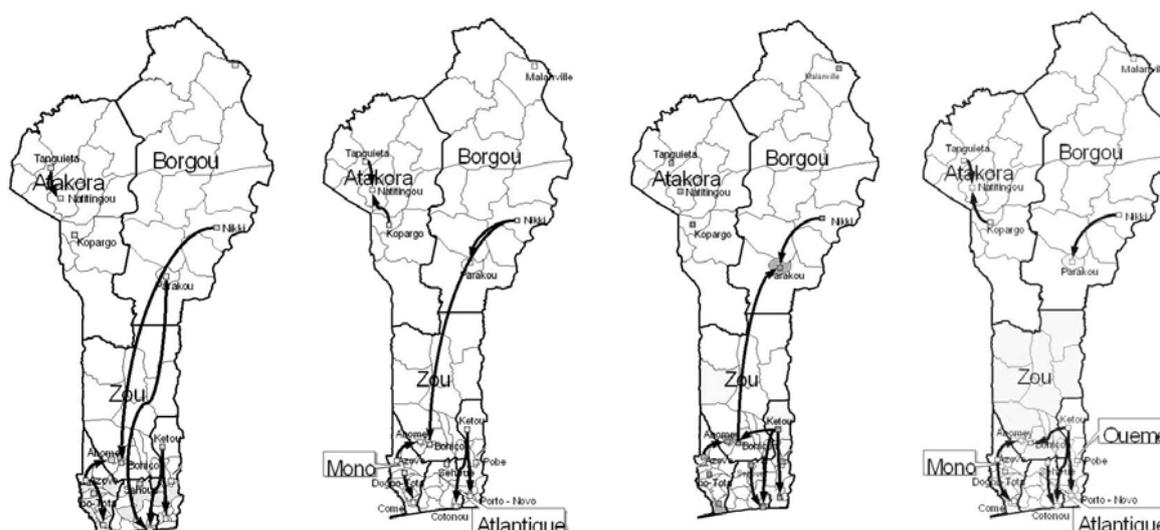
## 2.2.4 LARGE-SCALE MAIZE TRADERS

The large-scale traders who either own trucks or hire trucks do the bulk of long-distance trade in maize. For Benin, as indicated on the map below, which shows maize movement in the 1st quarter of the calendar year, maize goes from production/surplus zones to the demand/consumption markets. One wholesale trader interviewed in the major urban market of Porto Novo in Benin purchases maize from Ketou and transports it to Porto Novo in 20-30 ton truckloads of 120-125 kg sacks to sell to retailers by the sack. The maps indicate that Ketou supplies the south throughout the year and would therefore be a year-round surplus production zone. The trader interviewed said that cross-border trade from the Oueme to Nigeria was year-round and that he would sell to Nigerian traders who came to Porto Novo on market days.

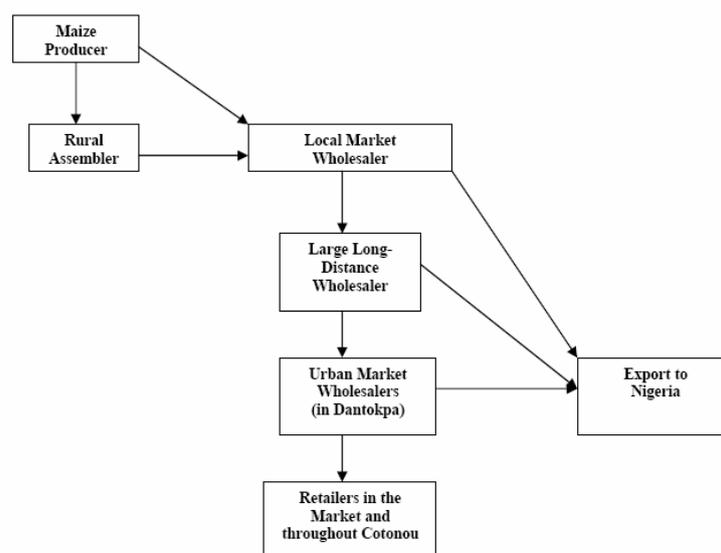
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<sup>7</sup> Based on ATP fieldwork and *Cereal trade in developing countries : a stochastic equilibrium analysis of market liberalization and institutional changes in Burkina Faso*, by Adrianus Johannes Wilhelmus Ruijs (2002)

**FIGURE 4: BENIN MAIZE TRADING ZONES**



Source: Adapted from Maize in Benin: Production, Markets and Transport, by E. van den Akker



Source: ATP team

The long-distance traders have enough cash flow to finance trade within countries and across borders and are the linchpin in any strategy to encourage regional trade. They operate nationwide having storehouses in key terminal and distribution markets. They also store a part of their stock at farmer /producer organization level or rent storage facilities in major producing areas. These traders own trucks or have the capability to hire. Those having trucks can transport the maize they buy and make money on backhaul. In Benin, it is the Nigerian traders who dominate the cross-border trade, coming into the major markets on market days, paying cash for truckloads, and returning to Nigeria the same day to offload and transfer for distribution throughout the country. As such, strong demand in Nigeria tends to push maize prices in Benin well above levels in more distant production zones (in Mali, Burkina Faso, and Ghana).

In Burkina Faso and Mali, long-distance traders have built up storage capacities from 500 to 25,000MT, they are in a position to speculate, and enter into supply contracts with millers and other institutions such as the military, schools, the World Food Program, Emergency Food Security Services etc. They equally sell in bulk to semi-wholesalers or small traders. They procure maize from producer organizations via contract farming for input financing, as well as from large and medium scale farmers, assemblers and semi-wholesalers. These large wholesalers handle between 5,000 to 10,000MT of maize each year, and are ready to take out bank loans of 50 to 100 million CFAF for investments in maize trade per cropping season, though at suggested interest rates of 5% as opposed to the going bank rate of 18%.

### **2.2.5 RETAILERS/ SMALL-SCALE MAIZE TRADERS**

In Burkina and Mali, the team found that retailers sell only a few tons of cereals per month, having a small working capital to purchase maize. Their market outlet is mainly consumers and they often supplement their retail maize sales with buy retailing of more than one grain or agricultural product, notably rice, millet, sorghum, sesame etc. Retailers most often purchase from local wholesalers or brokers, although they may also purchase directly from local producers, and producers themselves may work occasionally as retailer by having a family member sell alongside the road. Some retailers are also rural assemblers, making trips to production zones to buy a few sacks for their store or roadside stand.

In Benin the division between retailers and small wholesalers is clear. The market wholesalers never leave the market. That is, they receive truckloads or even partial truckload shipments of maize and store them in the market under tarps (warehouse space is too expensive given their margins). They sell in quantities ranging from 1 sack to a truckload to hundreds of small volume retailers (mostly women), some of whom are located in the market while others dispersed throughout the city on street corners and the like. Wholesalers also sell to small retail grocery stores which are also numerous and dispersed throughout the city.

While these market wholesalers rely on retailers for the business they also make larger sales periodically. For example a Nigerian importer comes to buy a full 40-ton truckload in which case several wholesalers may need to come together to group their lots to supply the buyer. The wholesalers in Benin confirmed that they sell to Nigeria but do not physically transport maize but rather rely on Nigerian traders to come to the market on market days.

### **2.2.6 MAIZE MILLERS AND AGRO-PROCESSORS**

The most common maize millers are hammer millers. They operate throughout West Africa in villages, towns, neighborhoods and markets, and mill maize into flour for household consumption. Within the region maize agro-processors range from artisanal through semi-industrial to modern industrial scale mills for maize-based food products, poultry feed and industrial beer making. In almost anywhere in West Africa a typical daily task is to buy maize for the evening meal from a retailer in the market, which is then taken to the hammer mill operator who grinds it into flour (see photos in Annex). The widespread reliance on the hammer mill over the last 50 years is one of the most significant labor saving trends. And while yams for fufu (and foutou) are still pounded, the use of maize flour as a primary starchy staple saves women time and energy.

One of the major demand drivers for maize is agro-industry. The poultry feed industry in Côte d'Ivoire is a major buyer of maize which is the main ingredient of the feed produced by Ivograin and FACI, the two major feed manufacturers in the country. The amount of feed produced annually varies between 75,000 and 100,000MT, and maize makes up about 2/3 of the poultry feed. Since Côte d'Ivoire produces between 600,000 and 800,000MT of maize per year, animal feed represents about one-eighth of total consumption. The major buyer of maize for feed is Ivograin which then

uses the feed for its partner company Coqlvoire that processes chilled chicken for the Abidjan market. Coqlvoire sells approximately 3 million chickens per year, about the same number of live chickens sold in the market by informal traders. It is interesting to note that many Ivoirians only buy live chickens and will not buy chilled or frozen.

In Ghana, the General Mills Company near Kumasi is helping maize producers by supplying Accra Breweries and Ghana Breweries with processed maize grits, under a project supported by the African Development Foundation.

The growing urban demand for maize for processed products for human and animal consumption has stimulated the formulation of different purchasing arrangement and contracts. There are several ways purchases are made:

- Traders make contracts with the industrial millers.
- Processors enter into contracts with farmers for fertilizer credit, which are paid for at harvest with maize.
- Processors enter into storage contracts of varying durations with farmers where the price paid for the maize at any given time for collection reflects the current market price plus a percentage (10%) premium.
- Direct purchases from small-traders and farmers and retailers.

### **2.3 VALUE ADDED ALONG THE MAIZE VALUE CHAIN**

Value added along the various marketing channels is especially influenced by the time of the season and the levels of stock holding by various participants in the maize chain.

**TABLE I: VALUE CHANGE ALONG THE MAIZE CHAIN IN SISSILI / HAMELE, BURKINA FASO (GROSS AVERAGE CFAF/KG, JULY 2008)**

<b>Duration After Harvest</b>	<b>Period</b>	<b>Average Buying Price (CFAF/Kg)</b>	<b>Average Selling Price (CFAF/kg)</b>	<b>Value Added in % [(2)-(1)/(1)*100]</b>
Immediately After harvest	Sept – Dec 2007	80	90	12.5%
3-5 Months After Harvest	Jan – Mar 2008	110	133	10.8%
6 – 8 Months After harvest	Apr – June 2008	125	166.66	33.33%
9 Months After Harvest	July 2008	80	175	118.75%
		90		94.44%
		120		45.8%
		125		40%

Source: Survey Computations

The table above shows that the value added along the chain changes by season. It is especially influenced by the time of the post-harvest season and by implication the level of stock holding. Value change is greater with increase in duration after harvesting.

This implies that for farmers to get better rewards, they have to organize themselves for bulk storage and marketing during the post harvest period and target selling off-season to end-users higher up the chain through collective contracts.

## **2.4 VC END-MARKET ASSESSMENT**

### **2.4.1 CROSS-BORDER TRADE**

Target regional markets include Niger, Benin, Ghana, Senegal, with a notable bias towards Niger. While reliable trade data is not available, (the VC assessment noted the challenges of data collection, with traders being wary, reticent and even aggressive) the study established that Niamey –Niger absorbs between 60% and 80% of the traded volume from Mali and Burkina Faso. Côte D’Ivoire, Egypt and Mauritania have been and remain potential maize markets, particularly for the poultry feed industry.

The high cost of maize movement is a major disincentive. As indicated in the table below, transport cost ranges from 800,000CFAF /40ton truck from Sikasso to Dakar and between 1 million to 1.5 million CFAF /70ton truck from Sikasso to Niger. Depending on the season, transport cost from Bobo-Dioulasso to Niamey (870km) ranges between 700,000 to 800,000CFAF /40ton truck, and between 500,000 - 600,000CFAF /40ton truck to Tamale, Ghana.

**TABLE 2: TRANSPORTATION COSTS OF MAIZE IN SOME ATP FIELD ASSESSMENT COUNTRIES**

S/N	Town/Country of origin	Market	Distance (km)	Freight (Tonnage)	Average Transport Cost (CFAF)
1.	Bobo-Dioulasso-Burkina Faso	Niamey-Niger	870	40	750,000
2.	Bobo-Dioulasso-Burkina Faso	Tamale-Ghana		40	550,000
3.	Sikasso -Mali	Dakar -Senegal		40	1,000,000
4.	Sikasso -Mali	Niamey-Niger		70	1,500,000

Source: Survey Findings

The apparently high transport cost was explained by the fact that trucks upon delivery of goods, return empty to the country of origin. Thus the totality of the to and fro cost is borne by the trader, alongside high and illegal transit fees and bribes paid to officials along the transport route and at border checkpoints to avoid unnecessary delays.

## 2.4.2 THE PROCESSING INDUSTRY

The three potential value added markets for maize are fortified food processing, animal feed, and commercial beer brewing. Buyers we talked with exhibit varying degrees of interest including protein content of 12 to 15%, as well as low fat content  $\leq 5\%$  preferred by breweries. White maize is preferred for human consumption and dairy production, while yellow maize is preferred for the cattle/beef and poultry feed industry, as well as for couscous. The price differential between white and yellow maize is not so significant. Other trading/processing criteria include high degree of friability (ability to produce flour and grit after removal of panicle in wet and dry processes. The more friable the grain, the finer the whole grain flour it gives and the lower damaged starch it contains), uniformity, moisture content (10% to 14%), and quality vis a vis percentage foreign of matter ( $\leq 7\%$ ).Processors

**TABLE 3: SUMMARY OF PROCESSING STANDARDS**

S/N	Criteria	Categories of Millers				
		Breweries	Food Processors	Animal Feed		
1.	Milling Standards			Poultry	Dairy	Cattle/Beef
2.	Moisture content	10 - 14%	12% - 14%	10 -14%	10 -14%	10-14%
3.	Friability/Milling Performance	48-75%	48 -75%	-	-	-
4.	Protein content	12 -15%	12 -15%	12 -15%	12 -15%	12 -15%
5.	Fat content	$\leq 5\%$	$\leq 5\%$	-	-	-
6.	% Foreign matter/ Impurities	$\leq 5\%$	$\leq 7\%$	-	-	-
7.	Grain Uniformity	Homogenous	Homogenous	-	-	-
8.	Grain Colour	Yellow	50:50	Yellow	White	Yellow
9.	Weevil Infestation	0	0	-	-	-
10.	Mould/Fungi	0	0	-	-	-
11.	Preferred Varieties -White		SR 21 Massongo Obatanpa		Dembanyuman SR 22	
12.	Preferred Varieties- yellow	FB66 Espoir Sotubaka	FBC6 Espoir Sotubaka	Sotubaka FB66 Espoir		Sotubaka FB66 Espoir

Source: Survey Findings

NB. "Espoir" and "Obatanpa" varieties are Quality Protein Maize /QPM varieties

There are three types of millers serving the maize sector:

- **Low capacity grinders /hammer and motorized mills.** These are generally used in rural

environments for direct consumption. These millers operate in markets processing maize for food and animal feed for private individuals, women's groups or community level organisations. This method is widespread, due to contributions from the state (about 1000 mills in Burkina Faso), from NGOs and from the private sector through partial grants and cheap credits. The private miller provides services to clients who come up with their own maize grain to be processed within markets and communities/villages. They dominate the major part of the maize mill industry both in urban and rural areas. The women processing groups buy and process maize for income generation. They operate mainly in urban areas

- **The semi-industrial millers** using mechanised equipment and modern production techniques, but still on a modest scale. There are a growing number of small businesses at this level; their processed products include biscuits, enriched infant food, and maize meals notably fortified flour/semolina, couscous, grits for breweries and human consumption, and feed for poultry/dairy production. Maize constitutes about 60% of the raw materials used, and the quantity of maize processed within a year ranges from 70MT to 240MT.
- **Industrial millers using large-scale operations** that are private or usually linked to multinational groups: Brakina of the "Groupe Castel" in Burkina Faso (Ouagadougou and Bobo) processes close to 2000MT of maize per year; the sister "Groupe Castel" in Mali uses 600MT of grit per year obtained from 1000MT of maize grain. i.e. about 20MT of maize per week; Poultry Feed manufacturers in Mali use about 100, 000MT of maize per year; The Grands Moulins du Burkina (SN GMB) processes 60MT of maize per day, producing maize flour, concentrates, poultry feed and bran; SITRAC/Societe Industrielle Pour la Transformation Et la Commercialisation des Céréales - processes 50MT of maize per day into grit, fortified maize meals-flour, couscous, biscuits, and bran, and has capacity to process 150tons of maize per day.

**TABLE 4: CHARACTERISTICS OF MAIZE MILLS**

<b>General Characteristics of Maize Mills</b>			
<b>Characteristic</b>	<b>Large-scale Industrial</b>	<b>Semi-industrial</b>	<b>Hammer Millers /Grinders</b>
Capacity (tons/month)	50 - 1200	6 – 20	≤ 5
Estimated Number of Operators in the Region	5 - 10	29 – 50	≥ 1000
Main Products	* Plain / Enriched Maize Meal, or Flour, Couscous, Polenta, *Beer *Poultry feed	* Plain / Enriched Maize Meal, Couscous, Enriched Infant Feed, Biscuits , *Poultry feed *Feed-Cattle, Dairy	*Whole meal *Maize Meal or Flour; *Couscous *Porridge; * Snacks
Extraction Rate %	≥48	No estimated range	No estimated range
By Products	Grit, Germ, Bran, Waste-Dregs for Cattle & Poultry Feed, Bakery	*Bran, Mixed germ for Bakery, Cattle & Poultry Feed	Mixed Germ For Poultry feed
Storage Capacity	1000 -3000 tons	2 – 6 days stock	None
Source of Maize	Farmers; Private traders Imports	Farmers Private traders	Service providers Group Members
Shelf-life of Products	2 years	2 - 5 months	1week – 5 months
Markets	Domestic, Benin, Niger, Senegal, Côte d'Ivoire: Institutions Breweries Wholesalers Cattle & Poultry Feed Dealers	Domestic: Institutions Retailers Urban consumers Cattle/Dairy/Poultry	Domestic: Services Members Retailers

Source: Survey findings

## **2.5 KEY CONSTRAINTS IN WEST AFRICA MAIZE VALUE CHAIN**

One of the objectives of the maize value chain assessment was to observe the bottlenecks that exist in the West African maize value chain. The assessment team found out that the maize market in the region suffers from poor information dissemination. This was mostly reflected in the perception of shortages which led to higher prices in the area. For example, maize price between July and August 2008, averaged 165CFAF per kilo in Sissili, Sikasso, and 175CFAF at Bobo-Dioulasso and Banfora, as opposed to averages between 85 and 110CFAF/kg same period in 2006.

This section will attempt to summarize some of the key constraints at different levels of the value chain. These issues will be grouped as Production Constraints and Cross-Border Trade.

### **2.5.1 PRODUCTION CONSTRAINTS**

#### **Poor Access to Agro-Inputs**

Farmers in the region have poor access to agricultural inputs such as fertilizer, improved seeds, farm labour, maize herbicides etc. resulting in low productivity since farmers have limited access to funds. Credit markets are informal, bank interest rates are high and collateral requirements are stringent. Even with funds, recently farmers in Burkina Faso and Mali have reported a shortage of fertilizers partly due to the irregularity of supply and the distance to supply points. The unavailability of agro-inputs creates inefficiency in production by reducing the yield potential, compounded by applications

below recommended rates, inappropriate timing of application, use of formulations not appropriate nor recommended for maize (fertilizers used are those often intended for cotton).

### Weather Conditions

Rainfall has been erratic this season and farmers continue to depend on rain-fed agriculture. The frequency of droughts in the Sahel has increased harvest failures and created inconsistencies in supply. Average yields remain low at 1-2MT/ hectare, but with improved seed varieties, combined with fertilizer inputs, farmers are achieving yields between 4 and 5 tons per hectare. Erratic weather discourages use of high yielding hybrid varieties with yield values of 7 – 8MT per hectare.

### Labor Issues

Production is labor-intensive, and farmers report increasing difficulties in finding farm workers and/or hiring casual laborers during planting, weeding and harvesting periods. Emerging maize commercial farmers are largely part timers “week-end farmers” and are not consistently producing maize season-to-season and year-to-year.

### Maize Milling Problems

Millers also face high production costs, which are mainly reflected in energy costs and storage costs. The lack of a steady maize supply also creates inconsistencies in supply to buyers. These factors especially affect the competitiveness of products, regarding packaging, branding and market positioning for the majority of maize millers.

## 2.5.2 CONSTRAINTS TO CROSS-BORDER TRADE

### Export Policy and Border Hassles

Currently in Burkina Faso and Mali, an export prohibition is in place, restricting exports to neighboring countries due to the general perception of domestic shortages. In the absence of export prohibition, traders and truck drivers often experience significant border hassles. The lack of transparency and high levels of bureaucracy at the borders can often result in the transporter paying illicit fees as high as 200,000CFA Frs. per 40MT export consignment.

### Non-standard Measurements

Maize is purchased / sold more in volume measure than in weights. The common measures used are Tins, “Plat Yoruba, and bags of varying sizes. This observation is peculiar to Burkina Faso and Mali.

S/N	Measure (Common Name)	Weight Equivalence (kg)
1.	Plat Yoruba damaged and weeviled maize	2 to 2.5 kg
2.	Plat Yoruba good sized quality grain	3 kg
3.	Tin	6 Plat Yoruba ≥ 18kg
4.	Bags ≥100kg	6 Tins ≥108kg

Source: ATP Team

### Storage Issues

On-farm storage is rare and/or non-existent. Existing storage facilities are rudimentary and often dispersed (in fields or within household compounds). Traders and small and medium scale processors also have inadequate storage space and generally not optimal storing conditions.

Conditions in the market are not optimal for storage and transfer of maize as warehousing is inadequate and the markets themselves are poorly drained and not sanitary.

In Burkina Faso, Mali and Benin, rudimentary storage facilities at the farm levels cause high post harvest losses estimated at over 10%. Limited on-farm storage plus pressing needs for cash, forces farmers to market their produce immediately after harvest when prices are relatively low compared to off-season periods. As in the case of farmers, most traders and processors do not own appropriate stores to sustain the crop for longer periods to enable them to achieve higher prices during the lean months.

### **Marketing Issues and Lack of Accurate Market Information**

Market information is important to create transparency and information flows, however numerous stakeholder involvements have propagated an imperfect maize market and complicated the reliability of marketing information. Farmers are faced with the problem of lack of market information that could enable them to maximize returns on investments. Information on price, demand, availability of commodity, quality, and general market behavior are lacking.

The marketing chain involves a number of speculative traders and agents who dominate the current maize value chain and collude to drive down farm gate prices.

Maize farmers in the main growing areas, south of Burkina Faso and Mali usually harvest maize within September and October. Because incomes from cotton are received very late after planting, marketable harvests are therefore sold immediately in order to meet their financial obligations. And because they are forced to market the maize crop immediately after harvest their supply therefore becomes artificially higher than demand and prices drop only to increase within three months after selling.

Farmers choose to leave their maize crop to mature or once in a while harvest green corn at the end of the dry season when food is really scarce, for domestic consumption, and /or sale. Immature ears are harvested and the soft, naturally humid grains (30-40% moisture content) are eaten directly on the cob after boiling, steaming, or roasting. Green maize ears may also be shelled and used in “maize-beans mix” dishes. Green maize is eaten more as a source of food in villages than as a delicacy as observed in urban areas. The bulk of irrigated maize is sold as green maize. “Barka, Espoir, FB66 SR21, FBMS, etc” are the green maize varieties of Burkina Faso.

The burden of post-harvest handling and storage of maize has shifted from farmers to rural assembling agents and traders. Farmers therefore get to receive less for their produce compared to the terminal market prices, considered as compensation for transport, loading/off-loading, storage, handling, insurance, etc) and marketing related costs are deducted from end market prices.

### **Lack of critical mass (economies of scale) / Non-standard Measurements**

Since small-scale farmers only produce small quantities, they are not an interesting trading partner for large buyers and hence are missing the opportunities for a better bargain. By selling in small quantities, they also lose in another way. The traders normally use tins or buckets or bags, in other words they use volume terms, and in the process they underrate the number of ‘kg’s’ they buy. When they sell, they sell in weight (kg) and benefit from the additional kilos they obtained from the farmers. There is an opportunity to standardize traded units and measures to benefit producers, who are cheated in many instances at the farm-gate or in rural marketplaces.

Most farmers and traders have limited means to finance storage and no futures (hedging) markets or crop insurance schemes (for harvest failures) exist. Credit markets are informal. Access to bank credit is very limited. Credits from commercial banks are expensive and collateral requirements to attain it are beyond the reach of most farmers and traders. Lack of working capital during the peak marketing season, and in particular for the storage function were reported as constraints to the production, processing and commercial activities of traders, farmers and majority of millers. Most traders, farmers and millers operate with their own capital, which limits their trade volume, and may

encourage traders to rotate their stocks quickly so as to maximize turnover and access to their own working capital.

### **Uncompetitive Regional Maize Prices**

From the month of July maize prices in Burkina Faso and Mali are usually high relative to maize from countries along the coast like Ghana, that grow 2 maize crops, and new maize starts to appear with market supply increasing in August. This renders locally produced maize non-competitive. In the month of July 2008 during the assessment, SITRAC based in Ouagadougou-Burkina Faso, reported buying maize in Ghana at 67.5CFAF/Kg as opposed to an offer of 170CFAF/kg in Burkina Faso.

## **2.6 OPPORTUNITIES FOR UPGRADING AND INVESTMENT**

Stimulating exports of maize must first address the quantity of maize produced, and in particular the productivity of smallholders who are the dominant producers by far. Although food security is of primary strategic importance, maize still finds export markets in mainly Niger, Benin, Ghana, Senegal, Côte D'Ivoire, Nigeria, Egypt and Mauritania. There is also potential to re-export some of the imports of cheaper Ghanaian maize to Niger for consumption and transshipment to Nigeria characterized by high yearly deficits, provided there are appropriate storage facilities.

### **2.6.1 CURRENT SITUATION OF MAIZE MARKET IN WEST AFRICA**

In Burkina Faso, Mali and Benin, there is increasing interest in maize production as a food “cash” crop. Urban demand for maize is also growing in areas of processing especially for maize meal, couscous, bread, fortified nutritional supplements, and animal feed. Through collaborative efforts of INERA, CIMMYT, IITA and IER, over 20 improved varieties of maize are now available in the region. Mobile phones are being used to improve market information, transactions and create market linkages.

These developments imply that there is need for close linkages between farmers, processors, traders, and adequate efforts to coordinate supply and demand and to create better access to key business development services (BDS) such as market information, input supplies, and transport services.

Some of the key issues that need to be addressed include:

- Building linkages between small-scale rural producers, value-added processing firms, buyers in growing urban markets, and suppliers of critical inputs;
- Supporting small-scale producers to associate, collaborate, and coordinate to achieve economies of scale in their transactions with input suppliers and maize buyers;
- Making channels of information (e.g. about product specifications, market prices) and other business services accessible to rural producers;
- Enabling rural producers to understand and better satisfy the product, process, or delivery standards required by buyers in urban markets;
- Diversifying and raising levels of knowledge and skills in agricultural production and post-harvest processing that adds value to products;
- Making relevant financial services that enable investment in diversification or upgrading available to rural producers.

## 2.6.2 OPPORTUNITIES FOR UPGRADING THE MAIZE VALUE CHAIN

### **Guaranteeing surplus production and regularity of supply:**

Strengthening on-farm seed multiplication (the informal seed system): The informal seed sector is largely represented by farmer-saved seeds. On-farm seed multiplication and distribution/marketing will sustainably increase the availability of good quality seed to small holder farmers at the right time and at affordable rates. There is need to facilitate adequate and timely supply of fertilizer through consolidated linkages for stocks, and farming contracts.

Farmers also need training in post-harvest handling/improved storage techniques to reduce post harvest losses, improve maize quality with resultant higher returns for farmers. Supporting hybrid maize cultivation under irrigated schemes will also help reduce crop failure that might result from erratic rainfall and drought occurrence.

### **Producer prices / Assembling of maize for critical mass:**

Strengthening farmer organizations for the purpose of producing maize in bulk and marketing together will enable them to generate sufficient critical mass, and hence make better returns and marketable surpluses available. Strengthening producer organizations to pool maize together for marketing will also improve access to accurate and timely price information, better prices and credit. Strengthening producer organizations capacity on farming as a business, marketing and trade skills will also help to improve regional trading.

One important element to creating critical mass will be to support producer organizations to realize economies of scale. Important efficiency gains may be achieved if more farmer cooperatives/organizations are supported to supply the production of the member farmers. The negotiation position of the farmers will improve, and marketing costs will fall for producers and traders who can transact larger quantities at once. Another major ATP role towards this end will involve documenting and diffusing information and success stories on benefits of organizing input procurement and sales at better prices.

### **Marketing and Market Information**

The availability of regional market information is essential in improving the possibilities for cross-border trade in maize and other cereals. Some areas for improvement in marketing and information include facilitating the establishment of a collaborative regional market information system, in partnership with regional trade organizations and supporting programs. Information most useful for farmers and traders are prices, levels of production in different regions, demand trends, success stories on benefits of organizing input procurement and sales at better prices, greater yields, etc.

In addition to having an information network, it is important to harmonize standards of information dissemination and supply of critical market information such as traded volumes, grades, production costs or sales price /wholesale price, buyer/seller, production/demand by zone, production peaks and shortages through-out the year, distribution channels, access to key markets (distance, road links, communication), etc. These efforts would also help standardize information concerning quantity, quality, type and location of stock held for trading, offers/bids - types of deals available and their buying conditions (price, locations, minimum quantities purchased, standards of quality, frequency of supply, payment conditions, willingness to enter into sales discussion), and associated services. Additional information of benefit to processors includes product quality, product quantity, productivity and technology employed product presentation or packaging, and brand or product image.

Regional newspapers, mobile telecommunication providers, rural radio broadcasts, and tele/cyber centres are examples of useful media for disseminating maize trade information.

### **Market outlets / Wholesale marketing and storage**

One important avenue for improving the terms of cross-border maize trade is by exploring private sector opportunities for collaborating with large business owners, for example, who are willing to rent out some storage space, or even better, to set-up a warehouse receipts program. Cooperating with the private sector can also develop potential market linkages between traders and producers in order to ensure reliable market outlets for the producers and build up confidence of trading parties regarding the quantity and quality of stock. Although market linkages cannot be enforced, maize farmers and traders will benefit from clear contractual arrangements sustainable in win-win situations for all partners.

With respect to wholesalers, proper storage facilities are still lacking at different points in the value chain. Facilitating proper bulk storage for whole sale marketing will attract large traders, milling companies, and institutional buyers. When adequate bulk storage facilities are in place, then prices can be agreed upon and quality control standards can be enforced regionally.

### **Regional Exchange**

By strengthening regional networks of agribusiness partners, service providers and consultants, there will be more opportunities for regional exchange. Other opportunities to expand cross-border interactions in maize trade are through support to effective institutions that promote events such as regional tradeshows and auction markets for maize and associated products.

Advocacy groups and lobbyists in commodity organizations can be supported in their efforts towards sustainable policies, such as improving market infrastructure in urban and rural markets in view of improving storage conditions and food hygiene. Other advocacy efforts could help streamline bureaucratic and costly import/export procedures, facilitate the harmonization of regional quality standards to producers, traders and transporters, and standardize units of measure.

## **Promotion of credit facilities and arrangements**

It is extremely difficult for farmers to obtain any form of credit without a standard collateral system. In order to have an efficient credit system there is need to establish a warehouse receipt financing program with the help of the private sector, to allow borrowing using maize as collateral. Another area of promoting access to credit is to provide risk management and credit facilities to farmers by financial institutions for short and medium-term loans for the storage function and processing.

Farmers can also be encouraged to participate in savings and credit associations such as Kafo Jiginew in Mali and RCPB in Burkina Faso, to improve their access to seasonal loans for inputs. Access to credit can also be improved by facilitating the suppliers' credit systems possibly through guarantee arrangements for the wholesalers, to enable them stock sufficient and adequate inputs.

## **Facilitation of knowledge and information transfer viz.**

Raising the awareness of commercial banks and microfinance institutions on agribusiness financing opportunities will help improve the conditions for cross-border maize trade in West Africa. Other stakeholders such as bankers and credit officers also need some form of technical training to better understand the financial needs of the agribusiness sector.

Another important element in knowledge transfer is to provide technical assistance in trade skills such as organizing, negotiation, management and proper interpretation of market information to ensure effective participation in both the domestic and regional maize market. Traders also need education on the advantage of collaborating and pooling human capital and financial resources to improve the competitiveness of the regional maize trade.

Other media of information transfer that may be incorporated into the maize value chain include some form of economic return analysis for transport costs for the different maize trading routes/regions; Information on maize profit margins through posters and fact sheets will be useful to both small and large-scale traders; Capacity programs on business development-feasibility studies; business planning; cash flow analysis, market dynamics, product development, positioning, pricing, branding etc.; Researching and Sharing Information on registered agro-partners and professional business service providers in the maize sub-sector, and sources of financing- Financial Directory

## **Promoting Public-private Partnerships**

It is crucial to facilitate partnerships to increase competitiveness, productivity and an enabling environment to promote regional export.

### **2.6.3 IMPROVING ACCESS TO INPUTS AND FINANCING**

Some of the ways of improving access to inputs for farmers include

- Facilitating linkages with manufacturers and distributors of fertilizer, pesticides and farm equipment, and between potential entrepreneurs and the banking industry.
- Intensifying contract farming opportunities, as well as promoting private sector involvement in seed multiplication and distribution, for open pollinated varieties
- Providing lease financing for processing equipments
- Improving links between potential entrepreneurs and the banking industry
- Facilitating private sector involvement in warehouse receipt systems

#### **2.6.4 ESTABLISHMENT OF A DEVELOPMENT CREDIT AUTHORITY PROGRAM**

The USAID Development Credit Authority (DCA) guarantee program encourages banks to extend credit to marginal clients who have a sensible business plan but may lack the collateral that banks seek. The program guarantees 40 percent net loss of approved loans. Depending on the needs of individual borrowers, this lending may take the form of an investment or working capital.

Upgrading implications therein for the maize value chain includes initiating and facilitating an assessment of commercial banks and microfinance institutions within the region with recommendations on implementing potential DCA program assistance.<sup>8</sup>

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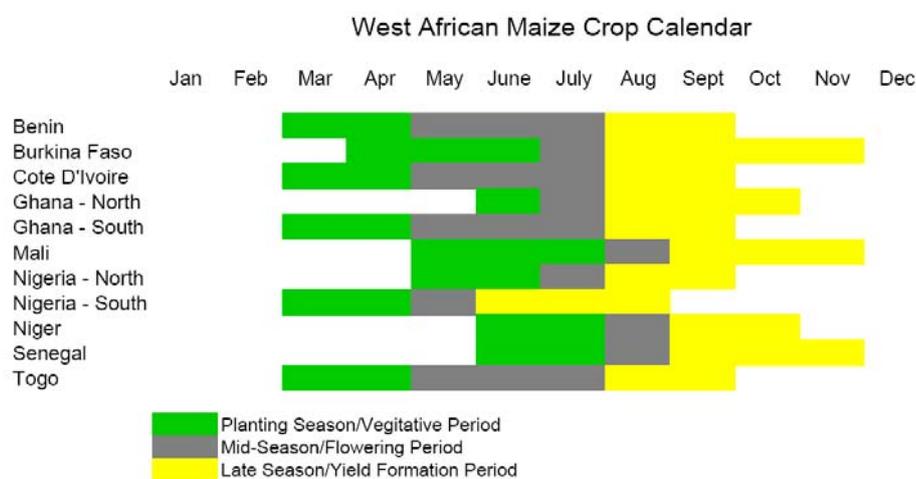
<sup>8</sup> This is an example of a footnote in Arial 7.

## 3. SUPPLY AND DEMAND ANALYSIS

### 3.1 MAIZE AVAILABILITY CALENDAR

The crop calendar below shows that the harvest period in West Africa ranges from late July through November, except for Southern Nigeria where harvests begin May-June.

**FIGURE 5: WEST AFRICA MAIZE CROP CALENDAR**



Source: FAST Early Warning note, Maize Forecast 10 July 2008 - West Africa

### 3.2 PRODUCTION ZONES AND DEMAND POLES

The principal maize production zones covered by this assessment include:

- Southern Mali (Sikasso Region)
- Southwestern Burkina Faso (around Bobo-Dioulasso and Banfora)
- Northern (Tamale Region) and Central (Kumasi Region) in Ghana
- Benin (with significant cross-border trade with Nigeria)

The main demand poles are:

- Accra, Ghana
- Abidjan, Côte d'Ivoire
- Lomé, Togo

- Cotonou, Benin
- Lagos, Kano, and Ibadan, Nigeria.

West African maize production in the past 6 years has been quite steady although increasing slowly over the last 20 years. As shown in the chart below, the two major producers in West Africa are Ghana and Nigeria. The smallest producers to date are the countries on the western coast such as Guinea Bissau, Mauritania and Sierra Leone. The maize value chain experts visited key production sites in Burkina Faso, Mali, and Benin and observed the production trends in these areas. Benin, Burkina Faso, Benin and Mali have recorded some increases in production in the past couple of years. Although certain regions are increasing production volumes, West African maize production remains relatively low due to several factors such as weather conditions in certain zones, resulting in low yields, the unavailability of improved seeds, and poor access to funds for purchasing inputs by farmers.

**TABLE 5: FAO ESTIMATES OF MAIZE PRODUCTION IN WEST AFRICA, 2000-2006  
(IN METRIC TONS)**

Country	2000	2001	2002	2003	2004	2005	2006
Benin	750,442	685,902	622,136	788,320	842,626	864,698	671,949
Burkina F.	423,494	606,291	653,081	665,508	481,474	799,052	905,713
Cape Verde	24,341	19,549	5,067	12,154	10,000	3,648	11,811
Côte d'Ivoire	576,910	584,548	592,267	600,098	608,000	64,0221	600,000
Gambia	22,000	28,988	18,580	33,353	29,209	29,002	45,076
Ghana	1,012,700	937,973	1,400,000	1,288,600	1,157,621	1,171,000	1,189,000
Guinea	329,025	356,893	388,679	423,295	460,994	502,051	546,765
Guinea B.	25,673	28,088	22,113	20,639	31,868	39,835	41,827
Mali	214,548	301,931	363,629	451,018	459,463	634,464	587,845
Mauritania	13,651	6,168	4,778	6,000	5,200	14,400	17,285
Niger	3,920	6,377	7,000	2,200	4,000	1,000	1,000
Nigeria	4,107,000	4,596,000	4,890,000	5,203,000	5,567,000	5,957,000	6,404,000
Senegal	78,593	108,546	80,372	400,907	400,555	399,958	181,585
Sierra Leone	8,902	10,000	12,038	16,060	32,125	39,051	48,813
Togo	482,055	463,930	510,084	537,956	523,650	509,468	543,342
REGION	8,073,254	8,741,184	9,569,824	10,449,108	10,613,785	11,604,848	1,179,6011

Source: FAOSTAT

Note: FAO production data are obtained from national production estimates.

Although maize production is rising, average yields remain low at 1-2MT per hectare as observed in Burkina Faso. But with improved seed varieties, combined with specific fertilizers, farmers are able to achieve as high as 4 to 5MT per hectare. However, most farmers have limited means to finance such inputs or insurance schemes to protect their crops or even storage to benefit from futures markets.

As a result of INERA research trials, about 20 different improved maize varieties are now available to farmers in West Africa, who can afford them. IITA is also making efforts through research and extension to provide farmers with improved varieties to expand the average yield per hectare on most farms. However the issue of access to finance remains unresolved for the majority of farmers in the region. Credit markets are informal and inaccessible.

The above chart shows production data for the region from FAOSTAT, listed by country.

Production in Mali has increased from 50,000MT in 1980 to  $\geq$  600,000MT in 2007 (Institut d'Economie Rurale /IER – Mali). In Burkina Faso, production estimates of 879,000MT in 2007/2008 correspond to a 19% increase over the past 5years. Compared to 2006/2007 this corresponds to a 1% increase, attributable to climate change. In 2006/2007 production (866,600 MT) increased by 9%

over the 2005/2006 crop and by 35% over the past 5 years. (Direction des Statistiques Agricoles / DGPSA).

### 3.2.1 PRODUCER PRICES

Maize is purchased through assemblers who are provided with money and bags mainly immediately after harvest when the price of maize is quite low between September and December. In Bobo-Burkina Faso, the farm-gate price for maize at December 2007 averaged 80CFAF/kg, while the price of maize in March 2008 averaged 120CFAF/kg, and was 175CFAF per kg between July and August 2008.

According to FEWSNET, the recent hike in cereal prices in West Africa is due to a variety of factors, such as the steady rise in fuel prices, the weak regional supply of rice, the use of some cereals in biofuel production, the imposition of export taxes by some exporting countries, and the prohibition of cereal, livestock and feed exports to neighboring countries since December 2007.

Based on wholesale and retail producer prices collected on TradeNet, AFVBF, RESIMAO & TradeNet for white grain maize, reflected in CFAF prices are generally high in the entire region. In Burkina Faso, the national average retail price for maize was 187.67CFAF for the month of January 2006. The year 2006 was a flat year for most West African countries for maize, as prices continued to drop or remain stagnant all through the year. Maize prices were particularly lowest in Benin in 2006 at only about 75 CFAF per kg. In both Burkina Faso and Mali, the highest prices since 2006 were recorded for the month of July 2008, as West Africa has experienced a hike in cereal prices.

**FIGURE 6: MAIZE PRODUCER PRICES (WHOLESALE AND RETAIL) IN BURKINA FASO IN FCFA (JAN 2006 – JULY 2008)**



Source: TradeNet, RESIMAO

### 3.3 MAIZE PRODUCTION VIS-À-VIS CONSUMPTION

West African Maize production serves two purposes; as a staple and a cash crop. A larger percentage of maize produced is used for domestic consumption, either for humans or as livestock feed. Production of maize has been rising steadily over the past 20 years with farmers rotating more and more maize with cotton and some substituting maize for traditional cereal crops such as millet and sorghum. The advantage of maize over the traditional millet and sorghum is explained by the existence of high yielding varieties, the comparative ease of production, and by the fact that maize responds much better to fertilizers (applied on the previous cotton crop) than millet and sorghum.

In Table 6 and Table 7 below, production and consumption data from the United States Department of Agriculture show that indeed countries like Benin and Cote d'Ivoire consume the all the maize produced in 1000 MT, and barely record any imports between 2000 and 2008. On the other hand, there is agreement between information networks in ATP field countries that data from FAO has

underestimated the level of production in most countries within the region during the years 2000 to 2006. FAO has shown that in fact most of the ATP study countries are net importers of maize. Based on the USDA-FAS data shown below, Ghana and Mali have consumed above the production level in the past eight years. Although also based on USDA-FAS data below, Burkina Faso is shown to consume equal amounts as its level of production, which also creates some questions for further evaluation.

**TABLE 6: USDA ESTIMATES OF MAIZE PRODUCTION IN WEST AFRICA, 2000/01 TO 2008/09 (IN '000 MT)**

Country	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Benin	660	660	750	800	900	1,125	900	1,000	1,000
Burkina F	425	500	525	740	482	796	850	800	800
R.C.I	625	625	590	525	550	550	550	550	550
Ghana	1,015	940	1,400	1,290	1,160	1,000	1,000	900	900
Mali	225	300	365	451	460	500	500	500	500

<sup>9</sup> Source: USDA Foreign Agriculture Service (FAS) – PSD Online Dataset.

Note: these estimates are arrived at through triangulation across a number of sources—national ag stats, USDA Agricultural Attache reports/estimates, international trade sources.

**TABLE 7: WEST AFRICA MAIZE TOTAL CONSUMPTION (HUMAN + ANIMAL FEED) – 1000MT**

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Benin	662	662	750	800	1,051	1,125	900	1,000	1,000
Burkina F	425	500	525	740	482	796	850	800	800
R.C.I	626	627	597	525	579	556	552	550	550
Ghana	1,065	955	1,300	1,300	1,300	1,100	1,100	900	900
Mali	445	300	365	451	461	505	500	500	500

Source: USDA Foreign Agriculture Service (FAS) – PSD Online Dataset

In general, the accuracy of data within the region regarding production and consumption is not certain. However, FAOSTAT and USDA-FAS provide the closest estimates to actual production as confirmed by farmers and stakeholders within the region. Data available should only provide insights to the status of the maize value chain and opportunities for upgrading cross-border trade within the region.

In some countries in the region, there is an increasing demand for maize which is associated with the growing interest in developing poultry farming. Other sources of demand for maize are attributable to urban consumption of processed maize products and industrial beer making. As cotton farming becomes less profitable for farmers, many farmers and youths are turning to growing maize and depending on it as a major source of income.

Urban demand for maize is high, and maize has many different uses including maize meal, couscous, bread, fortified nutritional supplements, and animal feed.

<sup>9</sup> FAS: <http://www.fas.usda.gov/psdonline/psdDownload.aspx>

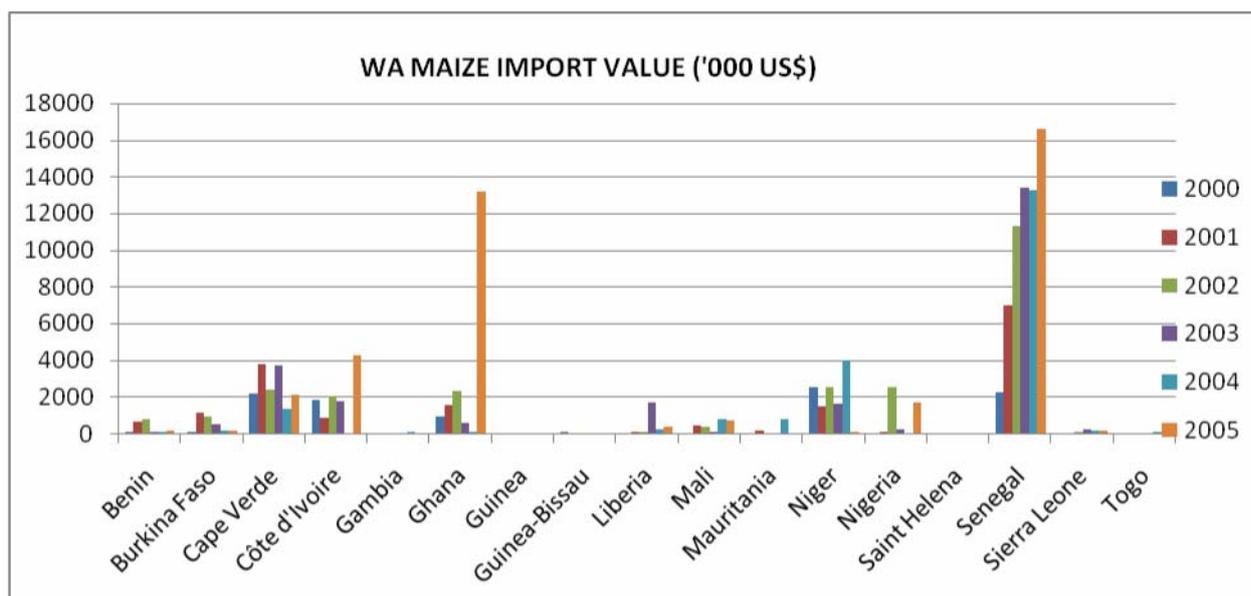
### 3.3.1 MAIZE EXPORT AND IMPORT OUTLOOK

The main target export markets are Niamey-Niger, and Tamale-Ghana. Other African export markets include Senegal, Cote d'Ivoire, Egypt and Mauritania. Information about cross-border trade is minimal and unreliable. However, it is clear that regional demand for maize is high in Nigeria, Niger, and Cote d'Ivoire. Other countries such as Mauritania and Senegal rely on imported maize to meet food security needs. Mali and BF often act as suppliers to the more import-dependent countries.

In Benin, the market system is periodic, that is, market days are held on 4,5,6, or 7 day cycles and in markets that are open daily (for small purchases), it is on the market days that major volumes of cereals are traded. Nigerian demand for maize is high, for both human consumption and for use in poultry feed, since Benin does not have a developed poultry industry.

In Benin, the maize market has suffered shortages and high prices, but the new crop started to appear on the market and market supply has increased. During the assessment, (July 2008) maize prices at wholesale ranged from 32,000 to 34,000 CFAF per 120kg bag for human consumption and 30,000-31,000 CFAF of lower quality purchase for use as poultry feed. The production of maize in the Oueme region along the border of Nigeria is increasing and potential to expand trade with Nigeria where deficits persist every year is high.

**FIGURE 7: WEST AFRICA MAIZE IMPORT VALUE (2000 – 2005). DATA SOURCE: FAOSTAT**



In Mali average maize price between October and December 2007 ranged from 90 to 100 CFAF/kg and was 165 CFAF/kg in July 2008. In Burkina Faso the average maize price between September 2007 and January 2008 was 120 CFAF/kg/ and 175 CFAF/kg in July 2008.

Maize is sold more in volume measure than in weights (kg). The common measures used are Plates, Tins, or bags of varying sizes of 100kg or more. This observation is peculiar to Burkina Faso and Mali, and not an issue in Benin, Cote D'Ivoire or Ghana.

### 3.3.2 REGIONAL MAIZE TRADE POLICY ISSUES

Most West African countries have for a long time relied on regional trade to guarantee the availability of staples. As confirmed by other assessments carried out in the region, the key issues identified by the maize value chain team are associated with varying barriers to trade in the form of graft and border hassles. Maize exporters interviewed by the team (particularly in Burkina Faso and Mali) reported that graft and delay at the borders represented an important barrier to regional maize trade. Maize exporters interviewed by the team reported having to pay up to 200,000 CFAF per truck in bribes and other unofficial payments. These costs and hassles serve as an important impediment to regional trade, adding an estimated 5-10 percent to the costs of regional maize exports.

Three countries in the region (Mali, Burkina Faso, and Niger) all imposed export bans on coarse cereals including maize in 2008. The purpose of these export bans was to dampen price rises and ensure adequate local supplies of grains for the local market.<sup>10</sup> According to grain producers and grain traders interviewed by the ATP maize VC assessment team, the export bans could have a negative impact on future investments in maize production, storing and marketing as producers and traders may be shifting some of their future resources to other crops that are not likely to be subject to trade bans. As a result, the trade bans could actually have the opposite effect of their intent, by actually reducing supply in the medium term instead of increasing it.

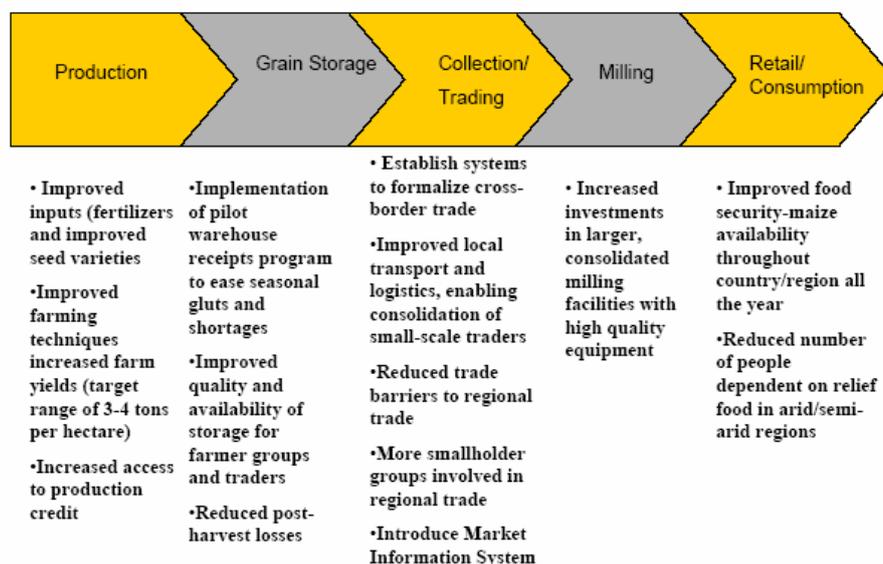
In addition to trade bans, the Government of Burkina Faso also introduced cereal price control measures calling for a 5 percent reduction of prevailing food prices in 15 provinces in 2008. It is not clear whether these price reductions actually led to changes in market prices as intended, but it does indicate that maize and other prices are being subjected to increased intervention measures both at the border and in internal domestic markets as well.

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<sup>10</sup> These bans have evidently been recently lifted with the start of the new maize harvest as of September 2008.

**FIGURE 8: “WITH PROJECT” MAIZE VALUE CHAIN FOR WEST AFRICA**

### “With Project” Maize Value Chain for West Africa



### 3.3.3 REGIONAL PROBLEMS AND STRATEGIES TO GUARANTEE FOOD SECURITY IN WEST AFRICA

West Africa has historically relied on international and regional trade to help assure its food security. Although some governments in the sub-region promoted national food self-sufficiency in the 1980s, by the early 1990s, most West African countries had adopted a broader notion of food security that built upon historical regional and international trade patterns based on comparative advantage.

Countries in the sub-region fall into three categories:

- Countries (such as the Gambia, Mauritania, Senegal and Sierra Leone) that have historically based their food strategies on large imports of Asian rice combined with imports of coarse grains (millet, maize and sorghum) from neighboring countries, while exporting cash crops and mineral resources;
- Countries that were food exporters in the 1960s (most notably Nigeria), but have become major importers of rice, wheat, and some coarse grains, as their economies and population have grown faster than domestic agricultural output;
- Those countries that are largely self-sufficient or exporters of staples in normal years (e.g., Mali, Burkina Faso, Niger); and,
- Countries (Cote d'Ivoire, Ghana and Guinea) that import significant quantities of rice from overseas and millet from northern neighbors, but that seasonally export significant quantities of maize (and in Guinea's case, fonio) to their northern neighbors.

In reality, most countries, even significant exporters and importers, are involved in some two-way regional trade in staples. For example, Nigeria exports significant quantities of coarse grains to Niger in exchange for cowpeas, while Mali and Burkina Faso import some rice from Asia.

The current world food crisis has shifted the West African trade-based food-security strategy into reverse for several reasons. Soaring prices (e.g., rice selling for over US\$1000/MT) and export bans from some Asian countries such as India not only have threatened the availability of rice imports, but led many West African governments to conclude that the risks were very high in depending on the international market for staples. At the same time, some West African coarse grain exporters, most notably Burkina Faso, Mali, and Niger, have also restricted exports in attempts to protect domestic consumers from the soaring prices. This in turn has driven up costs in neighboring countries, while holding down prices paid to their own farmers.

All these actions have led many countries to launch programs aimed at increasing self-sufficiency in staples and moving back towards autarky.

The step back from a food-security strategy based in part on comparative advantage and trade raises several fundamental questions about the development strategy West African countries may follow in the coming years. Higher international shipping costs to move grain may provide a stimulus to regional production of coarse grain including maize.

## 4. CONCLUSIONS AND RECOMMENDATIONS

The next steps for ATP are to:

- Organize in-country stakeholder workshops that bring together the main participants in the value chain – producers, traders, processors, and researchers – to discuss constraints and formulate solutions to upgrading the value chain and expanding cross-border trade.
- Given the widespread problem of low yields and poor storage, identify progressive producers who can take advantage of high yielding seeds and fertilizer packages and make them the models to be replicated.
- Assist in the application of improved storage techniques that have been developed by research stations such as IITA and support pilot projects where conditions are optimal for implementation.
- Devise strategies for getting the private sector to expand use of maize for value-added agro-processing (food products, beverages, poultry feed, etc)
- Organize a meeting of key policymakers and government officials to discuss the problem of trade across borders and what can be done to promote the free movement of maize.
- Survey selected points on borders between the central corridor countries to monitor trade flows of maize, paying particular attention to seasonal changes in the direction of maize movement.

### 4.1 OPPORTUNITIES FOR UPGRADING AND PPPS

The maize VC assessment team identified some potential Public Private Partnerships (PPPs) and upgrading opportunities that could be structured in the maize value chain. The purpose of PPPs will be to leverage the resources and skills of non-traditional partners in the maize value chain development efforts. Within the ATP project, the targets for these alliances could include international or local businesses, private foundations, NGOs, or national or local government agencies.

The PPPs will focus on the key activities to increase value along key points of the maize value chain including:

- Increasing maize production
- Increasing farmer access to fertilizers
- Facilitating contract farming agreements between farmers and traders or processors
- Setting up farmer demonstration plots with high yielding varieties
- Providing financing for maize production, storage, or marketing

- Improving the linkage between key actors in the maize value chain, including producers, traders/exporters, and processors.

Based on our field study, possible PPP organization partners under the ATP project maize value chain include farmer associations and unions, animal feed companies, grain processors, breweries, transport and warehouse organizations, and traders.

### **FEDERATION PROVINCIALE DES PROFESSIONNELS AGRICOLES DE LA SISSILI / FEPPASI**

ATP can collaborate with farmer organizations like FEPPASI (Fédération Provinciale des Professionnels Agricoles de la Sissili, Burkina Faso), a farmer organization based in Sissili Burkina Faso. FEPPASI is a federation of farmers unions that supports farmers through training, marketing and agricultural finance. The organization supports mostly farmers who grow maize, onions and raise livestock. In terms of maize production, FEPPASI's priorities are in group marketing, maize storage, and farm credit.

Opportunities for partnership with ATP include initiatives for farm credit to finance fertilizer and improved varieties. ATP can also partner with FEPPASI in its on-going construction of a warehouse to store maize.

### **UNION PROVINCIALE DES PROFESSIONNELS AGRICOLES DU HOUET / UPPA**

UPPA is a Farmer Union With a membership of about 2,500 farmers; UPPA is a farmer union that was created in 1998 based near Bobo in Burkina Faso. The union also supports farmers who grow maize, onions, and livestock, in training, maize storage, group marketing, and agricultural finance. ATP may partner with UPPA in creating initiatives for group purchase of fertilizer through fertilizer for maize credit arrangement, access to improved seed varieties and farmer demonstrations.

### **SITRAC**

ATP can partner with SITRAC (Société Industrielle Pour la Transformation et la Commercialisation des Céréales) in the issue of grain processing. SITRAC was established in February 2008 and is a private processing initiative with a current capacity of 50MT per day. SITRAC has expectations to increase its production capacity to 150MT per day. The equipments used are more sophisticated than what is used at SODEPAL. SITRAC uses USA manufactured equipments supplied by a Turkish firm alongside silo of 1000tons.

Maize is the only crop processed into five products namely, semolina (couscous), flour (pasta), polenta (Italian), maize grit for breweries and bran for animal feed which constitute 60% of cereal products processed, alongside millet and sorghum. SITRAC also engages in the production of fortified maize flour with nutritional supplements of vitamins A, D & E.

SITRAC struggles with unreliable and often inadequate maize supply which reduces the efficiency of processing. Possible areas for ATP partnership initiatives include enhancing linkages (including long term contacts with maize producer organizations), and increasing farmer access to production inputs especially fertilizer and improved use of improved maize seed.

### **Kene Aliment du Betail (Animal feed company in Sikasso, Mali)**

Based in Sikasso, Mali, Kene Aliment du Betail is a privately-owned animal feed processing company of less than 10 personnel, consisting of a crusher and a hammer mill cum mixer. It was set up in 1997 to provide milling services for animal farmers but with PRODEPAM-USAID orientation and technical assistance, the unit went into processing and marketing of animal feed.

The main activities of the company include production of poultry feed and feed for fattening and dairy production for cattle goats and sheep especially during the dry season (January to June) and during the Muslim feast of the ram-“Tabaski”. Maize is bought locally when needed in the current market because the unit does not have enough storage space and packaging is purely artisanal in 50kg bags.

Possible ATP partnership initiatives include encouraging development of longer-term contracts with maize farmers, improving technology, packaging, branding, and processing equipments for efficiency.

### **SODEPAL (Société D’Exploitation des Produits Alimentaires)**

SODEPAL is a medium-size (40 personnel), private-owned processing unit with offices in the west and southern parts of Burkina Faso. It was created in 1991 and initiated cereal-based processing activities in 1992. Maize constitutes 60% of cereal products processed, alongside millet and sorghum. An average of 70MT of maize is processed a year, with a maximum of 100MT per year. The main activities of the company include processing cereals, baking and confectionery products. SODEPAL specializes in producing fortified maize, wheat flour and VITALINE for babies, malnourished children, pregnant women, the aged and patients in the process of recuperation from debilitating illnesses.

SODEPAL’s challenges are the insufficient maize production due to the increased price of maize from 90CFAF/kg in February 2007 to 170CFAF/kg July 2008. Other problems include the lack of storage space, and the inability to meet requirements of financial resources.

Possible ATP partnership initiatives include encouraging development of longer-term contracts with maize farmers, helping with marketing to KAB products to livestock producers (linkage with ATP livestock value chain) and supporting improved technology, packaging, branding, equipments for processing efficiency.

### **ETS Tera**

Mr. Tera is one of the biggest maize traders in Burkina Faso, owning and operating 2 warehouses of 25,000MT and 3000MT capacity in Bobo-Dioulasso and Ouagadougou respectively. He pays for inspection and fumigation services every 4 months from SONAGESS: 1000CFAF/MT in Ouagadougou and 1200CFAF/MT in Bobo. Ets Tera is a cereal trading, transport, and storage company in Bobo-Dioulasso. The company also distributes maize in Burkina Faso, Niger, Mali, Togo, Cote D’Ivoire and Nigeria. His Clients in Burkina Faso include: Les Grand Moulins of Banfora, SITRAC- SONAGESS, WFP /PAM, SIMAO; Niger: OPAN-Office des Produit Agricole au Niger.

Possible ATP partnership initiatives include encouraging development of longer-term contracts with maize farmers, increasing access to production inputs especially fertilizer, providing technical assistance for storage management, and assisting with standardization units of measure for maize.

### **APLS (Association des Vendeurs Des Produits Locaux de Sikasso)**

The association was formed in 1999 and its current membership stands at 26, with operations at two levels: individual and association levels. Its main activities are maize trade, where members buy, store and sell maize. Currently, members store in hired modified rooms and on the corridors of their offices. Maize is purchased between December and January, and in March. Maize is purchased with their own money through assemblers and collectors.

Problem areas for APLS include low fertilizer use due to high costs since maize production benefits from spin-off effects from cotton production. Other financial constraints include the lack of proper storage space, since APLS has bought land to this effect to construct a 500ton capacity store but has been unable to begin construction. Loan terms for 40,000,000CFAF for the construction are highly unfavorable and include high transaction costs linked to non-efficient marketing.

Possible ATP partnership initiatives include encouraging the development of longer-term contracts with maize farmers, increasing access to production inputs especially fertilizer and the problem of export prohibition.

## **4.2 BANKS & MICRO FINANCE INSTITUTIONS**

### **Banque Agricole et Commerciale du Burkina (BACB)**

BACB provides agricultural credit to companies (processing mills, traders, equipment suppliers) and to farmer groups. BACB provides the following types of credit to farmer groups:

- credit for farm inputs
- credit for animal traction
- equipment credit (including maize hammer mills)
- storage credits
- credits to farmer unions and cooperatives

Current interest rates for farm credits from BACB are 8.5 % per annum. Overall loan repayment rates are 90-92%

Possible partnerships initiatives with ATP include:

- Developing new loan products for maize storage (e.g. a warehouse receipts program) with receipts from long term sales contracts. The products would be directed at well organized farmer cooperatives that had some legal guarantee or moral pressure for loan repayment.
- Developing loans for maize milling and processing equipment

## **Union Régional des Caisses Populaires du Centre Est/Ouest / URCPO**

URCPO (Union Régionale des Caisses Populaires du Centre Est/Ouest). URCPO is a regional credit union comprised of four separate unions. The major sources of financing for its loans are deposits. URCPO current lending rate for farm credit is 8.75 percent interest rate.

Additionally, it sometimes accesses grants and concessional loans from donor financing. The URCPO recently developed a lending program with the World Bank for livestock and onions. The onion loans were not successful as a large percentage of growers 75 percent did not find adequate market for their product.

Recently the bank has introduced loans to rice cooperatives, and the rice value chain in their loans has been well organized. The loans helped farmers purchase fertilizer and do rice milling.

Possible partnerships initiatives with ATP include:

- Developing new loan products for maize production including financing purchases of inputs. The products would be directed at well organized farmer cooperatives that had some legal guarantee or moral pressure for loan repayment.
- Developing new loan products for maize storage. The loan program should include long-term contracts for purchasing maize and possibly a double key system, with one key held by producer groups and one by the bank.

## **Federation of Mutual Savings and Credit Organizations of Mali / Kafo Jiginew**

As a "Federation of Mutual Savings and Credit Organizations of Mali", Kafo Jiginew provides offer financial services adapted to the needs of low-income populations who do not have access to formal financial institutions. Kafo Jiginew aims to help them develop their income-generating activities.

Kafo Jiginew is the largest microfinance institution in Mali. Since its inception, Kafo Jiginew has sought financial self-sufficiency while serving the poorest families and specifically the women of Mali.

The organization provides four kinds of loans:

1. "Rural loans" which tide farmers over between harvests) and enables artisans and shopkeepers to take out working capital loans.
2. Short-term ordinary loans which finance commercial or other economic activities carried out by women.
3. Loans for the purchase of fertilizers.
4. Equipment loans, the only credit product granted for a period exceeding one year. It is used for the purchase of farming equipment and for housing construction or renovation.

In 1995, Kafo Jiginew began providing loans to cotton farmers, linking their operations to Compagnie Malienne de Développement et de Textiles (CMDT), Mali's quasi-governmental cotton manufacturer. This relationship allows Kafo Jiginew to lend to cotton producers and guarantee their repayment through CMDT. These "Cotton Loans" constitute 75% of Kafo Jiginew's loan volume.

Possible partnerships initiatives with ATP include:

- Assist Kafo Jiginew to diversify away from its heavy exposure to cotton loans.

- If maize loans can be developed with « domiciled debt » similar to cotton, the organization would be willing to make more loans to maize farmers and traders, and processors.

### 4.3 MAIZE RESEARCH INSTITUTES

#### L'Institut de l'Environnement et des Recherches Agricoles (INERA) Burkina Faso

#### Institut D'Economie Rurale (IER) Mali

INERA and IER conducts research on agricultural inputs through its major research programs: cotton; rice; and management of natural resources.

Research on corn is essentially focused on:

- Early varieties
- High-yielding varieties
- High protein
- Animal nutrition

Possible ATP partnerships include

- Support and encourage all countries in the development and sharing the results of their work on the plant material
- Improve the structure and distribution of seeds
- Pre-financing of seed production base

### 4.4 PROFESSIONAL ORGANIZATIONS

**CICB (Comité Interprofessionnel des Céréales du Burkina Faso)** (CICB) was formed in 2003 as a professional organization of cereal producers, input suppliers traders, and processors. It works with all the main actors in the cereal production and marketing value chain. CICB's objective is to increase food security and food production in the cereal value chain.

CICB works to improve market information and encourage greater efficiency in cereals production and marketing. CICB collects market information from various production regions and consumer markets in Burkina Faso. It also lobbies government for policies that enhance cereal production and food security.

Possible areas for partnership with ATP

- CICB and Afrique Verte with their cereal exchange day which is an annual B2B event organized in Burkina Faso, encourage contract/sales deals between maize buyer and sellers.
- Help disseminate CICB market data on cereal prices to traders throughout the region.

## 4.5 NGO'S AND AGRICULTURAL DEVELOPMENT SERVICE PROVIDERS

**Afrique Verte** (NGO based in Niger, Burkina Faso and Mali) Afrique Verte's objectives are to increase food production and food security. Afrique Verte provides collects market information monthly in these three Sahelian countries on market prices for cereals (see <http://www.afriqueverte.org>)

Afrique Verte encourages cereal production by working with regional NGOs in each of these three countries. It also promotes value-added production of cereal products by assisting women-owned companies producing value added cereal products including maize meal, flour, couscous, etc

Afrique Verte along with collaborating partners organizes cereal exchange days as an annual B2B event in Mali, Burkina Faso, and Niger.

Possible areas for partnership with ATP

- Assist Afrique Verte with their cereal exchange day to encourage contract/sales deals between maize buyer and sellers.
- Help disseminate Afrique Verte's market data on cereal prices to traders throughout the West Africa region.

## 4.6 GROUPE DE RECHERCHE ET DE FORMATION EN AGRICULTURE ET ARBORICULTURE GREFA

**GREFA (Groupe de Recherche et de Formation en Agriculture et Arboriculture)** is a private consulting firm based in Sikasso Mali, that promotes increased productivity in agricultural production. GREFA helps organize farmer groups to gain access to key production inputs such as fertilizer and improved seed varieties.

GREFA works through consulting contracts and grants from different donors to increase farm productivity reduce post harvest losses, and group marketing and storage schemes to optimize market sales timing.

Recently GREFA has helped maize farmer cooperatives in the Sikasso region of Mali to gain access to loans for fertilizer. The fertilizer loans were paid back to the inputs suppliers in an in-kind swap, whereby fertilizer inputs used by farmers were paid back in-kind with equivalent value in maize (plus interest) after the harvest. By doing a fertilizer-for-maize trade right after the harvest, the chances of loan repayment were increased, compared with the situation when farmers are given cash for their maize after harvest.

In addition to the maize input supply loans, GREFA also helped oversee double key maize storage loans which encouraged maize farmers to store their maize production jointly in a warehouse and hold the maize in storage 3-6 months after harvest to allow for prices to rise. Under the system, the local bank and farmers union each held a key and the maize could not be released until prices reached a threshold level that was higher than the prices immediately after harvest.

Possible areas for partnership with ATP:

- Implementation of maize input supply loans
- Implementation of double key system or a warehouse receipt system to encourage optimized

market sales timing from warehouses to benefit maize producers.

# **ANNEX A: SOW FOR A WAREHOUSE RECEIPTS PROGRAM FEASIBILITY ASSESSMENT**

## **SCOPE OF WORK: ASSESS POTENTIAL FOR WAREHOUSE RECEIPT SYSTEMS IN WEST AFRICA**

A short-term consultant is needed to support the Agribusiness and Trade Promotion (ATP) Project in West Africa. The ATP Chief of Party and the ATP head office are based in Accra, Ghana while the Deputy Chief of Party is based in the field office in Ouagadougou, Burkina Faso. A consultant is needed to assess the viability of warehouse receipt systems in West Africa and to recommend the set of priority steps for ATP to take to constructively support such initiatives. The consultant's report should describe desktop research conclusions, field research findings and recommendations for ATP warehouse receipt system support in the 2009 ATP work plan.

## **BACKGROUND**

In order for West Africa farmers to take advantage of changing maize prices, particularly in the months following harvest, they need to have access to storage facilities and finance. By storing their maize they can choose to sell some of their crop later in the season when supply drops and market prices are higher. For this market timing to happen, farmers need to have access to credit to finance their expenses while the grain is in storage. Warehouse receipts that are used as collateral for obtaining loans are one way to help farmers finance farming expenses while grain is in storage.

In Kenya, ACDI has implemented a warehouse receipt pilot system in conjunction with the Eastern Africa Grain Council whereby producers voluntarily store their grain in order to better time market sales. A certified warehouse management firm keeps the maize in a secure warehouse for a fee where the crop is safely stored and losses are minimized until such time as the producer sells the grain. A Kenyan bank, Equity Bank, developed a financial product to support the warehouse receipt program and enable producers to borrow against their warehoused stock. In addition to the income benefits to producers, warehouse receipts help to stabilize market prices throughout the year, provide for increased food security, and encourage the creation of formal commodity markets where agricultural products are traded according to specific grades and standards. The success of the Kenya program and indeed its planned ramp-up in the 2009 season, relies on the broad participation of producers, traders, processors, millers, and input supply companies. Similar program attempts in Tanzania and Uganda have not succeeded in expanding and broadening to benefit small grain farmers.

## TASKS

The STTA shall undertake the following:

1. Review the literature on warehouse receipt programs in Africa and assess the progress made and lessons learned recognizing that technology has potentially changed the game, particularly using either smart card or e-receipting and fund transfer using cell phones.
2. Establish criteria for success for warehouse receipt programs (i.e. availability of adequate storage facilities, willingness of banks to lend to agricultural producers, involvement of a network of grain traders and millers).
3. Based on the desktop review and established success criteria, recommend which West African countries have the best potential for creating a warehouse receipt system for maize. NB: Ghana is likely for its progressive business environment, the practice of e-transfer of funds through cell phones, information systems and willing participating partner financial institutions, market information services, software developer for e-receipting mechanism and inspection firms. Nigeria is an attractive candidate because of significant cereal volumes and local surpluses to drive incentives for commercial storage by other than large traders.
4. Once high potential countries are identified, travel to each country to:
  - Identify preconditions for development of a sustainable warehouse receipt system;
  - Meet with banks that lend to agriculture to assess interest and capacity to enter into warehouse receipt credit schemes (NIB is most proactive in Ghana).
  - Meet with Ministry of Agriculture officials to assess support for market based agricultural prices, the level of government intervention in maize markets, and what grades and standards are in place. Ghana has cereals standards but they are not widely known. Check also receptivity and support from industries. Here the answer is likely mixed, as many large traders benefit most from price information asymmetries.
  - Meet with producers and grain traders to assess their capabilities for storing maize properly and obtain rough estimates of storage capacities.
  - Meet with commercial lawyers to assess the legal ramifications of arbitration to resolve disputes between producers and banks in case of disagreements.
  - Meet with agribusiness millers and processors to appraise their interest in warehouse receipts compared with contracting out production.
  - Identify technologies that can reduce transaction costs of a warehouse system.
  - Develop a budget for a pilot warehouse system
5. Report on desktop research and the fieldwork conducted, including recommendations for the two best options for starting a pilot warehouse receipt program in West Africa.

## **QUALIFICATIONS**

Masters degree in Agricultural Economics, Business Administration, Agribusiness or equivalent

- 10 years work experience in agribusiness in Sub-Saharan Africa, preferably in West Africa
- English and French language fluency
- Experience with small cereals farmer agriculture storage and finance

## **POSITION RESPONSIBILITY**

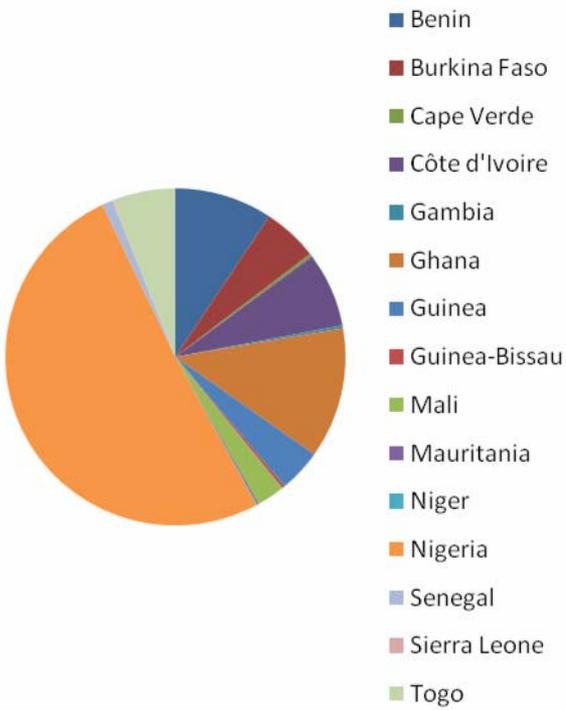
The consultant will be employed by ACDI/VOCA and report to the ATP project through ACDI/VOCA headquarters, while coordinating field visits and report drafting through the ATP Chief of Party.

The level of effort for this work is estimated at 30 person-days including 3 days for international travel, 4 days of desk-top research, 18 days for field research and 5 days of reporting.

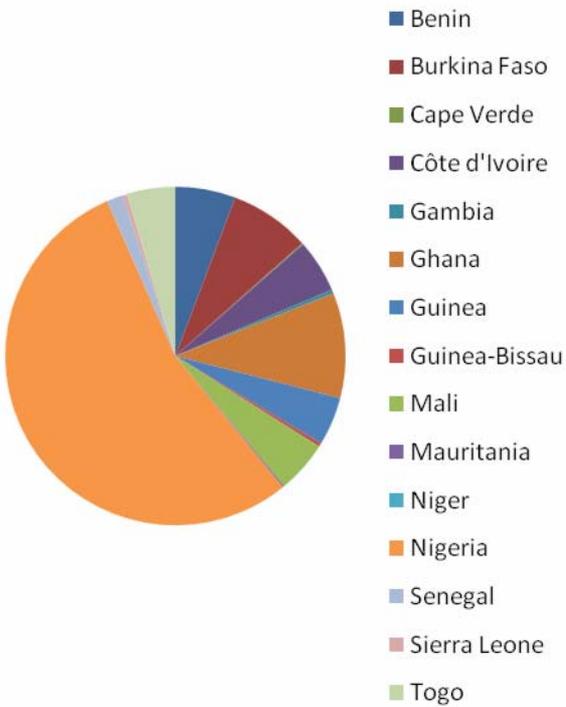


# **ANNEX B: REGIONAL MAIZE PRODUCTION, EXPORT, AND IMPORT STATISTICS AND TRENDS**

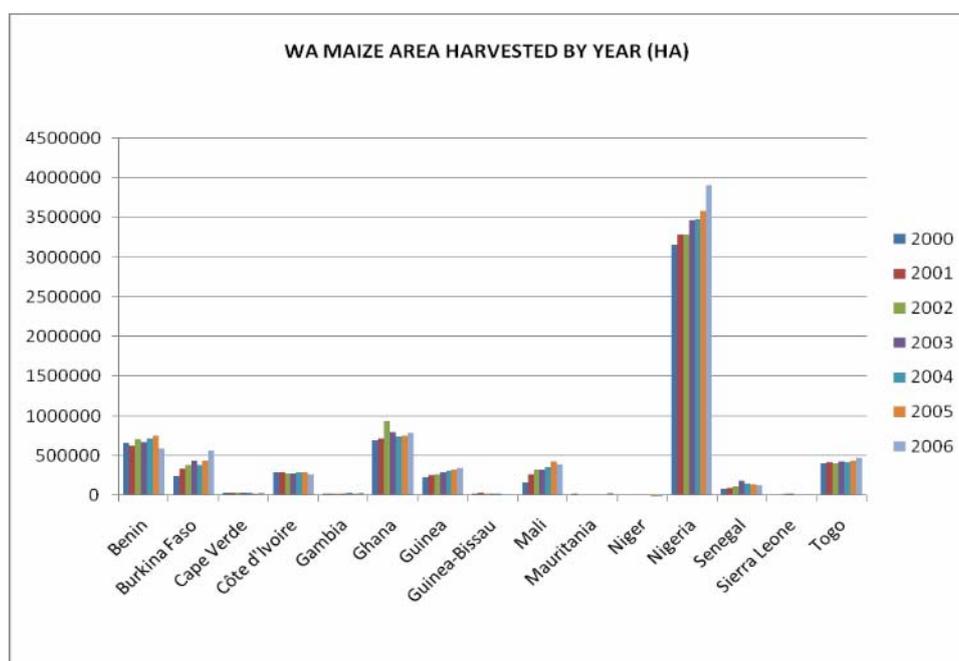
**WA SHARE OF MAIZE PRODUCTION  
(2000)**



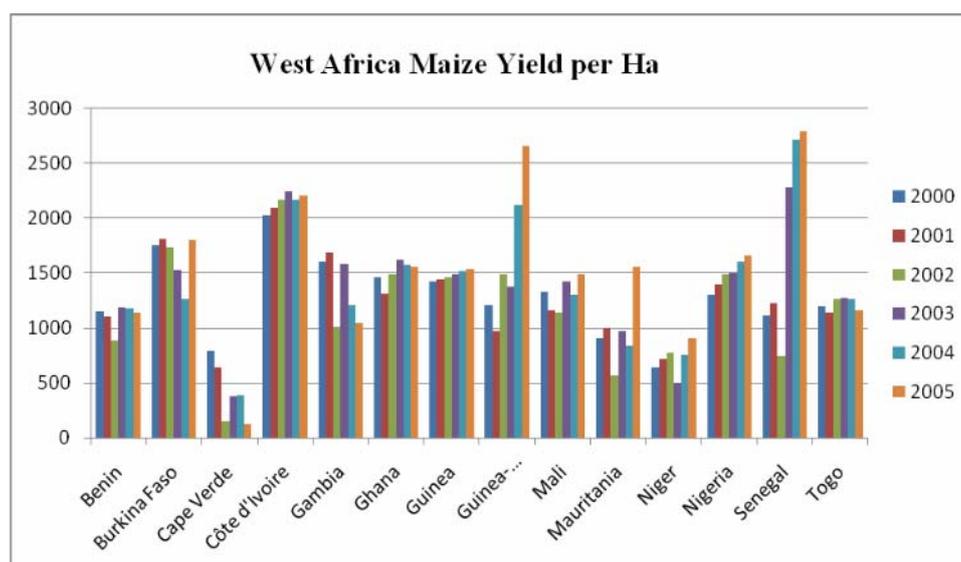
**2006**



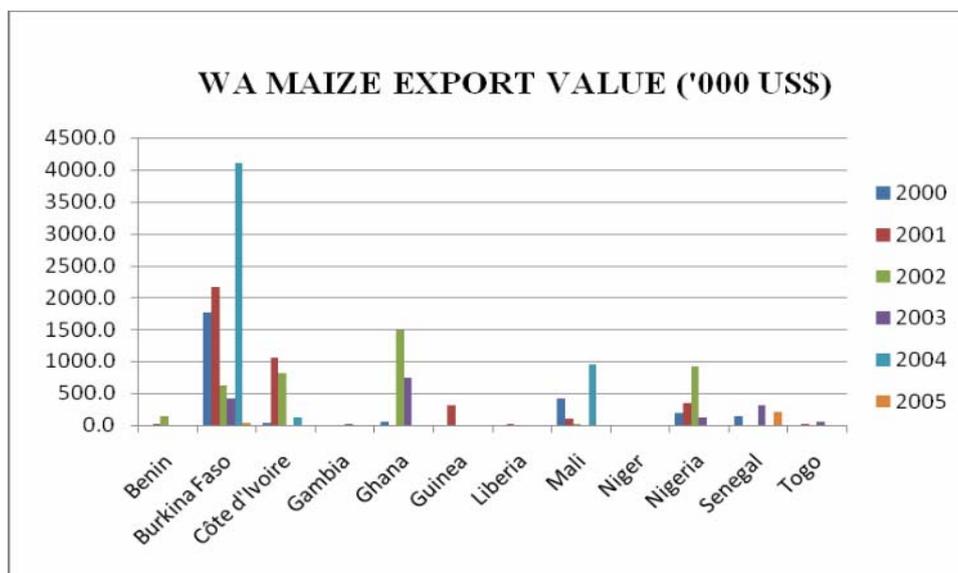
	WEST AFRICA MAIZE AREA HARVESTED (HA)						
	2000	2001	2002	2003	2004	2005	2006
Benin	653630	623412	704672	662533	714155	755397	593423
Burkina Faso	241401	334682	375755	435425	380124	442497	566000
Cape Verde	30626	30674	34122	32053	25963	29193	33297
Côte d'Ivoire	284372	278680	273101	267635	280000	290178	265000
Gambia	13700	17202	18350	21044	24200	27576	31023
Ghana	694700	713303	939600	791900	732955	750000	793000
Guinea	231220	247327	265060	284065	304432	326260	349653
Guinea-Bissau	21307	28957	14800	15000	15000	15000	16000
Mali	161053	260658	317309	316683	353464	424860	390480
Mauritania	15077	6158	8466	6200	6200	9225	34745
Niger	6149	8901	9000	4400	5300	1100	1100
Nigeria	3159000	3283000	3282000	3469000	3479000	3589000	3905000
Senegal	70715	88399	108114	175575	147298	143039	130461
Sierra Leone	9588	9700	15297	11118	10243	9693	9693
Togo	401053	405780	403228	422644	414354	440082	470384



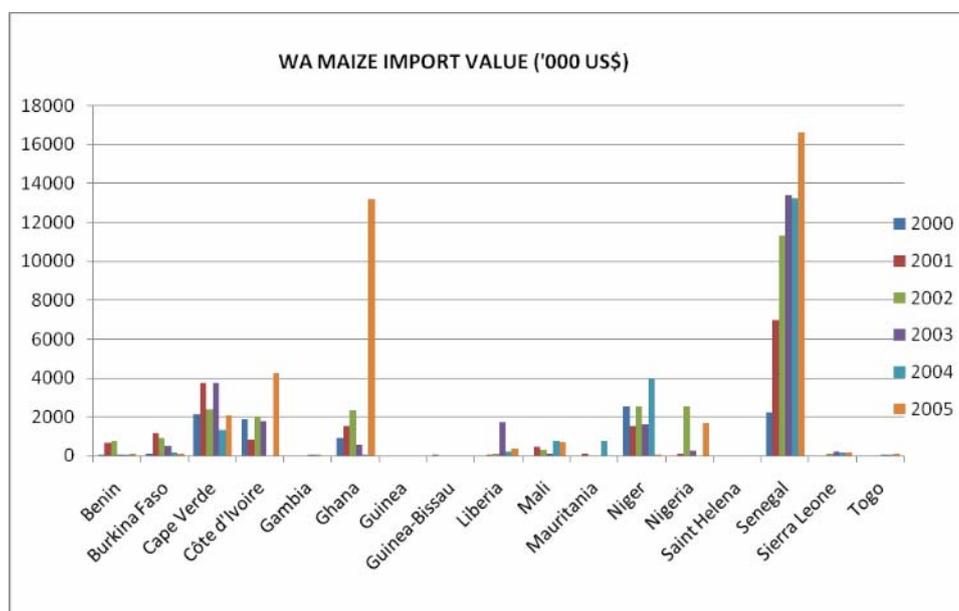
	WEST AFRICA MAIZE YIELD PER HA (Kg/Ha)						
	2000	2001	2002	2003	2004	2005	2006
Benin	1148.1	1100.2	882.9	1189.9	1179.9	1144.7	1132.3
Burkina Faso	1754.3	1811.5	1738.1	1528.4	1266.6	1805.8	1600.2
Cape Verde	794.8	637.3	148.5	379.2	385.2	125.0	354.7
Côte d'Ivoire	2028.7	2097.6	2168.7	2242.2	2171.4	2206.3	2264.2
Gambia	1605.8	1685.2	1012.5	1584.9	1207.0	1051.7	1453.0
Ghana	1457.8	1315.0	1490.0	1627.2	1579.4	1561.3	1499.4
Guinea	1423.0	1443.0	1466.4	1490.1	1514.3	1538.8	1563.7
Guinea-Bissau	1204.9	970.0	1494.1	1375.9	2124.5	2655.7	2614.2
Mali	1332.2	1158.3	1146.0	1424.2	1299.9	1493.4	1505.4
Mauritania	905.4	1001.6	564.4	967.7	838.7	1561.0	497.5
Niger	637.5	716.4	777.8	500.0	754.7	909.1	909.1
Nigeria	1300.1	1399.9	1490.0	1499.9	1600.2	1659.8	1640.0
Senegal	1111.4	1227.9	743.4	2283.4	2719.4	2796.2	1391.9
Sierra Leone	928.5	1030.9	787.0	1444.5	3136.3	4028.8	5035.9
Togo	1202.0	1143.3	1265.0	1272.8	1263.8	1157.7	1155.1



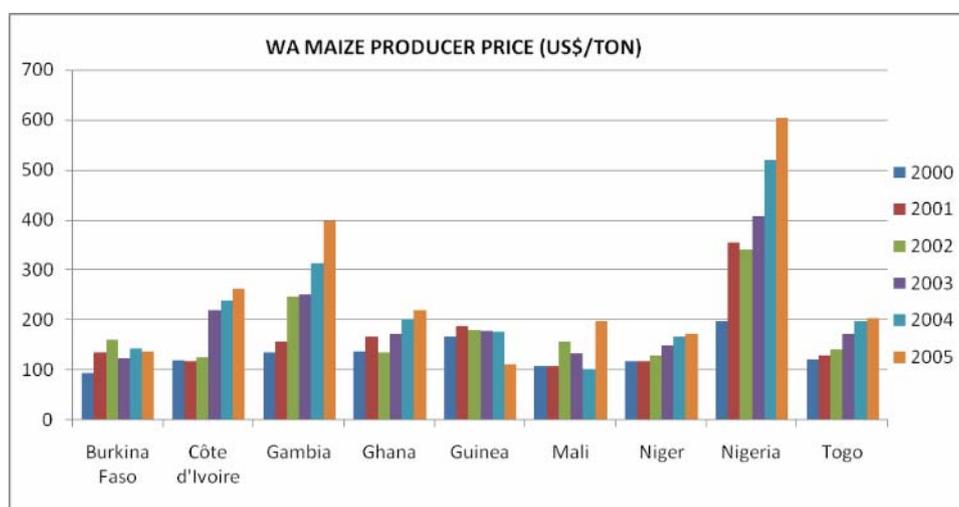
	<b>WEST AFRICA MAIZE EXPORT VALUE ('000 US\$)</b>					
	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>
Benin	2.0	25.9	133.9	1.0	5.0	
Burkina Faso	1774.0	2166.0	628.0	424.0	4104.0	33.0
Côte d'Ivoire	41.0	1064.1	810.0	9.1	120.5	3.6
Gambia	0.0			18.0		
Ghana	61.0	7.2	1492.0	738.5	10.5	8.0
Guinea		308.9				
Liberia		22.3				
Mali	408.9	109.8	26.0		962.0	
Niger	1.0	0.9	4.5			
Nigeria	197.0	350.9	920.5	124.2		
Senegal	144.0	6.0	4.0	305.8	0.0	200.5
Togo	2.0	18.8	3.0	58.9	8.0	0.9



	WEST AFRICA MAIZE IMPORT VALUE ('000 US\$)					
	2000	2001	2002	2003	2004	2005
Benin	42.0	656.0	749.0	54.0	73.9	116.0
Burkina Faso	104.0	1151.6	899.0	507.0	130.0	118.7
Cape Verde	2148.0	3753.0	2383.4	3726.2	1337.3	2094.4
Côte d'Ivoire	1851.0	804.5	2012.0	1779.0		4260.5
Gambia	24.0	2.0	1.0	39.0	52.6	17.9
Ghana	913.0	1544.0	2311.0	551.0	54.9	13188.0
Guinea	0.0	13.0	12.0	6.7	23.5	19.0
Guinea-Bissau	57.1	2.2	5.6	4.5	0.8	1.1
Liberia	26.9	48.2	81.8	1710.2	198.2	364.0
Mali	5.0	441.0	328.2	82.0	748.0	713.4
Mauritania	7.6	121.0		17.9	758.2	
Niger	2545.0	1501.0	2514.0	1600.0	3969.3	38.1
Nigeria	0.0	78.4	2527.1	239.7	17.9	1658.7
Saint Helena	3.4		0.7	24.6	6.7	4.5
Senegal	2243.0	6966.0	11304.0	13377.0	13230.0	16636.0
Sierra Leone	42.0	656.0	749.0	54.0	73.9	116.0
Togo	104.0	1151.6	899.0	507.0	130.0	118.7



	<b>WEST AFRICA MAIZE PRODUCER PRICE (US\$/Ton) based on 1991-2001 International Dollar Prices</b>					
	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>
Burkina Faso	93.2	135.7	161.2	123.3	142.5	137.6
Côte d'Ivoire	119.3	117.6	124.7	219.2	239.3	263.1
Gambia	134.5	156.8	247.0	251.3	314.2	398.9
Ghana	137.4	167.5	135.3	172.5	202.7	219.7
Guinea	166.7	187.8	179.6	178.6	175.9	112.2
Mali	107.7	107.8	157.8	132.5	102.4	197.5
Niger	118.0	117.3	129.1	149.7	167.2	173.0
Nigeria	198.4	354.4	341.1	407.4	520.0	604.6
Togo	120.8	129.6	142.0	172.8	198.7	203.3



**MONTHLY MAIZE PRICES IN MAJOR MARKETS IN BURKINA FASO (JANUARY 2007 – JULY 2008) IN FCFA – SOURCE: AFRIQUEVERTE**

**Janvier 2008 relevé en déc. 2007**

Région	Marché de référence	Riz importé	Mil Local	Sorgho Local	Maïs Local
Ouagadougou	Sankaryaré	24 000	12 000	11 500	12 000
Mouhoun (Dédougou)	Dédougou	28 500	10 500	9 500	11 000
Kossi (Nouna)	Grand Marché de Nouna	28 000	9 000	9 000	10 500
Gourma (Fada)	Fada N’Gourma	25 000	11 500	11 500	10 500
Centre-Est (Tenkodogo)	Pouytenga	<b>24 000</b>	11 500	10 500	13 000
Sahel (Dori)	Dori	28 000	13 000	13 000	12 500
Bam (Kongoussi)	Kongoussi	24 000	13 500	12 000	12 000

**Février relevé en janv**

Région	Marché de référence	Riz importé	Mil Local	Sorgho Local	Maïs Local
Ouagadougou	Sankaryaré	24 000	12 500	11 500	11 500
Mouhoun (Dédougou)	Dédougou	28 000	11 000	11 000	11 000
Kossi (Nouna)	Grand Marché de Nouna	28 000	10 500	10 000	11 000
Gourma (Fada)	Fada N’Gourma	25 000	12 500	12 500	11 500
Centre-Est (Tenkodogo)	Pouytenga	<b>24 000</b>	13 000	12 500	13 500
Sahel (Dori)	Dori	28 000	13 500	12 500	12 500
Bam (Kongoussi)	Kongoussi	24 000	13 500	12 500	12 500

**Mars relevé en février**

Région	Marché de référence	Riz importé	Mil Local	Sorgho Local	Maïs Local
Ouagadougou	Sankaryaré	29 000	12 500	11 500	11 500
Mouhoun (Dédougou)	Dédougou	28 000	11 000	10 500	11 000
Kossi (Nouna)	Grand Marché de Nouna	28 000	10 500	10 000	11 000
Gourma (Fada)	Fada N’Gourma	28 000	12 500	12 500	12 500
Centre-Est (Tenkodogo)	Pouytenga	<b>27 000</b>	13 000	12 500	13 500
Sahel (Dori)	Dori	31 000	13 500	12 500	12 500
Bam (Kongoussi)	Kongoussi	28 000	13 500	12 500	12 500

### Avril relevé en mars

Région	Marché de référence	Riz importé	Mil Local	Sorgho Local	Maïs Local
Ouagadougou	Sankaryaré	29 000	12 500	11 500	12 500
Mouhoun (Dédougou)	Dédougou	28 000	11 000	11 000	11 500
Kossi (Nouna)	Grand Marché de Nouna	28 000	10 750	10 000	11 000
Gourma (Fada)	Fada N'Gourma	28 000	14 000	13 000	12 500
Centre-Est (Tenkodogo)	Pouytenga	<b>27 000</b>	13 500	13 000	14 000
Sahel (Dori)	Dori	31 000	13 500	12 500	12 500
Bam (Kongoussi)	Kongoussi	28 000	13 500	12 750	12 000

### Mai relevé en avril

Région	Marché de référence	Riz importé	Mil Local	Sorgho Local	Maïs Local
Ouagadougou	Sankaryaré	29 000	12 500	14 000	15 000
Mouhoun (Dédougou)	Dédougou	32 000	13 000	12 500	13 000
Kossi (Nouna)	Grand Marché de Nouna	32 000	12 500	12 000	12 000
Gourma (Fada)	Fada N'Gourma	32 500	16 000	15 500	15 500
Centre-Est (Tenkodogo)	Pouytenga	<b>31 000</b>	17 000	16 000	17 000
Sahel (Dori)	Dori	34 500	17 000	15 000	16 000
Bam (Kongoussi)	Kongoussi	29 000	13 500	12 750	12 800

### Juin relevé en mai

Région	Marché de référence	Riz importé	Mil Local	Sorgho Local	Maïs Local
Ouagadougou	Sankaryaré	45 000	16 000	14 000	16 000
Mouhoun (Dédougou)	Dédougou	38 000	15 000	15 000	16 000
Kossi (Nouna)	Grand Marché de Nouna	40 000	14 000	14 000	15 000
Gourma (Fada)	Fada N'Gourma	40 000	16 000	16 000	15 000
Centre-Est (Tenkodogo)	Pouytenga	<b>40 000</b>	19 000	18 000	20 000
Sahel (Dori)	Dori	39 000	17 750	15 750	16 750
Bam (Kongoussi)	Kongoussi	45 000	16 500	16 000	18 500

### Juillet relevé en juin

Région	Marché de référence	Riz importé	Mil Local	Sorgho Local	Maïs Local
Ouagadougou	Sankaryaré	39 500	17 000	15 000	16 500
Mouhoun (Dédougou)	Dédougou	39 000	15 000	15 000	16 000
Kossi (Nouna)	Grand Marché de Nouna	38 000	14 000	13 500	16 000
Gourma (Fada)	Fada N'Gourma	40 000	16 500	16 500	17 500
Centre-Est (Tenkodogo)	Pouytenga	<b>40 000</b>	19 000	18 000	20 000
Sahel (Dori)	Dori	40 000	17 500	15 500	17 500
Bam (Kongoussi)	Kongoussi	38 000	16 500	15 500	17 500



# ANNEX C: LIST OF PERSONS MET

## BURKINA FASO

### **Mme ZOUNDI Simone Kafando:**

Director : SODEPAL (Societe D'Exploitation des Produits Alimentaire)  
Ouagadougou, Burkina Faso  
Tel: +226 50 86 10 82 / (00226) 50 36 10 82  
Mobile : +226 70 23 11 56  
Email: sodepal@fasonet.bf

### **Gervais ADOUBE**

Managing Director /Administrator  
SITRAC (Les Grand Moulins Des Champs(GMC))  
Ouagadougou, Burkina Faso  
Tel: (00226) 50 30 18 18  
Fax: (0026) 50 31 62 68  
Mobile +226 70 24 35 69  
Email: g.adoube@yahoo.fr

### **Soumaila SANOU**

President  
CICB ( Comité interprofessionnel des Céréales du BF)  
Ouagadougou, Burkina Faso  
Tel: 00226 50 34 06 34;  
Fax :  
Mobile; +226 78 82 11 39;  
Email: sanou\_togo@yahoo.fr

### **Michel THIOMBIANO**

Charge du Suivi du Programme Transitoire  
CICB (Comité interprofessionnel des Céréales du BF)

### **Joseph M. DAGANO, President**

President

### **Fédération des Professionnels Agricoles de la Sissili (FEPASI)**

Mobile: +226 76 60 96 29

Email : damimif@yahoo.fr

- Koumbeyao SOMDA, Coordonnateur
- Issouf NACRO, Conseiller agricole
- Mahamoudou KOROGO, Conseiller agricole

- Korotimi DOUAMBA, Responsable communication et commercialisation
- Houdou NADIE, RCEPA
- Hamidou A. DIASSO, Gestionnaire/comptable

### **Traore Bala Moussa**

Coordinateur

Union Provinciale des Professionnels Agricoles de Houet (UPPA-H)

Mobile : +226 76 61 48 44

Email : gogwadjo@yahoo.fr

- Sanou Moumouni, Prsident, Tel : +226 76 17 38 26
- Sanou Mazouma, Secretaire Adjoint, Tel : +226 76 05 77 18
- Ouattara Boureima, Semencier Koro, Tel : +226 76 34 67 24
- Sanou Sydou, Animateur UPPA-H, Tel : +226 70 39 09 13
- Sanou Seidou, Magasinier UPPA-H, Tel : +226 76 63 92 03
- Sanou Siaka, Membre UPPA-H, Tel : +226 76 19 72 15
- Sanou Moumourou, Membre UPPA-H

### **Mohamadou J. MAGHA**

Coordinator Technical Unit

ROPPA (Reseau des Organisations Profess des Producteurs de L'Afrique de L'Ouest)

Ouagadougou, Burkina Faso

Tel: 00226 50360825;

Mobile: +226 78 84 73 02

Email: mmagha@roppa-ao.org

### **Moussa CISSE:**

Coord prog Régionale d'Appui aux Marches

CILSS ( Comite Inter-état de la Lutte contre La Sécheresse dans le Sahel)

Ouagadougou, Burkina Faso

Tel: +226 50374132/25/26

Fax: 00226 50 37 41 32

Mobile: +226 70 31 40 22 or +226 76 45 10 25

Email: moussa.cilss@cilss.bf

**Amadou Mactar KONATE**

Expert sécurité Alimentaire

CILSS (Comite Inter-Etat de la Lutte contre La Sécheresse dans le Sahel)

Ouagadougou, Burkina Faso

Tel : +226 503741 25/32

Fax: 00226 50 37 41 32

Mobile : +226 70 44 33 60

Email : amadou.konaté@cilss.bf

**Philippe KI**

Director

Afrique Verte Burkina

Ouagadougou, Burkina Faso

Tel: )00226) 50 34 11 39

Fax : (00226) 50 34 36 24

Email: afrique.verte@liptinfor.bf

**Gisele DABIRE**

Resp Charge Promotion Unites Transformations Cereales

Afrique Verte Burkina

Bobo, Burkina Faso

Tel: (00226) 20 98 53 72

Mobile: +226 70 43 13 5;

Email: afriqueverte.houet@gmail.com

**Mamadou MAIGA**

Responsable Formation Organisations Paysans;

Afrique Verte Burkina

Bobo, Burkina Faso

Email: maiga.mamadou@yahoo.fr

**Hamza KONE**

President

APICAB (Association Professionnelle des Industriels et Commerçants des Produits Agricoles du Burkina Faso)

Bobo, Burkina Faso

Tel: (00226) 20 97 01 47

Fax: (00226)20 98 15 54

Mobile: +226 70 20 00 95

Email :lhamzak@yahoo.fr

**Other members of APICAB met: OUEDRAOGO Boukary: Vice President + 12 other members**

**Alan LE GOULVEN**

Chef d'Exploitation de Bobo  
BRAKINA - Brasseries Du Burkina Faso  
Bobo, Burkina Faso  
Tel: Std:(00226) 20 97 02 22  
Tel- LD: (00226) 20 97 02 08  
Fax : 900226) 20 97 11 72  
Mobile: +226 70 21 60 04  
Email: legoulven@brakina.bf

**Dr. Jacob SANOU**

Chief of Centre  
INERA ( Institute de L'Environnement et Recherche Agricole)  
Bobo, Burkina Faso  
Tel: (00226) 20 98 23 29  
Mobile: +226 70 28 37 97  
Email: jsanou24@yahoo.fr

**Dr. Adama NEYA**

Pathologist/IPM Scientist- Integrated Pest Management  
INERA (Institute de L'Environnement et Recherche Agricole)  
Bobo, Burkina Faso  
Mobile: +226 70 28 37 97  
Email: adamaneya@yahoo.com

**Bèirelar Hervé HIEN**

Regional Director  
URCPO ( Union Regional des Caisses Populaire du Centre Est /Ouest)  
Bobo, Burkina Faso  
Tel: +226 20 97 33 97  
Mobile: +226 70 26 58 77  
Email: hbeirelar@yahoo.fr

**Marcel GUIRE**

Director, Agence Bobo  
BACB ( Banque Agricole Et Commerciale du Burkina)  
Tel: (0026)226 20 97 00 56  
Fax : (00226) 20 97 10 35  
Mobile: 0026 70 16 12 12  
Email: marcelguire@hotmail.com

**Louis Marie BARILLE**

Managing Director  
SN-GMB ( Societe Nouvelle des Grands Moulins Du Burkina)

Tel: (00226) 20 91 16 01  
Fax : (00226) 20 91 16 02  
Mobile : +226 70 52 79 67;  
Email : sngmb@fasonet.bf

**Antoine SERRE**

Director of Production  
SN-GMB ( Societe Nouvelle des Grands Moulins Du Burkina)  
Mobile : +226 70 05 22 66  
Email : sngmb@fasonet.bf

**El Hadj Saihibou TERA**

Ets Tera: Commerce de Céréales  
Bobo, Burkina Faso  
Tel : (00226) 20 97 17 59  
Res : (00226) 20 97 29 29  
Mobile; +226 70 21 53 03

**MALI**

**Jean François GUAY**

Director  
USAID/Abt Associates IICEM Project (Initiatives Intégrées pour la Croissance Economique au Mali)  
Bamako, Mali  
Tel: (00223) 490 08 59  
Mobile : (00223) 640 26 77  
Email: jf.guay@iicem.net

**Brehima DAGNOKO**

Marketing Expert

USAID/Abt Associates IIEM Project (Initiatives Intégrées pour la Croissance Economique au Mali)

Sikasso, Mali

Tel: (00223) 438 05 88

Mobile + 223 640 84 88

Email: brehima.dagnoko@iicem.net

**N'Tji KONARE**

Conseiller Agri-Business

GREFA SARL (Groupe de Recherche d'Etude et de Formation en Agriculture et Arboriculture)

Sikasso, Mali

Tel: (00223) 262 04 07

Cell: +223 602 49 53

Email: grefasarl@yahoo.fr

Email: ntjikonare@yahoo.fr

**Berthé ZIE**

Administrator

GREFA SARL (Groupe de Recherche d'Etude et de Formation en Agriculture et Arboriculture)

Tel : (00223) 262 04 07

Mobile : +223 623 25 16 /+223 677 71 57

Email : grefasarl@yahoo.fr

**Zakaria TRAORE / Doyen/ H. TOURE / Organizing Secretary/ Treasurer**

APLS (Association des Vendeurs des Produits Locaux de Sikasso)

Sikasso, Mali

Tel: +223 639 64 39

Email : zak\_traore@yahoo.fr

**Mme NOBRE Aissatou**

Gender & Training Coordinator

Projet SAADA ( 1000+)

IFDC Mali

Tel:00223 490 01 22

Mobile : +223 635 67 56

Email: anobre@ifdc.org

**Ibrahima TOURE**

Chef de Projets Stratégies de Marchés /Coordonnateur IFDC- PCDA

IFDC Mali

Tel: 00223 490 01 22

Tel : +223 623 68 47 / +223 689 93 93

Email : itoure@ifdc.org

Email: itoures@yahoo.fr

**Yves Duplessis**

Coordonnateur Projets 1000+,

IFDC Mali

Tel: +223 490 01 22

Mobile : +223 520 37 35,

Email: yduplessis@ifdc.org

**Salia TOGOLA**

Managing Director

KAC: Kene Aliment Compose

BP 333, Sikasso, Mali

Tel: +223 605 96 41

Email: saliatogola@yahoo.fr

**Lassine DEMBELE**

Regional Delegate-Sikasso Region

Kafo Jiginew: Union des caisses Mutuelles D'Epargne et De Crédit

Sikasso, Mali

Tel : (00223) 225 30 20 / (00223) 262 07n49

Fax : (00223) 225 32 73

Mobile : +223 688 38 37 / +223 901 36 30

Email : dembele74@yahoo.fr

**Salifou B. DIARRA**

Coord OMA - OMA: Observatoire du Marche Agricole, Mali

President RESIMAO - RESEAU des SYSTEMES d'INFORMATION de MARCHES de l'AFRIQUE de l'OUEST

Tel: +223 676 83 47

Email: salif@datatech.net.ml

**N'tji KOULIBALY**

Maize Breeder

IER : Institut d'Economie Rurale

Bamako, Mali

Tel :+223 671 53 42  
Tel : +223 622 87 01  
Email: ntji.koulibaly@ier.ml

**Traore Gaoussou**  
CTO, IICEM Project  
USAID, Mali  
Te: +223 675 17 30

## **BENIN**

**Dominique Akoloude AFOMASSE**  
Ministère de l'Agriculture  
Agricultural Economist  
03 BP: 2900 COTONOUT  
Tel: 229-21-30-04-10

**Dr. Adeniyi Anselme ADEGBIDI**  
Agricultural Economist,  
Université d'Abomey-Calavi - 01 BP 526 Cotonou, Bénin  
Tel: 229-95-96-69-63  
ansadegbidi@yahoo.fr

**Hilaire KOTOMALE**  
Office National D'appui A La Sécurité Alimentaire O.N.A.S.A.  
B.P. 06-2544  
PK 4 Route de Porto-Novu - Cotonou  
TEL: 21-33-15-02

**Dr. KOSSOU K. Dansou, Professor of Agronomy and Grain Storage, U. of Abomey-Calavi**  
Professeur Titulaire  
Agronomie-Stockage & Conservation  
Coordonnateur Béninois du Projet Convergence des Sciences  
01 BP 526 UAC Cotonou  
Tel: (229) 21 36 01 26/21 36 01 22  
Email: Kossoundansou@yahoo.com

**GNA Tairou B.**  
Executive Secretary  
Chambre Nationale d'Agriculture  
04 BP 709, Cotonou  
+229 90 03 14 25

**Eric NEWMAN**

ADF - Benin  
08 BP 0546  
Cotonou, Benin  
Tel: (229) 21.30.67.51  
Fax: (229) 21.30.67.52

**Gabriel Pomeyon YANDJOU**

Tel: 21 30 50 32  
yandjou@bj.refer.org

**AMOUSSOU A. Richard**

Ministere de l'Agriculture  
Assistant SGM

**COTE D'IVOIRE**

**Thomas EPONOU**

Directeur du DAAR  
BNETD – Bureau National d'Etudes Techniques et de Développement  
Bd Hassan II – Cocody  
04 bp 945 Abidjan 04 Côte d'Ivoire  
Tel: (225) 22 44 56 66  
Cell: (225) 05 63 56 06  
Email: Eponou-Thomas@yahoo.fr

**CAMARA Yves**

Production Manager  
FACI (Société de Fabrication d'Aliments Composés Ivoiriens)  
Tel: (225) 08 19 87 68  
Email: Kamarayves@hotmail.com

**FADIGA Mamadou Deye**

Agricultural Engineer

(INADES) l'Institut Africain pour le Développement Economique et Social

Tel: (225) 22 50 40 71

Fax: (225) 22 50 40 72

Cell: (225) 07 11 50 64

**KONE Kadidja**

Director

(INADES) l'Institut Africain pour le Développement Economique et Social

BP 1085 Abidjan 28

Cote d'Ivoire

Tel: (225) 22 50 40 71

Fax: (225) 22 50 40 72

**Alphonse COFFI**

Director of Production

SIPRA (Société Ivoirienne de Productions Animales) – IVOGRAIN

04 BP 1664 Abidjan 04 Cote d'Ivoire

Tel: (225) 23-53-00-55

Fax: (225) 23-46-63-67

Email: [AlphonseCoffi@Sipralvograin.com](mailto:AlphonseCoffi@Sipralvograin.com)

**Patrick YACE**

Director of Production

SIPRA (Société Ivoirienne de Productions Animales) – COQIVOIRE

04 BP 1664 Abidjan 04 Cote d'Ivoire

Tel: (225) 24 39 04 23

Fax: (225) 24 39 38 19

Email: [patrickyace@sipracqivoire.com](mailto:patrickyace@sipracqivoire.com)

# ANNEX D: SELECTED BIBLIOGRAPHY

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UPGRADING : CAPRI WORKING PAPER NO. OCTOBER 2007

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