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AGRIBUSINESS AND TRADE PROMOTION (USAID ATP)

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Annual List of Target Investments in Market Logistics Infrastructure with a “Mini-Strategy” for Facilitating Public / Private Investment for each Target Investment Onion (FY2011)

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

Submitted to: Danielle Knueppel, COR
Agribusiness and Trade Promotion Project
USAID/WA
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

In collaboration with:
ACDI/VOCA
CARANA Corporation



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ANNUAL LIST OF TARGET INVESTMENTS IN MARKET LOGISTICS INFRASTRUCTURE – ONION FY2011

USAID AGRIBUSINESS AND TRADE PROMOTION (ATP) PROJECT



October 2011

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**USAID AGRIBUSINESS AND TRADE
PROMOTION (ATP) PROJECT**

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

ATP	Agribusiness and Trade Promotion
AU-NEPAD	African Union's New Partnership for Africa's Development
CAADP	Comprehensive Africa Agriculture Development Program
KMA	Kumasi Metropolitan Assembly
ONFO	<i>Observatoire national de la filière oignon du Burkina Faso</i>
ORO	<i>Observatoire régional de la filière oignon</i>
PRODEX	Agro-Pastoral Export and Market Development Project
USAID	United States Agency for International Development
VC	Value Chain

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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:

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EXECUTIVE SUMMARY

In October 2010, the USAID Agribusiness Trade Promotion Project (ATP) undertook a transport and logistics study which examined the costs associated with transport of onion 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 to 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 impact overall costs (and competitiveness) in the onion value chain along the 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.

The original study found that as a highly perishable crop, onions need to be well ventilated and sheltered from the sun and from the rain. Otherwise large quantities of the product will spoil, making **temporary storage facilities** in the markets and aggregation centers the most important infrastructure for onions. The onion markets and aggregation centers lacked adequate storage facilities, causing up to 30%-60% losses in product, depending on the type of facilities used. This represents a significant and unnecessary cost to value chain actors. The losses were most prevalent in the Madaoua-Galmi aggregation points, and also significant in the Agbogbloshe consumption market.

Additionally, the practice of using old cocoa **bags** with added netting to enlarge their capacity negatively impacts the quality of the product and the health of the laborers. The size of the bags makes them too heavy when full, causing injury to handlers as well as crushing the onions. The materials of the bags and lack of ventilation facilitates bacterial infection and spoilage during transport.

The main findings of this update are similar to the findings in the original study. The main causes of product loss are still due to inadequate **storage facilities** (both permanent and temporary) and the use of **bags** that are not adapted to the transport and storage of onions.

I. INTRODUCTION

The Agribusiness and Trade Promotion (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 six 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).

Onions, although not normally considered a staple food, are an important cash crop, improving the incomes and livelihoods of those farmers who produce them. Thus, indirectly, onions contribute to food security in the West African region.

Food security of the region is impacted not only by farmers' ability to produce a surplus of onions for trade, but also by 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 additional time to market and product spoilage/loss).

Therefore, understanding the transport and logistics component of the onion 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 onion markets contributes greatly to reducing product losses, and therefore improving the efficiency of trade along the corridor. Onions are a highly perishable product and require shade from the sun and ventilation to avoid spoilage. In many cases, the key markets in regional onion trade lack the infrastructure that can provide this protection, resulting in high product losses. This study focuses on the state of the infrastructure found in each of several key onion markets along the USAID ATP onion 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 onion transport and logistics study that was conducted in October 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). The update to this study is more targeted, focusing specifically on the changes that have been made 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. Based on these recommendations, USAID ATP made decisions on where to provide resources for key interventions.

As this annual update is focused on examining the improvements made or any changes in market logistics infrastructure after one year, prior to beginning any field work, these key original findings and recommendations for onion 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 field work was conducted along the main trade corridor for the onion value chain (identified by USAID ATP): Madaoua, Niger to Accra, Ghana. This is the road that links the main production zones to the large coastal consumption markets. Therefore, the FY11 update to the transport and logistics study followed the same corridor 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 five distinct markets/aggregation points visited:

- Agbogbloshie, Accra, Ghana
- Amasaman, Accra, Ghana
- Kumasi, Ghana
- Madaoua-Galmi, Niger
- Tsernawa, 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 (to update the onion sub-corridor) 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 (to update the Bolga-Pouytenga onion sub-corridor). Kam and Schippers continued on to Ouagadougou and Pouytenga and Fada N’Gourma where they rejoined Issaka. They then traveled on to Niamey together, meeting Labi Dahoui in Niamey. Next, Schippers, Kam and Issaka traveled from Niamey to Madaoua-Galmi (to update the Niamey – Madaoua onion sub-corridor). This field work took a total of 7 days, including travel and visits.

3. OVERVIEW OF VALUE CHAIN, CORRIDORS, AND MARKETS

Onions serve as an important cash crop - millions of farmers across West Africa rely on them for a significant portion of their livelihoods. A number of West African countries are producers of onions, but only Niger and Burkina Faso produce in quantities that exceed domestic demand¹. The Madaoua – Galmi region of Niger is the largest onion-producing region, sending exports mainly to the consumption markets of Accra, Ghana. However, structural and organizational weaknesses prevent efficient management of the flow of produce from the region’s key production zones to markets on a year-round basis. These weaknesses make it difficult to manage the debilitating effects of seasonality on market prices².

The Madaoua, Niger – Accra, Ghana onion corridor is a 1,956 km corridor that links onion production areas around Galmi, Niger to markets in Accra, Ghana and is the most important trade route for Nigerien farmers. This corridor is the primary import supply route for onions in Ghana, providing 96% of the volume off-loaded in Accra in September 2008.

There were five key onion markets visited along the corridor. The first one visited was the **Agbogbloshie market**, located in downtown Accra, Ghana. This is a wholesale market and the final destination for the onions imported from Madaoua-Galmi before they are sent to retail markets around Accra for household consumption. The next market visited was the **Amasaman market**, located 30 kilometers north of Accra. This market is not yet built or functional, but the goal and purpose of this future market is to move the Agbogbloshie market to this location once financing has been found to build necessary infrastructure. Next was the **Kumasi** market in central Ghana where many onions stop for redistribution to retail markets in the surrounding area. Finally, two consolidation points in **Madaoua-Galmi** and **Tsernawa** were visited and assessed. These two centers are located in the heart of the production zone in Niger and onions are aggregated at these two points for export to Ghana.

¹ USAID ATP Onion Value Chain Assessment, September 2008

² USAID ATP Onion Value Chain Assessment, September 2008

4. KEY FINDINGS IN MARKET LOGISTICS INFRASTRUCTURE – ORIGINAL STUDY

The original onion transport and logistics study found that lacking or insufficient infrastructure in markets resulted in significant losses of product (up to 50-60%), making it the most important transport and logistics cost driver in the value chain. Therefore, market logistics infrastructure was found to be of vital importance to the onion value chain, and the study made several recommendations for improvement investments.

The largest losses observed (therefore representing the highest transport and logistics cost to value chain actors) were attributed to lack of temporary **storage facilities** in markets. As a highly perishable crop, onions need to be well ventilated and sheltered from the sun and from the rain. If they are not, large quantities of the product will spoil, making temporary storage facilities in the markets the most important infrastructure for onions. Use of traditional storage facilities was found to cause up to 50% losses in product within two to three months of storage after harvest– considerably higher than the 30% losses found in modern storage facilities. These losses were highest in the **Madaoua-Galmi** aggregation points, though still significant in the **Agbogbloshe** consumption market. The study noted that 76% of onion production is sold at harvest with only 24% stored for later sale, and for this 24%, producers prefer to use their own traditional storage facilities (resulting in 50% loss) rather than pay a storage fee in the expensive (\$2/bag) modern facilities in the Madaoua-Galmi market. (Producers are charged \$2 per bag for the duration of storage time, which in Madaoua-Galmi is approximately two to three months.) In these modern facilities, onions are placed in bulk 50cm-high containers, which ensure better ventilation. However, these modern facilities lack cold storage and so losses can still be up to 30%.

Lack of proper **loading and unloading infrastructure** in the markets also drives higher costs in the onion value chain. The original onion transport and logistics study noted that it took 1 hour and 45 minutes to unload the truck upon arrival at Agbogbloshe. It was also noted that the infrastructure in the market that does exist is not effective, and therefore underutilized, generating inefficiency, delays, and physical losses. Due to the lack of loading and unloading docks, handlers work together to manually haul 120-kg bags on and off trucks. With many trucks carrying between 260-300 bags at a time, this process is not only inefficient and painstakingly long, but it also represents risk of injury to the laborers.

The practice of using old cocoa **bags** with added netting to enlarge their capacity negatively impacts both the quality of the product and the safety of the handlers. The size of the bags make them too heavy when full, causing injury and even deaths among handlers. The onions are

also damaged in the bags, and this, along with unsuitable bag materials, facilitates bacterial infection, and causes spoilage during transport.

The original transport and logistics study also claimed that there are serious **unsanitary market conditions** under which onions are loaded, unloaded, stored, and sold in Agbogbloshe. The market is next to an open-air garbage dump (where animals urinate and defecate), with no fences or walls separating the market from this area. This is a cause for concern because the matter from the garbage dump often infiltrates the market, and onions are only occasionally



stored on wooden platforms to avoid direct contact with the ground. In addition, the study noted that onion bags for retail are opened onto the ground for inspection; with the damaged onions either discarded or cleaned and sold.

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

The original onion market logistics study found that lacking or insufficient infrastructure in markets resulted in significant losses of product and that this loss of product was an important driver of lower profits due to transport and logistics between farms and points of final sale. Therefore, market logistics infrastructure was found to be of vital importance to the onion value chains, and the study made several recommendations for improvement investments. As outlined in previous sections, this annual update was undertaken to observe how logistics in these key markets have changed during the year following the original study. In this section, findings in each market are discussed in detail.

5.1 AGBOGBLOSHIE

In Agbogbloshe market, the only infrastructure that was being utilized was wooden pallets which were being used to stack the 120-kg jute bags of onions to avoid direct contact with the ground. This is contrary to the original report which stated that the onions were only occasionally stored on pallets.



While there were sheds built along the back perimeter of the market space, these sheds were unfortunately not being utilized to keep onions in the shade and out of the sun. This would help avoid spoilage of product, but these sheds were underutilized because of their proximity to the garbage dump. Since a large amount of dust enters the sheds from the dump surrounding the market, using these sheds would lead to contamination of the onions. In order to avoid this contamination, the onions were stored in the center of the market, lying in the sun with the sheds providing nothing but a wall between the garbage dump and the market space.

In addition, there was no designated **loading or unloading zone** for the trucks. This not only causes an extreme amount of congestion in and around the market as well as long delays for trucks waiting to unload their bags, but it also contributes to road deterioration.

There was also not a single **scale** found in the market, but since onions are commonly sold by the bag and not by the kilo this does not seem to hinder the efficiency of the market.

Finally, the severely **unsanitary conditions** noted in the original study were seen immediately upon arrival. The market continues to be an open air space that is located on the perimeter of a garbage dump with no infrastructure separating the two spaces. However, while the first study explained that sorting and examination of the onions was practiced at Agbogbloshie (with onions being dumped on the market floor, and then re-bagged), this was not confirmed by this update. Instead, in order to determine if the onions are spoiled, the outside of the bags are examined for wet spots, as this signifies that the onions have begun to rot. Another method of testing the quality of the onions inside the bag is to hit the outside of the sack and listen to the sound that the onions make. The fact that these onions are no longer dumped on the ground and examined individually for spoilage limits the consequences of the market's proximity to the garbage dump.

5.2 AMASAMAN

Plans have been made to move the Agbogbloshie onion market to Amasaman, located 30 km north of Accra. This new market will be redesigned with modern technology and infrastructure and can help to minimize the delays caused by the large onion trucks that are now forced to enter the city to reach Agbogbloshie. A market design engineer has already developed the blueprints for a market in Amasaman that is adapted to the storing and selling of onions. This new market will include:

- Two ventilated warehouses (with the purpose of storing the onions for a few weeks in order to take advantage of higher prices and to minimize product loss due to spoilage);
- Three sheds to protect the onions from rain and sun;
- A police/security station to guard the onions and prevent stealing of products;
- A bathroom/sanitary area;

- A loading dock;
- An off-loading dock for big trucks;
- An off-loading dock for small trucks;
- A temporary parking lot for trucks;
- Administration block offices (for offices of associations, revenue collectors, security, etc.);
- A restaurant;
- Lodging for traders and transporters;
- A mosque;
- A private parking lot; and
- A trash platform.

The mayor of this area has already agreed to procure the 12 acres of land necessary to build this market. However, financing for construction has not been secured.

5.3 KUMASI

As was the case in Agbogbloshie, **the unsanitary market conditions** were the first observation in the Kumasi market. It is located on the perimeter of an enormous garbage dump, and the trash from this dump was scattered all throughout the market, frequently mixing with the bags of onions.



Although most of the onions were stored on **pallets**, some traders that didn't have access to this infrastructure placed their bags on tarps, while others left onions directly on the ground. This is particularly problematic during the wet season when the unpaved market floor turns into mud and this moisture seeps into the jute bags causing product spoilage.

While there were some traditional/makeshift sheds, permanent **hangars** are not permitted in this market space because the Kumasi Metropolitan Assembly (KMA) has asked the traders to move, since the land on which they are currently functioning has been earmarked for development. Although this market has been functional for years, the land did not belong to the traders, and in August of 2011, the KMA and the Ashanti King forced all permanent infrastructures (e.g. hangars) to be torn down in preparation for the development of housing structures, hospitals, and commercial business on this land. While the people in the market have officially been ejected, the market is still functioning informally. Since there is an order from the KMA to not build any permanent infrastructure in the market, the only other option in this space would be temporary storage facilities for the onions, to keep the product out of the rain and sun in order to prevent spoilage. However, the structures currently found in the market place are insufficient. The traditional hangars that have been built are in poor condition and do not protect the onions from the elements as they should, resulting in high levels of spoilage. This



was confirmed when the traders noted that spoilage was their biggest problem, and permanent shed/hangar structures would be the ideal solution.

In addition, the need for a designated parking and **loading/unloading** zone was observed. Currently, trucks enter the market from many different directions, with no designated area for the trucks to park while they load and unload the onions. This causes long delays with the onions sitting on the trucks for hours in the sun, waiting to be offloaded. This is another cause for spoilage and loss of product.

Finally, the different types of **bags**—none of which are adapted to onion storage and transport—were also a source of inefficiency and spoilage. There were two different kinds of bags found in the Kumasi market: the first were the 120 kg jute cocoa bags which are used for the onions grown in Madaoua-Galmi, and the second were the 50kg polypropylene sacks that are used for the onions that are produced in Agadez.

The **jute bags**, though more expensive, provide much more ventilation to the onions than the 50-kg polypropylene bags. However, when full, these bags weigh 120 kg and are extremely



difficult for the handlers to carry. This causes spoilage to the onions as they are often crushed under their own weight and damaged as the handlers attempt to carry the heavy bags.

While the 50-kg **polypropylene bags**—used to transport the onions from Agadez—are a much more manageable weight and generate less product damage during handling, the bags themselves allow for no ventilation during transport. This creates moisture in the bags and this moisture promotes spoilage and loss of product. Additionally, due to this lack of ventilation and the moisture, the onions in these bags must stop in Niamey (in between their departure in Agadez and their arrival in Accra) to be dried, sorted, and repackaged before continuing on to Accra.

This stop is necessary because the moisture that forms due to the bags' lack of ventilation would cause 100% spoilage if the onions were not dried before continuing on to Accra.

5.4 MADAOUA – GALMI

Large amounts of Nigerien onions are produced on the farmland surrounding Madaoua – Galmi and these two towns are the aggregation points for these onions. One hundred and twenty-kg jute bags of onions are brought to these towns from the farm gate by camel or donkey where they are aggregated with bags from other farms until a full truckload (approximately 350 bags) has been gathered. The largest constraint in terms of lacking infrastructure at these aggregation points is **storage facilities**. Currently, the vast majority of the onions are kept in traditional

structures which are small, thatched huts that cause up to 60% losses in terms of spoilage. This finding is slightly higher than the estimate of 50% losses presented in the original study on market logistics for onions. There is a lack of modern storage facilities, and those that do exist are underutilized because of their high cost, and because they also contribute to large amounts of losses, sometimes up to 30%.

Another important lacking infrastructure at the Madaoua – Galmi aggregation points is **hangars**. Currently, the onions that are brought from the farms must wait in the open sun to be loaded onto a truck where they are aggregated with other bags. These bags of onions will wait between 72 hours (during the wet season when there is an onion surplus) to two weeks (during the dry season when there is an onion scarcity) This two-week delay stems from the need wait for an entire truckload of onions to arrive, in order to reduce the per-unit cost of transportation. Since these onions lie under the sun, unprotected from infrastructure like hangers, traders can suffer between 60%-100% losses of product. A smaller, but related issue is the lack of **secure** facilities. Since onions sit unguarded on the side of the road while waiting to be loaded onto trucks, theft is a large problem and a source of additional product losses.

Finally, the onion **bags** that are currently being utilized contribute to product loss, due to damage caused by handling and spoilage. The aforementioned constraints associated with the 120 kg jute bags are well known and understood at the aggregation points of Madaoua – Galmi, and it was stressed that there is a need to introduce and use 25 kg net bags. These net bags, designed and adapted for onion transportation and storage, would reduce spoilage caused by handling and from lack of proper ventilation. However, the closest factory that produces these bags is located in Bamako, Mali, and there is a scarcity of suppliers of these sacks along the Madaoua-Galmi corridor.

5.5 TSNERNAOUA

The Tsernaoua aggregation point is where the onions produced in Agadez are brought to be loaded on to trucks before being shipped first to Niamey (where they will be dried, sorted, and then re-bagged), and then on to Accra. The same infrastructure that is lacking in Madaoua – Galmi (storage facilities and hangars) is also lacking here, and a lack of proper bags is also a problem. In fact, this aggregation point is simply an open space with no infrastructure at all. The highest priority needs are hangars and storage facilities to keep the onions out of direct exposure to the sun. Currently, the onions that come from Agadez also need to be dried and re-bagged at Tsernaoua before going on to Niamey (where they will go through the same process) due to the moisture caused by the 50 kg polypropylene bags. In Tsernaoua, due to the lack of a floor at the aggregation point, these onions are laid out directly on the soil to dry in the sun. The lack of drying materials like **tarps** is a problem. However, this is a less important constraint than storage infrastructure for the onions while they are waiting to be transported.

6. RECOMMENDATIONS

Based on the findings from both the 2010 onion transport and logistics study and the 2011 update to this study, recommendations on how to address the most glaring inefficiencies related to market logistics infrastructure for the onion value chain are set out below.

6.1 ANNUAL LIST OF TARGET INVESTMENTS IN MARKET LOGISTICS INFRASTRUCTURE

1. The newly designed onion wholesale market in Amasaman (30 minutes north of Accra).
2. The creation of temporary (hangars) and permanent (warehouses) storage facilities in the Madaoua – Galmi and Tsnernaoua aggregation points.

Although individual bags would not be considered infrastructure, this study identifies the lack of appropriate bags as a constraint to development of the onion value chain in the region. The introduction of 25-kg or 50-kg net bags and technical assistance to producer groups and other value chain actors would help minimize spoilage and product damage during handling.

6.2 “MINI STRATEGY” FOR FACILITATING PUBLIC/PRIVATE INVESTMENT FOR EACH TARGET INVESTMENT

1. A newly-designed onion wholesale market in Amasaman (30 km north of Accra)

There is a new market, currently in the design phase, located 30 km north of Accra, whose main purpose is to provide a new location for the current wholesale market situated within the city of Accra. The large trucks that currently come into the city to offload their goods in the Accra wholesale markets contribute to large amounts of congestion and chaos directly in the city center. This new Amasaman market located six miles off the main corridor but still very close to the retail markets in Accra, provides a solution to this problem: the large trucks coming in from the production zones will stop their journey at Amasaman, and smaller trucks will take their wholesale purchases from Amasaman down to Accra for retail sales.

This new wholesale market is designed to host various commodities including yams, palm/vegetable oil, and timber. However, since the needs of onion traders were not taken into consideration when the market was designed there is no infrastructure adapted to the selling of onions in this new market. The sheds that have been built are locally referred to as “the stoves,”

because of their lack of ventilation and their tendency to attract and keep heat within their walls. For onions, this is an enormous issue.

USAID ATP has already hired a market design engineer who has created blueprints for the construction of a market that would be fully adapted to the selling of onions. These designs include:

- Two ventilated warehouses to store onions for a few months after harvest so they could get better prices in the market and minimize product loss;
- 3 sheds to protect the onions from rain and sun;
- A police/security station to guard the onions and prevent stealing of product;
- A bathroom/sanitary area;
- A loading dock;
- An off-loading dock for big trucks;
- An off-loading dock for small trucks;
- A temporary parking lot for trucks;
- An administration block (for offices of associations, revenue collectors, security, etc.);
- A restaurant;
- Lodging for traders and transporters;
- A mosque;
- A private parking lot; and
- A trash platform.

Although this new market has been designed, financing for the construction of this market has not been found and a committee that will own and manage the market has not been created yet. USAID ATP can support negotiations among actors for the creation of the Amasaman market. Support to parties in the design of the preliminary operational and management schemes will be particularly important in order to create a body that will be effective in the daily operation of the market.

Specifically, USAID ATP can:

- Assess the various risks that may prevent successful completion of the new market
- Identify stakeholders who may have the capacity to manage these risks and determine incentives to attract strategic investors (the Municipality, the Makola Market management company, individual entrepreneur members of the onion associations, or financial institutions).
- Develop a business model that allows the sharing of risks and rewards.
- Develop a business plan to guide the mobilization of needed capital for the construction and the management of the new facilities.

2. The creation of temporary (hangars) and permanent (warehouses) storage facilities in the Madaoua – Galmi and Tsneraoua aggregation points:

USAID ATP can support the identification of applicable storage techniques, specifically adapted to onions and to local conditions. The project can also support facilitation of investment or credit to construct new facilities or upgrade those that are already in place. Both technical training and investment facilitation should be supported by management training for producer groups or other institutions in charge of managing new or rehabilitated facilities. Additionally, one of the weak elements in the logistics process is the utilization of existing specialized infrastructure. In the short term, USAID ATP can support the better utilization of the existing aggregation centers in the Madaoua area by providing technical assistance and structuring public-private partnerships in the areas of:

- i. Financing – by providing support for identification of potential sources of finance for investments aimed at improving the efficiency of aggregation, perhaps by a specialized logistics or agribusiness firm.
- ii. Design – specifically through assistance in the design of management schemes and operational plans, as well as the design of necessary infrastructure and equipment:
 - Management scheme - the participation of stakeholders is necessary to ensure the utilization of the facility. Potential management schemes include long-term leasing, creation of a public-private company through a build-operate-transfer model involving both producers and local authorities, or outsourcing to a service provider. A partnership with a logistics provider that could be put in charge of operating storage and cross-docking areas would be ideal.
 - Logistics - a logistics development plan outlining the way to shift from current practices towards modern, palletized operations should be designed.
 - Infrastructure and equipment needs - based on the logistics plan, a more detailed assessment of infrastructure and equipment requirements should be completed.

- iii. Negotiation: USAID ATP can support and facilitate negotiations among onion stakeholders, local authorities and customs.

3. The introduction of 25-kg or 50-kg net bags in coordination with technical assistance to producer groups and other value chain actors to promote their use:

The practice of utilizing old cocoa bags, with an added netting to enlarge their capacity, is a practice that has been examined and opposed by many institutions and stakeholders. In a recent Observatoire régional de la filière oignon (ORO) workshop, participants concluded that the bags negatively impact the quality of the product and threatened the safety of laborers. The size of the bags makes them too heavy when full – causing the death of two laborers in one reported case. They also crush the onions, facilitate bacterial infection and cause drying during shipment. The ORO working group asserted that the use of 25-kg or 50-kg bags should be mandated, implemented, and enforced. This size would help prevent injuries to handlers as well as decrease product loss during storage and shipping. These smaller bags could be stacked on pallets to ensure better ventilation, reducing spoilage.

Switching from 120-kg bags to 50-kg bags – as recommended by stakeholders in recent workshops – would help to facilitate the transition to a palletized system of handling, which would increase the efficiency of logistics. USAID ATP could continue the existing Public-Private Partnership with EmbalMali—a factory producing net bags designed and adapted for onion transport—to help introduce these net bags to producers and other onion value chain actors. This should be accompanied by technical assistance and training to said actors for capacity and awareness building about the merits of using these new bags.

Specifically, USAID ATP can:

- Facilitate the link of the Agro-Pastoral Export and Market Development Project (PRODEX) and Observatoire national de la filière oignon du Burkina Faso (ONFO)/ORO with EmbalMali and leverage knowledge developed by the Project in Burkina Faso.
- Assist the PRODEX project in the implementation of test shipments of quality onion to coastal markets (Abidjan, Accra and Cotonou) using the 25-kg or 50-kg mesh bags.
- Assist the PRODEX project and ONFO/ORO in developing a marketing plan for quality onion in coastal markets as well as a trade data tracking system.