AGRIBUSINESS AND TRADE PROMOTION (USAID ATP)

In fulfillment of the following deliverable under task A 3.1.3:

Annual List of Target Investments in Market Logistics Infrastructure with a "Mini-Strategy" for Facilitating Public/Private Investement for each Target Investment

Maize (FY 2011)

Contract/ Project No.: EDH-1-00-00005-08

Submitted to:
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ANNUAL LIST OF TARGET INVESTMENTS IN MARKET LOGISTICS INFRASTRUCTURE – MAIZE FY 2011

USAID AGRIBUSINESS AND TRADE PROMOTION (ATP) PROJECT

October 2011

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USAID AGRIBUSINESS AND TRADE PROMOTION (ATP) PROJECT

CONTENTS

ACRONYMS

ATP	Agribusiness Trade Promotion
AU-NEPAD	African Union's New Partnership for Africa's Development
CAADP	Comprehensive Africa Agriculture Development Program
GHC	Ghanaian Cedis
VC	Value Chain
USAID	United States Agency for International Development

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- Virginia Schippers: Project Specialist– team leader and lead field researcher
- Laura Busch: Economist– research task manager

The final report is authored principally by Virginia Schippers, team leader and lead field researcher. The author gratefully acknowledges the excellent research and logistical support of the following individuals:

- Ali Issaka: Data Collector– focal point for onion corridor and markets, logistical and research support;
- Labi Dahoui : Data Collector– focal point for livestock corridor and markets, logistical and research support;
- Dieudonne Kam: Data Collector– focal point for maize corridors and markets, logistical and research support;
- Jeffrey Edue: Project Driver

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EXECUTIVE SUMMARY

In November 2010, the Agribusiness Trade Promotion Project (ATP) undertook a transport and logistics study which examined the costs associated with transport of maize along key trading corridors in West Africa. As a part of project Outcome 1, "Significant reduction of the incidence of physical and policy related barriers to intra-regional agricultural trade in West Africa," this transport and logistics study was designed to help articulate how various transport constraints associated with regional trade in West Africa impact the overall operation of the onion value chain.

Through the initial study, USAID ATP and its stakeholders gained a better understanding of how inefficiencies in the transport and logistics process relate to overall costs (and competitiveness) in the maize value chain along the major trade corridors and at key markets. The study also generated a list of the highest priority market infrastructure and road infrastructure investments needed in order to address the most glaring inefficiencies.

This study, undertaken in September 2011, updates the findings of the original study, focusing on what has changed in market logistics infrastructure since the initial study was completed approximately one year ago.

This update has two main findings that differ from the original study conducted in November of 2010. The first finding is that addressing the lack of scales in the Nigerien and Burkinabe markets is the highest priority in terms of required investments that are needed to improve value chain efficiency. This is contrary to the original study which noted that while the lack of scales is indicative of the informality and lack of professionalism in the system, it may not result in a significant cost burden to the value chain. The second priority investment recommended in this update is investment in sheds and hangars to protect the bags of maize from rain. The original study was conducted during the dry season and therefore, this need was not observed. However, the difficulty traders faced in trying to keep their maize dry without shelter provided by proper infrastructure was evident during the field research for this update which took place during the rainy season. Finally, the need for designated parking and loading/unloading zones was recommended in both the original study and this update.

I. INTRODUCTION

The Agribusiness and Trade Promotion (USAID ATP) project is a four-year regional initiative funded by the United States Agency for International Development (USAID). Launched in 2008, USAID ATP has focused on three agricultural value chains: maize, onion, and ruminant livestock/red meat. USAID ATP aims to increase the value and volume of intra-regional agricultural trade through value chain development and associated activities along the major commercial corridors linking Niger, Senegal, Mali, Burkina Faso, Benin, Togo, Ghana, Côte d'Ivoire, and Nigeria. USAID ATP is designed to contribute to achieving the 6 percent annual agricultural growth target set under the Comprehensive Africa Agriculture Development Program (CAADP) of the African Union's New Partnership for Africa's Development (AU-NEPAD).

Maize has always been vital to food security in the West African region. As an important source of calories in the diets of many West Africans, maize is generally recognized as a staple food and is therefore commonly acknowledged as an important commodity in food security.

It is important to note that the food security of the region is dependent not only on the farmers' ability to produce a surplus of maize for trade, but also on the commodity's ability to move efficiently from production zones to consumption markets. Inefficiencies in West Africa's transport and logistics systems are a recognized constraint to trade within the region. These constraints include, but are not limited to, bureaucratic procedures at border posts; excessive road checkpoints; haphazard application of regional inter-state transport and transit treaties; lack of coordination among value chain actors; inadequate road and market logistics infrastructure; overloading of trucks; lack of competition in trucking services; and insufficient competition in market logistics services. These inefficiencies increase supply chain costs for traders directly (through high transport prices and informal payments) and indirectly (through increased time to market and product spoilage/loss).

Therefore, understanding the transport and logistics component of the maize value chain is crucial to identifying some of the most important constraints to regional trade and represents a crucial piece of the puzzle of West African food security.

Suitable infrastructure in wholesale and retail maize markets contributes greatly to reducing product losses in the time between its arrival in the market and the final sale, and therefore the efficiency of trade along the corridor. In many cases, the key maize markets in the region lack this necessary infrastructure, resulting in high product losses. This study focuses on the state of the infrastructure found in each of the maize markets along the USAID ATP maize corridors, and identifies the highest priority infrastructure needed to decrease inefficiency and reduce losses.

2. METHODOLOGY

This study is a follow-up (or "update") to the original maize transport and logistics study that was conducted in November 2010. The original study broke down and examined all of the costs and product losses along the entire value chain: on-farm losses; loading/unloading and transport fees; losses due to truck breakdowns and delays at borders; bribes and other formal and informal payments; and losses at the market due to inadequate or lacking infrastructure. However, the update to this study is more targeted, focusing specifically on the changes that took place in the market logistics infrastructure component of the study since the original research was collected and analyzed.

2.1 PRELIMINARY RESEARCH

Based on the findings of the original study, initial recommendations were made for priority areas in market logistics investment. Drawing from these findings, USAID ATP made decisions on where and how to provide resources for key interventions.

As this annual update is focused on examining the improvements made, or any changes in market logistics infrastructure that occurred during the year following the 2010 analysis, prior to beginning any field work these key original findings and recommendations for maize market logistics infrastructure were closely reviewed. Furthermore, through discussions with the USAID ATP project teams, the consultant gathered information on what recommendations the project has been working to implement. Through this preliminary research, the consultant developed a matrix of key information to be collected during the field work.

2.2 FIELD WORK

The original transport and logistics study was conducted along the main trade corridors for the maize value chain:

- Techiman, Ghana – Ouagadougou, Burkina Faso; and
- Techiman, Ghana – Niamey, Niger[1]

[1] Note: The original consultant traveled only as far as the Burkina I November 2010, there was a ban on travel to Niger for all USAID- first time for the update in September 2011. By this point, the travel ban had been lifted and USAID project activities resumed in Niger.

These are the roads that link the main production zones to the large consumption markets. Therefore, the update to the transport and logistics study followed the same corridors to evaluate the market logistics infrastructure in each of the markets located along this route (see map).

Along this corridor, there were a total of four distinct markets visited during field work:

- Techiman, Ghana
- Ouagadougou, Burkina Faso
- Pouytenga, Burkina Faso
- Niamey, Niger

The field work for this update started at the southernmost point (Accra, Ghana), and followed the corridor up to the northernmost point (Madaoua – Galmi). The team was comprised of a team leader (Virginia Schippers), three data collectors (Ali Issaka, Labi Dahoui, and Dieudonne Kam), and one driver (Jeffrey Edue). Virginia Schippers traveled with Ali Issaka from Accra, Ghana to Techiman, Ghana where they were there joined by Dieudonne Kam. Schippers, Issaka, and Kam continued together to northern Ghana, leaving Issaka at Bolga, where he continued alone to Pouytenga. Kam and Schippers continued on to Ouagadougou and Pouytenga and Fada N'Gourma where they rejoined Issaka. They then traveled on to Niamey, meeting Labi Dahoui in Niamey. Next, Schippers, Kam and Issaka traveled from Niamey to Madaoua-Galmi[2]. This field work took a total of seven days.

[2] Note: this Niamey-Madaoua/Galmi sub-corridor was not related to the maize VC. This sub-corridor was relevant for the USAID ATP onion value chain.

3. OVERVIEW OF THE VALUE CHAIN, CORRIDORS, AND MARKETS

Maize is one of the key staple food crops in West Africa and its production has been increasing steadily over the past 25 years. Maize serves as both a subsistence food (of growing importance in the West African diet) and a cash crop meeting the demands of urban consumers, and providing raw materials for food processing, beer brewing and animal feed companies. The West African maize market is characterized by localized deficits and surpluses, driven largely by weather patterns in the region. This results in significant regional and seasonal price variations. Deficits are mainly met by extra-regional imports (food aid and commercial imports), and West African traders have not yet been able to fully seize the opportunity for regional price arbitrage. A USAID ATP Maize Value Chain Assessment concluded that only about 15% of maize[3] produced in the region traded is across borders[4]. Therefore, intra-regional trade represents a significant economic opportunity for producers to expand their market shares, increase their incomes, and create substantial competition for maize imports sourced from outside of the region. However, there are significant constraints to intra-regional maize trade - especially those related to transport and logistics - which severely limit the extent to which goods can reach their destination markets in a timely, cost-effective manner while maintaining quality standards. Although policies such as seasonal maize export bans also hinder intra-regional trade, this annual update will focus on constraints that are linked to inadequate market logistics infrastructure.

The main production zones in the region are Southwest Burkina Faso, Southern Mali, Northern and Central Ghana as well as Benin, and there is significant demand for maize in Southern Ghana, Abidjan, Cotonou and Nigeria[5]. Trade also occurs within production zones due to seasonal local deficits and surpluses. The Techiman-Ouagadougou and Techiman-Kantchari transport corridors are vital to moving maize out of a key regional production zone and into regional markets.

There were four key maize markets visited along the corridor. The first was **Techiman**, an important maize market in West Africa, followed by a smaller market in **Ouagadougou** where some of the maize that is bought in Techiman is sold. The next stop was the **Pouytenga**

[3] It should however be noted that the true volume and value of agricultural products crossing borders is unknown, since these goods are also taken across borders through informal channels.
[4] Maize Value Chain Assessment USAID ATP Draft Technical Report No.1, September 2008
[5] USAID Maize Value Chain Assessment USAID ATP Draft Technical Report No.1, September 2008

market, located approximately 100 km east of Ouagadougou, and the final market visited was the **Niamey**[6] market in Niger.

[6] Note: The consultant that conducted the original maize transport and logistics study in November 2010 did not travel past Kanchari, Burkina Faso, on the border of Niger do to a travel ban for USAID-funded projects. The Niamey maize market was visited for the first time during the update during September 2011.

4. KEY FINDINGS IN MARKET LOGISTICS INFRASTRUCTURE – ORIGINAL STUDY

The original maize transport and logistics studies found lacking or insufficient infrastructure in markets to be a factor driving high costs and a cause of significant losses of product. For this reason, market infrastructure was deemed worthy of investment from project resources. The most glaring inefficiencies caused by lacking market logistics infrastructure are noted below.

In the original maize transport and logistics study, the consultant concluded that the most critical market infrastructure element missing from all markets visited was dedicated **loading and unloading zones**. In each of the markets observed, it was stated that it was not uncommon for trucks to be delayed for 4-6 hours because they were parked in the middle of the market, parked along a busy street, or unable to effectively maneuver to load and unload goods. In the Techiman market, for example, trucks are allowed to enter the market from multiple directions, causing significant delays and confusion, often resulting in accidents when trucks end up in the ditch trying to pass another parked truck.

In most of the markets observed in the original study, traders and wholesalers do not use **scales** to verify the actual weight of the product. The consultant of this original study asserted that while the lack of this specific infrastructure may not result in a significant cost, it is indicative of the informality of system.

Finally, the consultant claimed that there was a great deal of time, energy and resources being spent on multiple types of **bags** in the value chain, none of which were adequate for maize storage. Most of Ghana's domestic maize shipments are in the Ghana Cocoa Board bags, and bags that leave Ghana for intra-regional commerce are often used, ripped, and not cleaned between uses. This is a potential risk for spread of disease, and results in additional product losses. The current price of bags in

the market (between 0.50 and 2.00 GHC) seems high for used bags of this nature. The introduction of a bag specific to maize was presented in the study as being an important aspect of improving market logistics. The author recommended creating a lower-cost, more appropriate bag for the value chain.

5. KEY FINDINGS IN MARKET LOGISTICS INFRASTRUCTURE –FY 2011 UPDATE

This section provides an update to the market logistics findings of the original study. The key observation from this update is that there is still a lack of adequate infrastructure to run the markets efficiently at each maize market examined.

5.1 TECHIMAN

The Techiman maize market remains as it was described in the original study in November of 2010, which is not surprising since the market hasn't had any new infrastructure built since 2000. At this time, the Techiman Municipal Authority constructed sheds/hangars for the traders to store their maize temporarily in the market before being sold. Unfortunately, these hangars were poorly built and of low quality and therefore collapsed shortly after their construction. Currently, there is a lack of **sheds/hangars** which causes spoilage. The hangars that do exist are traditional (created with wooden stakes and thatched roofs) and do not protect the maize from the elements as well as a more permanent structure would. In fact, maize traders stated that traditional hangars caused 30% higher losses than modern sheds/hangers. Maize traders identified this lack of modern hangars/sheds as being the highest priority among potential investments aimed at improving market logistics infrastructure.

One's first impression of the Techiman maize market is that it is total chaos: there is no designated **parking** or **loading/unloading** zone which means that trucks enter the market from all different directions, frequently getting blocked in by other trucks. Trucks can wait for up to five hours before being able to offload/load causing delays and inefficiency. Additionally, the market floor is **unpaved**, which during the rainy season, causes problems for

traders who need to keep the maize dry. Currently, maize is dried by being placed on a tarp on the market floor to dry by the sun. While this method can work during the dry season, it becomes impossible during the rainy season when the unpaved market floor turns into deep mud with large puddles.

There might be opportunities to increase efficiency by using bags that are more suitable to maize transport. Currently, maize is brought to the market in 180-kg polypropylene bags and transferred to 120-kg jute bags when sold. Neither of these bags is adapted to the trade and transport of maize. Since this study did not explore and compare prices, durability, and product losses incurred when using improved sacks, polypropylene bags, and jute bags, it is difficult to conclusively state that traders would be willing to pay for improved bags. However, it should be noted that the weight of the 120-kg and 180-kg bags currently in use can cause severe injuries to the handlers who are in charge of loading and unloading the trucks. If the price, durability, and reduced product losses are sufficient to motivate traders to use improved bags, and smaller bags are also acceptable, this could both increase profits and decrease the risk of handler injuries.

Finally, there were no **scales** in the market. As was found in the original study, this lack of scales did not appear to be a big problem, because in Ghana, maize is sold by the bag, not by the kilo[7] .

5.2 OUAGADOUGOU – ZONE I MARKET

The Zone 1 market is the smaller of two wholesale maize markets located in the center of Ouagadougou. While the second, larger market in Ouagadougou—called the Sam Karraré market—is where most of the maize that is grown in Bobo Dioulasso and other regions in Burkina Faso is sold, the Zone 1 market sells maize from Techiman and other regions in Ghana. During the market visit, very little maize was found being sold in the market. Upon inquiring further, the maize

[7] This lack of scales was found to be problematic in the markets in Burkina Faso and Niger, as the maize there is sold by the kilo and must be weighed before final sale.

stakeholders explained that there has been very little maize trade between Ghana and Burkina Faso for the past two years since the prices in Ghana significantly increased. (However, there was plenty of Burkinabé maize being sold in the Sam Karraré market.)

One of the highest priority infrastructures that was lacking in the Zone 1 market was **scales**. As mentioned in the description of the Techiman market, scales are not used or needed in Ghanaian markets because maize is sold by the bag in Ghana. However, in Burkina Faso, maize is traditionally sold by the kilo (or other weight) requiring the use of scales to determine the required weight and appropriate price. Additionally when maize is sold by the bag in Burkina Faso, the standard is 100kg—a standard that is demanded not only by the buyers but also by the Burkinabé government. However, since the bags in which the maize is sold are the 120kg jute bags, scales are necessary to insure that only 100kg is being placed in each bag. In the Zone 1 market, there were no functional scales and each of the traders that needed to make a sale had to travel across the city to the Sankaryaré market and rent the scales from those traders every time they had a buyer for their maize. This is an extremely inefficient process.

Sheds/hangars are another type of priority infrastructure that was lacking in the Zone 1 market. The sheds in Zone 1 are traditional structures which do not provide protection as well as the permanent and well-built hangars found in the Sankaryaré market. These traditional hangars in the Zone 1 market are simple thatched roofs on top of wooden pegs, and are extremely inefficient at keeping water off the maize, especially when compared to the concrete stores found in the Sam Karraré market. Maize value chain stakeholders and the field research team agreed that these kinds of stores were the highest priority infrastructure for the Zone 1 market with scales following closely behind.

Finally, as was the case in the Techiman market, the **unpaved market floor** made it difficult to keep the maize dry. This is particularly problematic during the wet season, because when the floor turns into mud, the traders no longer have a place to dry their maize. If part or the entire market floor was paved, this would provide a solution to this problem.

5.3 POUYTENGA

As is the case in the Ouagadougou Zone 1 market, very little maize from Ghana is sold in the Pouytenga maize market. Although there is a small amount of maize that comes from Techiman, the vast majority of maize sold in this market is domestically produced, and is sourced from Bilanga, Bobo Dioulasso, Dudougou, Kompienga, and Noura. As was the case in Ouagadougou, Pouytenga stakeholders confirmed that for the past two years, the prices from Ghana have been too high to be a viable trading option.

Access to sheds/hangars under which traders' maize could be kept dry and out of the elements was the market's biggest need. There were very few sheds and those that existed were traditional hangars that failed to keep the maize dry in bad rain storms. Ten years ago, the Pouytenga local government earmarked the land under the original market for an army camp, and thus required buyers and sellers to relocate their market to another location. Since this time,

they have prohibited the construction of any sort of permanent infrastructure like sheds or hangars in the original market location.

The traders in this market also need **scales** for the same reason cited for the Zone 1 market: in Burkina Faso, maize is bought by the kilo, and when sold by the bag, they cannot be more than 100 kg. There were very few functional scales in the market and those that were still being used were old and sometimes inaccurate.

There was also a **lack of pallets** in this market which caused problems, particularly in the wet season when the **unpaved market floor** turns into wet mud. When this happens, it is imperative that the bags of maize are not stacked directly on the mud but elevated on pallets to stay dry.

Finally, the market did not have a designated parking lot or loading/unloading zone which made it difficult for the trucks to load and unload quickly. This is not as severe of a problem as in Techiman, however, as the trucks in Pouytenga only have to wait about two hours to unload, which is about a third of the average waiting time in Techiman.

5.4 NIAMEY – KATAKO MARKET

While this was the biggest cereal market in Niamey it was confirmed that there was very minimal maize trade between Niger and Techiman or other markets in Ghana. Since very little maize is produced in Niger, not surprisingly the maize that is sold in the Niamey market is all imported from Burkina Faso (mainly Bobo-Dialasso) and Benin (mainly Parakou.)

The Katako market was extremely disorganized with many different kinds of commodities (construction materials, leather, livestock, condiments, etc.) also being sold and there was no designated area for the maize and other cereals in the market. This disorganization and congestion

caused problems for trucks trying to enter, load/unload, and leave the market. The construction of a **designated cereal market** with a specific **parking** and **loading/unloading zone** would relieve this congestion, specifically through construction of a paved parking lot and cross docking stations for the trucks. Although not as important as a parking and loading/unloading zone, Scales are also a high priority for the market as there were very few and, like in Burkina Faso, the standard is 100-kg bags.

Finally, **pallets** are needed to keep the maize off of the **unpaved market floor**, especially during the wet season. The pallets that are available and in use currently are not adapted to storing bags of maize, and these pallets rip the bags causing large amounts of physical loss.

6. RECOMMENDATIONS

6.1 ANNUAL LIST OF TARGET INVESTMENTS IN MARKET LOGISTICS INFRASTRUCTURE

1. Support facilitation of investment or credit for the purchase and use of scales in Zone 1, Burkina Faso and Katako, Niger markets.

2. Support facilitation of investment or credit for the construction of sheds/hangars at the Ouagadougou market.

3. Support facilitation of investment or credit for the redesign of the Techiman market, including the construction of sheds and of a designated cross-docking station.

6.2 "MINI STRATEGY" FOR FACILITATING PUBLIC/PRIVATE INVESTMENT FOR EACH TARGET INVESTMENT

1. Support facilitation of investment or credit for the purchase and use of scales in Zone 1, Burkina Faso and Katako, Niger markets:

The original transport and logistics study noted that in most of the markets observed, traders and wholesalers do not use scales to verify the actual weight of the product. Additionally, the consultant claimed that although this is indicative of the informality and lack of professionalism in the system, the lack of scales may not result in a significant cost burden to the value chain. While this update concurred with the conclusion that there were very few scales seen or utilized in the markets, it disagrees with the statement that it does not result in a significant cost burden to the value chain. On the contrary, in Burkina Faso and in Niger, scales are an absolutely imperative infrastructure as maize is sold by the kilo and not by the bag (as is practiced in Ghana), and maize cannot be sold unless it is weighed in front of the buyer. Therefore, this lack of scales presents a huge problem to the traders in Burkina Faso and in Niger and it is an important investment for the entire maize value chain. USAID ATP can work with the various maize associations that manage and operate the different maize markets along the corridor to facilitate the purchase and utilization of these scales.

2. Support facilitation of investment or credit for the construction of sheds/hangars at the Ouagadougou market:

The original transport study did not note that the lack of sheds/hangars presented a large problem to the maize value chain actors. This is, most likely, because the original study was

conducted during the dry season when there was very little rain and therefore, negligible spoilage due to wet product. However, this update was conducted during the rainy season, and the effects that the rain had on the maize (due to lack of proper infrastructure to keep it dry) were very obvious. The USAID ATP project can work with the various maize associations that manage and operate the different maize markets along the corridor to facilitate the financing and construction of hangars/sheds in the Techiman and Ouagadougou markets[8] .

3. Support facilitation of investment or credit for the redesign of the Techiman market, including the construction of sheds and of a designated cross-docking station :

As was the case in the Ouagadougou market, sheds under which maize can be stored safely from the elements is a crucial infrastructure missing at the Techiman market. Additionally, another critical and lacking market infrastructure from the Techiman maize market is dedicated loading and unloading zones. In this market, it is not uncommon for trucks to be delayed 4-6 hours because they are parked in the middle of the market, parked along a busy street, or unable to effectively maneuver to load and unload goods. Trucks are allowed to enter the market from multiple directions, causing significant delays, confusion, and often resulting in accidents – in some cases, trucks end up in a ditch after trying to pass another parked truck. In the Techiman market, trucks should be allowed to enter from only one of the gates, making the current two-way lane a one-way lane with one side for parking and the other for free movement of trucks. This would be an interim solution until dedicated loading and unloading zones can be established. The USAID ATP project can play a role in reducing unnecessary delays in the primary intra-regional commerce markets of Techiman by working with the local authorities to suggest new traffic flow guidelines.

Specifically, USAID ATP can:

- Facilitate discussions between the maize trader's association in Techiman and the Techiman Municipal Assembly for the allocation of additional land in order to extend the size of the market;
- Provide the technical assistance for the redesign of the market, including the logistics; and
- Assist the municipality and maize traders' association with the development of a business plan for the mobilization of private capital needed for new construction in the market.

[8] Sheds/hangars were not noted as being a priority infrastructure for the Niamey market and though hangars are needed in the Pouytenga market, the local government has banned the construction of any permanent infrastructure as the land has been earmarked for other purposes.