Rapid Market Assessment in Tamale, Bolgatanga, and Wa

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Contents

1. Background and rationale

Ghana CO is considering starting Cash or Voucher-based operation as part of Ghana CP 200247 (2012 – 2016), aiming to support the Government's poverty-reduction programmes. This Cash and voucher program will be targeting the following urban areas: Tamale of Northern Region, Bolga of Upper East Region, Wa of Upper West Region. In addition to the cash and voucher feasibility study, Ghana CO requested ODD to conduct a rapid market assessment in order to ensure the market environment is favourable to this new activity.

1.1. Objectives

The overall objectives of this study was to assess markets in the Northern Regions (Tamale, WaleWale), the Upper East Region (Bolgatanga), and the Upper West Region (Wa) in order to provide WFP Ghana with the necessary information on whether a cash/voucher transfer could be implemented. The selected markets are located in the targeted areas and are supposed to be the main accessible markets to the targeted households. Specifically, the market analysis had focused on these followings objectives:

- Traded commodities and their availability in local markets;
- Wholesale and retail price trends (seasonality of food commodity prices);
- Market structure (Trader's typology by major traded commodity);
- Market functionality;
- Market integration especially spatial commodity flows and price integration between main source markets and target interventions areas;
- Trader's capacity to respond to increases in demand, including credit arrangements between traders and between traders and customers, storage capacity, time required to respond and price formation mechanisms.

1.2. Methodology

The market assessment was based on primary and secondary data. The secondary data was collected from the Statistics, Research and Information Directory of the Ministry of Agriculture (prices data), the International Monetary Fund (inflation rates), and the Oanda data set (exchange rates). The primary data was collected through the markets surveys in Tamale, Bolgatanga, WaleWale, and Wa, based on the following steps:

- ✓ Informal focus group discussions with Importers/distributers and transporters associations;
- ✓ Questionnaires to randomly selected wholesale/semi-wholesale traders and retailers (shops, cereal and vegetables).

1.3. Limitations

A substantial analysis is limited by the following factors:
- Insufficient time and funds to carry-out deep market surveys (one day per market)
- Lack of secondary data especially time series data (commodities prices and stocks)

2. Market structure

In general, the role of markets is to contribute to improve food security when there is free flow of information and low barriers to business entry. The market structure shows how a given market is made-up in terms of number and concentrations of buyers and sellers, how the relationships among markets actors (traders, farmers, consumers) are built, prices formation mechanisms, competition level, the presence of monopoly power, the level of barriers to entry.

The relationships among market actors in the Northern and Upper East and West regions can be seen in the following commodities value chain diagram.

Figure 1: Commodities Value Chain Diagram
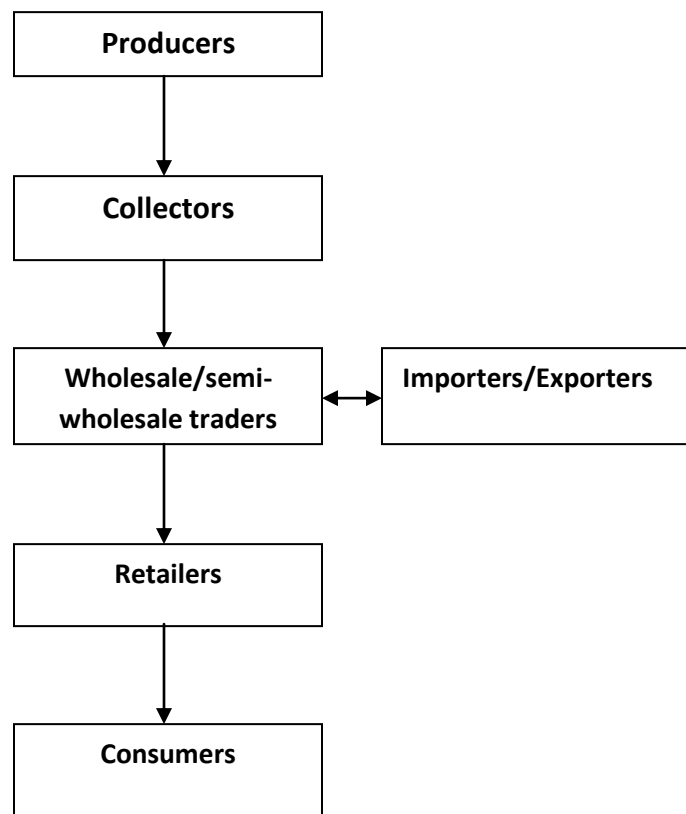
Producers: they are either individual small famers or farmer associations who supply rural markets in certain particular periods of the year (after the harvest, during the farming activities, and before the next harvest if there will be good harvest perspectives).

Collectors: most of time operate individually and buy their stocks from the famers with their own money or money borrowed from the wholesale traders. Sometimes they have long-term relationships with farmers, buying from them year after year. They supply wholesale traders in the assembly markets.

Importers/Exporters: based on their own money or the loans from the bank, they supply local markets a large amount of commodities as importers (imported rice, vegetable oil, canned fish, canned tomatoes, etc.). As exporters, they are supplied in local cereals by the wholesale traders.

Wholesale/semi-wholesale traders: They buy their stocks from the importers (in imported commodities) or collectors (in cereals) either by cash or credit from banks or other traders depending on their business relationships. They supply exporters in local cereals. Among these traders, there a three types of traders:
- ❖ Those who buy and sell over the time;
- ❖ Those who buy, stock, and sell in a fixed period (usually when prices increase);
- ❖ Those who have neither stock nor money to buy stocks, but are willing to satisfy the demand when expressed.

Retailers: They may be shop owners or small retailers who sell small quantities of food (bowl, kilogram, etc.) to the final consumers (households). Most of the cereal and vegetable retailers are women due to their limited financial capacity of doing large business. Shop owners; however, have access to bank and most of them hold a bank account. Even though the banking system does exist in urban areas and easy to access, most of the retailers who can access, find the interest rate very higher than the informal credits' one from the other traders. Although, the "cash-and-carry" transaction takes place in the selected markets, sales on credit to few consumers are also a common feature in the selected markets. In order to maintain their business relationships somehow there are credits arrangements between retailers and consumers. The credits arrangements are not ethnic or gender biased; rather there are based on inter-personal arrangement and the level of trustworthy between the two parties. A payment of extra cash (either in terms of interest) on credit purchase is not common for this sale arrangement. The earlier consumers pay back, the easier they could get credits whenever needed.

In the Northern and Upper East and West regions the market system is organized in three types: rural markets or collecting markets, assembly/redistribution markets, and urban consumer markets. Tamale, Bolgatanga, and Wa are urban consumer markets while WaleWale represents the type of assembly

markets located in rural area. In these permanent urban markets (Tamale, Bolgatanga, and Wa), there are a large amount of diversified food (imported and local food) and a large number of sellers and buyers during certain periods of the year (from November to February). However, even though they are permanent markets, food starts to be scarce during the lean season (period where consumers have reduced options of satisfying theirs needs), a common situation in West Africa. In rural markets where there are small options of food and a reduced number of buyers and sellers, markets day could be either weekly or rotated (every 5 days in case of WaleWale). Similarly to the urban markets, the availability of food in these rural markets also follows the same seasonal pattern.

Prices are commonly determined in the selected markets (Tamale, Bolgatanga, Wa, and WaleWale) by either comparing to other market prices or by a group of wholesale traders outside the markets. There is no government interference in determining prices in markets; traders are then free to determine prices in these selected markets. There is no pure monopoly in the selected markets. Given the tight schedule for these market surveys, it is hard to explain which commodities (especially staple food such as maize and rice) enjoy more competition and which ones do not either in urban markets or in rural markets. Broadly speaking, the degree of competition varies from market to market and within the market from commodity to commodity. Nevertheless the markets surveys found the competition level among traders depends is more pronounced in urban markets especially for the differentiated products such as iodized salt or imported rice. This situation in urban areas benefits a consumer who has multiple choices to buy their food; however, the urban household could also be facing high prices which cause an access issue. Compared to 2011, a wealthier consumer focuses on the quality (usually brand names) of the product to make their choice in urban areas especially according to shop owners. A poor household either in urban or rural areas; however, makes its choice based on the ratio price/quantity, how much food they could afford based on the purchasing power. In the selected markets, there is virtually no barrier to entry a given a market, it is only required a certificate to start a business (it takes only a month to get it at low cost) according to traders. This is an opportunity for the new comers whenever the demand increases and also a good sign for the cash and voucher interventions in these areas. When the increases in demand become incentives to new traders to entry the markets, it may have a positive effect to drive down commodity prices in the short run, but may have a reverse effect of pushing many traders to exist the markets in the long run, thus may drive up commodity prices. It is commonly admitted an increase in traders' rivalry can enhance both competitiveness and economic welfare in a given country.

3. Market functionality

The market surveys found that commodities were available and flew from market to market through adequate road transportation. The direction of the commodities trade flows (cereals and tubers) depends on the production areas (Map 1). For instance, the Northern markets (Tamale and WaleWale) supply mainly the Upper East markets by order of importance in rice, maize, yam, and cassava. Maize, groundnut, sorghum and millet flow from the Upper West markets (Wa) to the Upper East markets. The Upper East markets (Bolgatanga) in their turn, supply the Northern and Upper West markets in millet,

maize, soybean, rice and vegetables. Prices differences between markets are low, especially for maize (Annex 1). Prices move from market to market because of buying and selling. Buying commodity moves the market prices upward (positive), and selling commodity moves the market prices downwards (negative). The table (Annex 1) confirms that Tamale market is the main supplier of the other markets in local rice even though the differences prices are high in absolute value (meaning more selling in local rice occurred in Tamale market). There are virtually no government interventions that can influence trade flows between markets. Poor household still has difficult access to food due to the fact that the market prices level remained high compared to 2011. For instance, in August 2012 maize prices were high compared to August 2011, and ranged between 12% and 15% in the selected markets. There is adequate cost transportation according to transporters associations (on average 2 GHS/bag of 100kg for a distance of 70miles). Adequate cost of storage does exist according to traders due to the number of warehouses (on average 0.5GHS/bag/3days). These above findings prove that the selected markets are functioning. Note that market functioning does not mean physical access to food by households; it depends on how far targeted households are from the nearest market. For instance, even though WaleWale market is functioning, beneficiaries are very far from the market. For this specific case, a cash&voucher activity will not be a good option; however, a "food for work" (FFW) activity may be the best choice. If this option is considered, such a program should be aware of the following situation: Besides the markets' characteristics, a good knowledge about the local farming systems is recommended in order to avoid a design failure. For instance, if vulnerable households choose to participate to the FFW activity, they may reduce their time allocated to the farm in favour of the FFW activity during the rainy season. Therefore, the FFW may compete with the agricultural activities.

Map 1: Commodities trade flows among the selected markets (Tamale, Bolgatanga, Wa, Walewale)
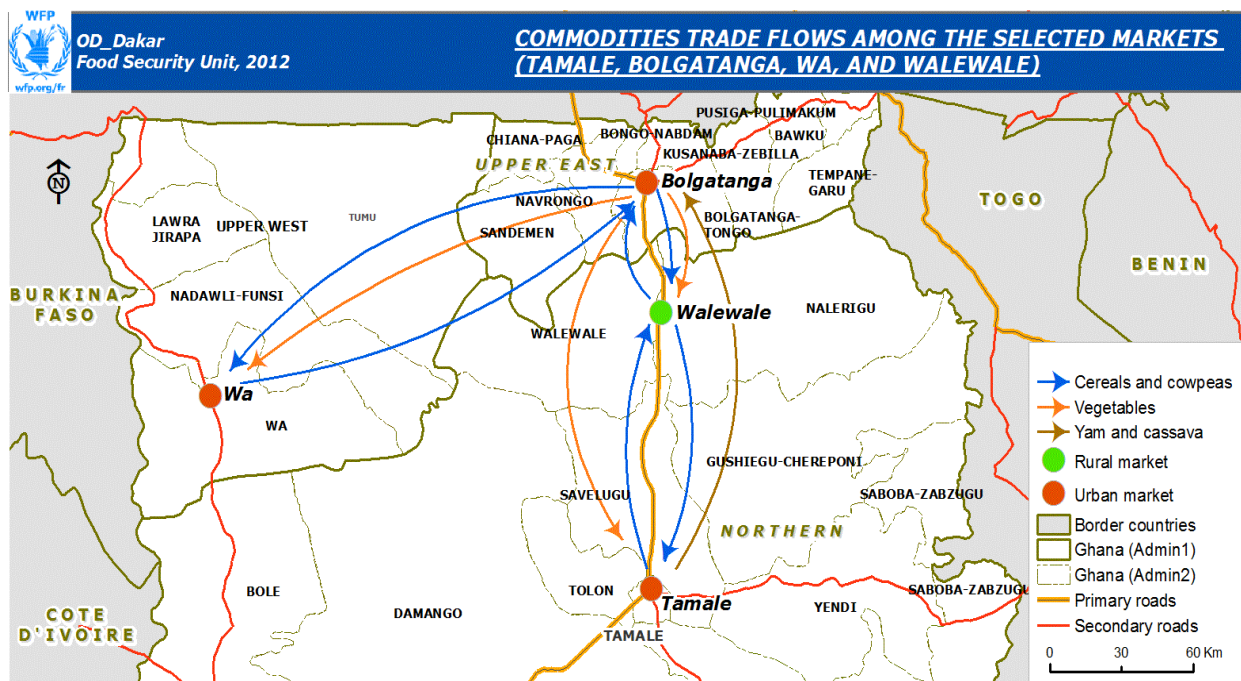
4. Price trends

In general commodities (cereals and tubers) prices increase during the lean season and decrease during the harvests. The graph shows that cereal prices reach their peaks between June and August (Annex 2). Yam prices seem also to follow this pattern; their peaks are also between June and August (Annex 3). Contrary to maize and yam prices trends, local rice peaks remain until October before decreasing (Annex 4). High and volatile food prices that Ghana in particular and West Africa in general have experienced since October 2012, might harm both producers and consumers depending on whether they are net sellers or net buyers. For instance, the table (Annex 5) shows how volatile maize prices were in the selected markets from 2008 to 2011 by using the coefficient of variation (29% in Tamale, 25% in Bolgatanga, and 26% in Wa).The Coefficient of Variation (CV) is a simple method used to measure the volatility (dispersion) of prices over time and space. The cash&voucher interventions should take into consideration the price volatility which may occur the coming years. These following reasons might explain price volatility:

- ✓ Gradual increase in the supply and demand imbalance;
- ✓ Rising oil prices in 2008 have also put upward pressure on domestic prices;
- ✓ Currency exchange fluctuations;
- ✓ Etc.

Due to this phenomenon, poor households had difficult to access food; especially maize which is the most important staple food in Ghana. According to the Ghana CFSVA, 2012, 25.6% of households in the Northern, Upper West and East Regions are food insecure, and 65% of the food consumed came from cash purchase. The price volatility could also push poor households to reduce their quantity of food since they have to spend more to get the same amount of food in the normal situation. According to the Ghana CFSVA, 2012, poor households in the Northern, Upper West and East Regions share 65% of their food expenditures on staples.

It has been observed that maize prices started following the seasonal trends (decrease during the harvests); however remained at high level compared to the 4 years average (graph 1). Since harvests of millet and sorghum did not start yet, their prices remained high. Vegetables prices (cabbage, carrots, cucumbers, fresh tomatoes, etc.) also remain high because they are scarcely available; however, they are expected to decrease the next two months (November-December).

Graph 1: Maize wholesale prices vs. the 4 years average in Tamale, Bolgatanga, and Wa (August)
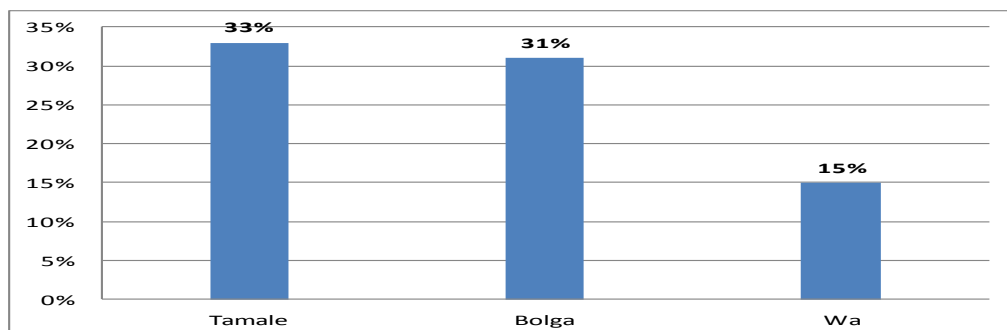
Source: MoFA prices data

5. Food availability/Traders capacity

The market surveys found that imported commodities are available and shops owners are able to respond to sudden increases in demand within a maximum of two days. Cereals are also available (especially maize and local rice). There are fewer stocks of millet and sorghum in the selected markets; they will be harvested in November, thus will be plenty available at this time. Currently, maize and local rice traders could respond to sudden increases in demand within a week. Vegetables are also available but at small quantities. They will be plenty available the coming two months (November, December).

To better understand the actual traders' capacity to respond to increases in demand, there are some factors that need to be taken into consideration in order to corroborate or not their allegations:

***Food supply and demand*[1]**: Since 2006, Ghana crops production (especially the two main stable food: maize and rice) was increasing, except in 2011 when all West African countries experienced a food deficit (Annex 6). In the meantime, the imports of maize and rice were decreasing since 2006 (Annex 7). This tells the national demand does not exceed the stocks and efforts were being made by the government and famers to reduce this dependence through increased domestic production. Practically, the demand of the targeted households in staple food (small demand compared to the national demand) could be absorbed by the local markets.

Financial issue: Previously mentioned the banking system does exist in urban areas and traders could easily access. There are also informal credits arrangements between traders. Therefore whenever demand increases, traders will find a way (borrowing money from either the bank or the other traders) to satisfy it.

Markets infrastructure/institutions: It was observed the presence of physical facilities (warehouses, roads, etc.) and an institutional environment either formal or informal (rules, regulations, etc.) to the traders to conduct their trading activities. In other words, these physical facilities and institutions play a main role for continuous movement of food from market to market (buy sell, transport and distribute). In the selected markets, traders have access to communication facilities at affordable cost (mobile

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[1] The lack of secondary data limits the supply and demand analysis of the other commodities

phone), such facilities make traders easier access to market information on where to sell, where to buy, and how much to buy or sell their products. Throughout these communication facilities traders may take less time to supply markets whenever the demand increases. Besides their bank account, some traders have also mobile account, an easier way to access to cash and make transactions.

Roads/transportation conditions: Roads facilitate commodity flows, market opportunities, and could affect market prices depending on their conditions. The selected markets are interconnected through an adequate road conditions. According to the transporters associations, it only takes one day to transport commodities from Tamale to Wa (GHS 100 per tonne of cereals).

6. Market integration

This is an important part of market analysis that should be considered when implementing a cash& voucher program or estimating the impact of distributed food. One of the methods to measure market integration is the Pearson correlation coefficient estimate between prices. The correlation coefficient ranges between -1 and +1. The closer to +1, the well integrated markets are. In other words, a positive correlation shows that markets are integrated. However, the degree to which markets are integrated depends on many factors such as road/transport infrastructure, market structure, barriers, etc.   When markets are integrated, prices transmission occurs among markets, the price in one market affects prices in others through trade flows. In other words, any price increase in one market could be stabilized throughout the trade flows between markets. Market integration could also be a good signal for food availability. The three graphs (graph 2-4) below show that the selected markets are integrated since there is a positive statistical correlation coefficient between markets.

Graph 2: Correlation coefficient, maize, 2008-2011

	Tamale	Bolga	Wa
Tamale	1		
Bolga	**0.95**	1	
Wa	**0.69**	**0.66**	1

Graph 3: Correlation coefficient, local rice, 2008-2011

	Tamale	Bolga	Wa
Tamale	1		
Bolga	**0.83**	1	
Wa	**0.85**	**0.87**	1

Graph 4: Correlation coefficient, yam, 2008-2011

|	Tamale	Bolga	Wa
Tamale	1		
Bolga	0.63	1	
Wa	0.85	0.81	1

Since the selected markets are integrated, a cash& voucher program could be implemented in these urban areas. Any sudden increase in demand could be absorbed by the trade flows between markets. Note that market integration is one of the factors that can contribute to make a cash voucher activity effective.

7. Other essential information

7.1 Consumer Price Index

The consumer price index commonly named CPI index measures the change in prices regular consumers pay to live their day-to-day lives. It also gives some information about the inflation rate within a given country. Graph 5 shows that the Upper East and West regions' CPI is higher than the Northern Region's one. This tells that households in the Upper East and West regions would spend more money to get the same amount of food since April 2008. This particular factor needs to be taken into consideration for the transfer value.

**Graph 5: Regional Consumer Price Index (2000 = 100)**
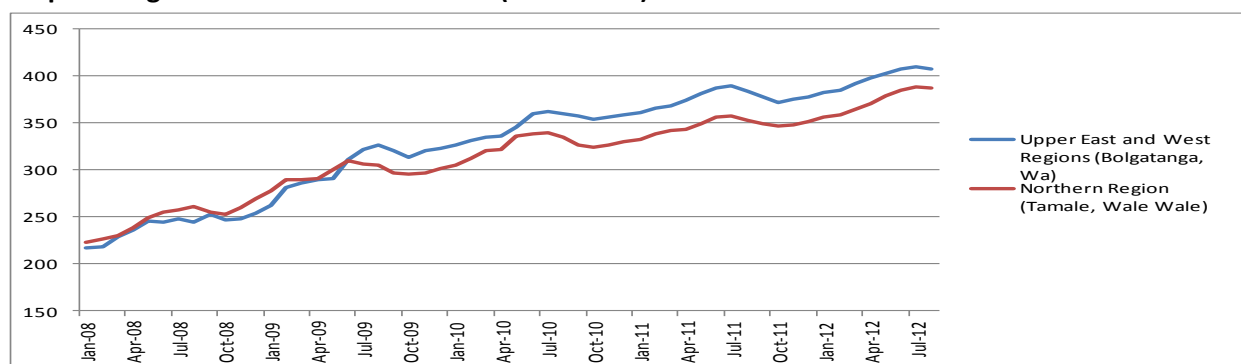
Source: Ghana Statistical Service (GSS) data

7.2 Exchange rates

Somehow, Ghana depends on neighboring or international markets to import/export food. The amount of food that needs to be imported or exported depends on the exchange rates which is the main link between the national economy and the other countries. According to traders the weakness of the GHS against USD or XOF represents the main difficulty they are facing while doing business outside Ghana. Note that the exchange rate could affect directly or indirectly the prices, supply and demand of food

produced and traded, thus household's access to food. Graphs 6 and 7 show the exchange rates GHS/USD and GHS/XOF are decreasing against Ghana new cedi since April 2008. For instance, in January 2008, a dollar US could be exchanged against a Ghana new cedi (Graph 6). In October 2012, traders need to spend twice to import the same amount of food from international markets. In both cases, traders are better off exporting commodities to international markets or to neighboring counties.

Graph 6: Exchange rate GHS/USD
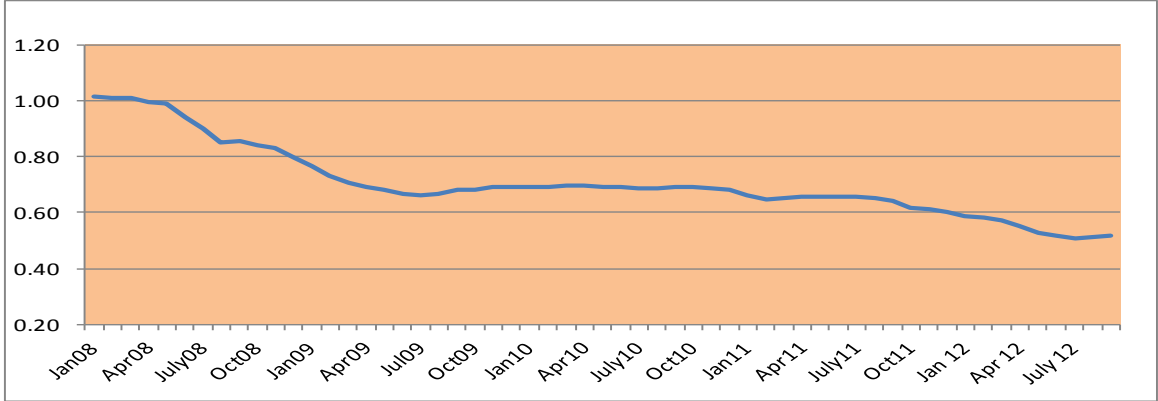
Source: Oanda.com data set

Graph 7: Exchange rate GHS/XOF
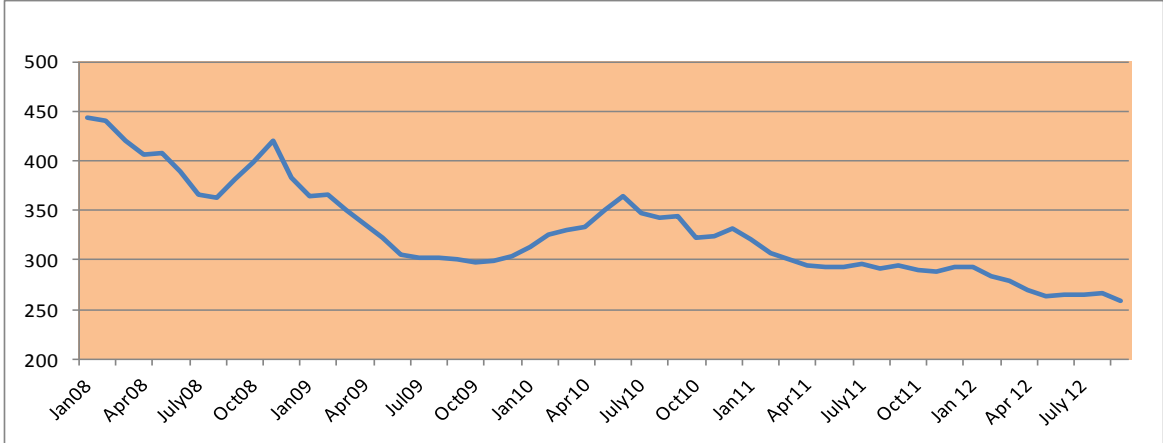
Source: Oanda.com data set

8.   Conclusions/Suggestions

The market analysis suggests cash& interventions would be an appropriate instrument to address food insecurity based on these following findings:

- Commodities were available and flew from market to market through adequate road transportation.
- Poor household still has difficult access to food due to the fact that the market prices level remained high compared to the 4 years average. Price volatility may occur the coming years.
- Traders are able to respond to sudden increases in demand.
- Markets are integrated and functioning, and any sudden increase in demand could be absorbed by the trade flows between markets.
- WaleWale market is functioning; however it will be difficult for the beneficiaries to access to this market due the distance. "Food for Work" (FFW) interventions could be a better option for this specific area. A good knowledge about the local farming systems is recommended in order to avoid a design failure during the rainy season.
- Even though, markets are functioning and integrated, food is available; these following indicators need to be monitored:
  - ✓ weekly or monthly commodities prices;
  - ✓ Food availability
  - ✓ The consumer price index

Annexe 1: Maize and local rice price differences between markets (2008-2011)

	Maize (GHS/100kg)			Local Rice (GHS/50kg)		
	Tamale/Bolga	Tamale/Wa	Bolga/Wa	Tamale/Bolga	Tamale/Wa	Bolga/Wa
January	-4	3	7	-22	-11	11
February	-5	3	8	-20	-16	5
March	-5	2	7	-20	-15	4
April	-4	2	6	-21	-16	5
May	-6	3	8	-22	-16	6
June	-6	3	9	-21	-13	8
July	-6	0	6	-14	-21	-7
August	0	1	1	-11	-14	-4
September	-6	-12	-6	-15	-20	-5
October	-4	-8	-4	-22	-30	-8
November	-4	-6	-2	-21	-27	-6
December	-7	0	7	-23	-21	2

Source: MoFA prices data

Annex 2: Maize seasonal prices trends in Tamale, Bolgatanga, and Wa (2008-2011)
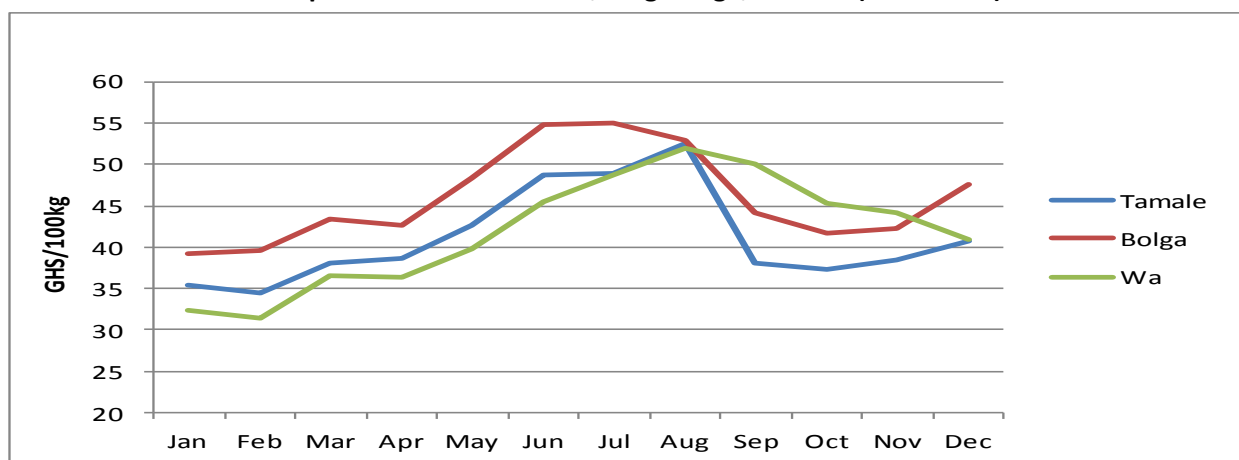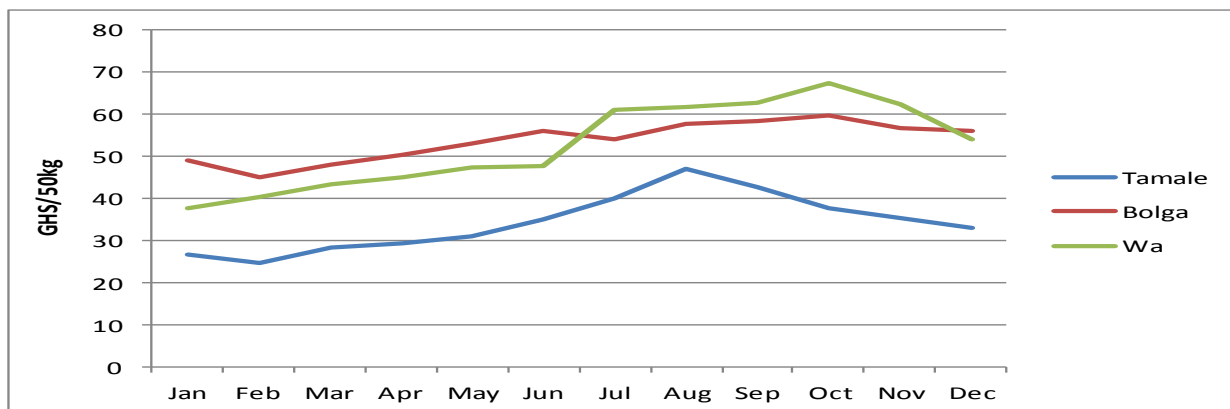

Source: MoFA prices data

Annex 3: Yam seasonal prices trends in Tamale, Bolga, and Wa (2008-2011)
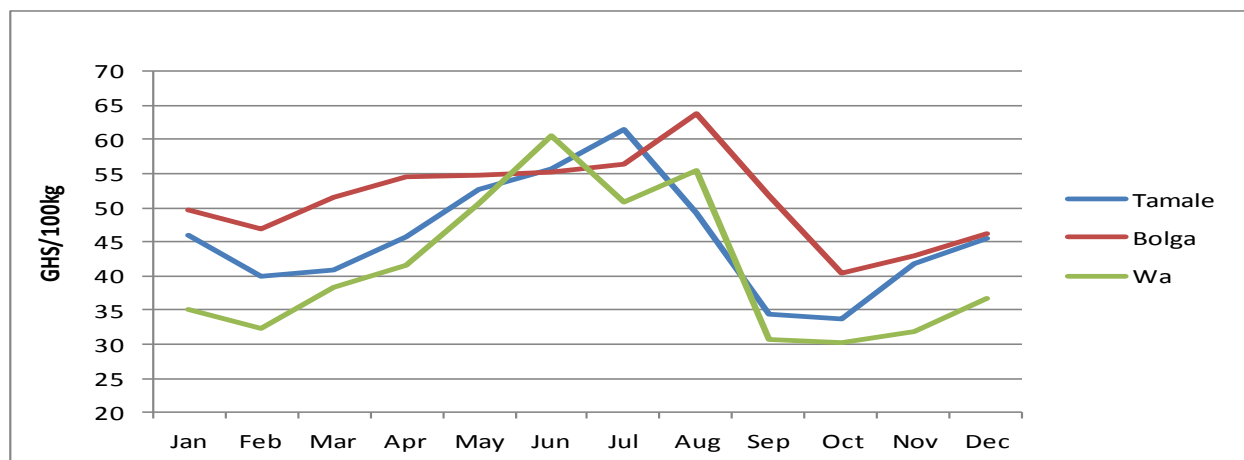
Source: MoFA prices data

Annex 4: Local rice seasonal prices trends in Tamale, Bolga, and Wa (2008-2011)
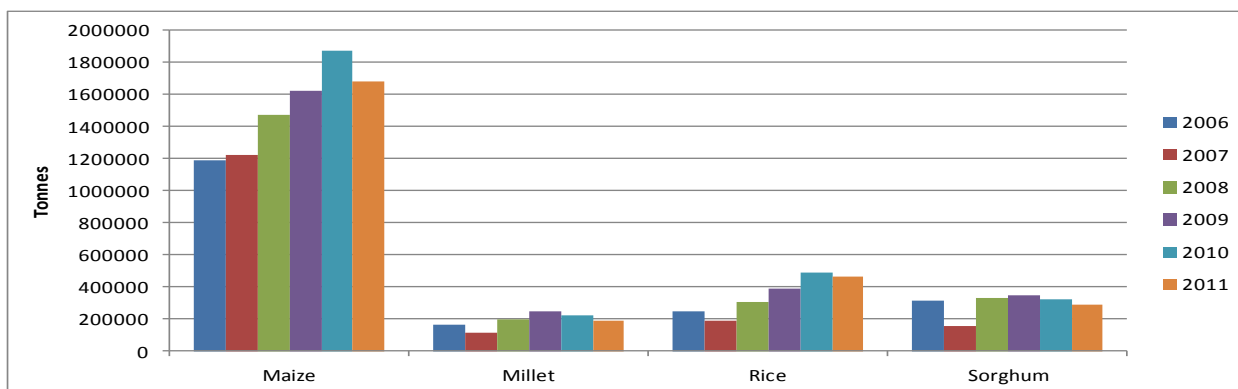

Source: MoFA prices data

Annex 5: Coefficient of Variation (CV) of monthly maize prices in Tamale, Bolgatanga, and Wa (2008-2012)

Markets	CV
Tamale	29%
Bolga	25%
Wa	26%
Average of the 3 markets	27%

Source: MoFA prices data

Annex 6: Ghana crops production 2006-2011

Source: FAOSTAT data

Annex 7: Ghana cereals import 2006-2010
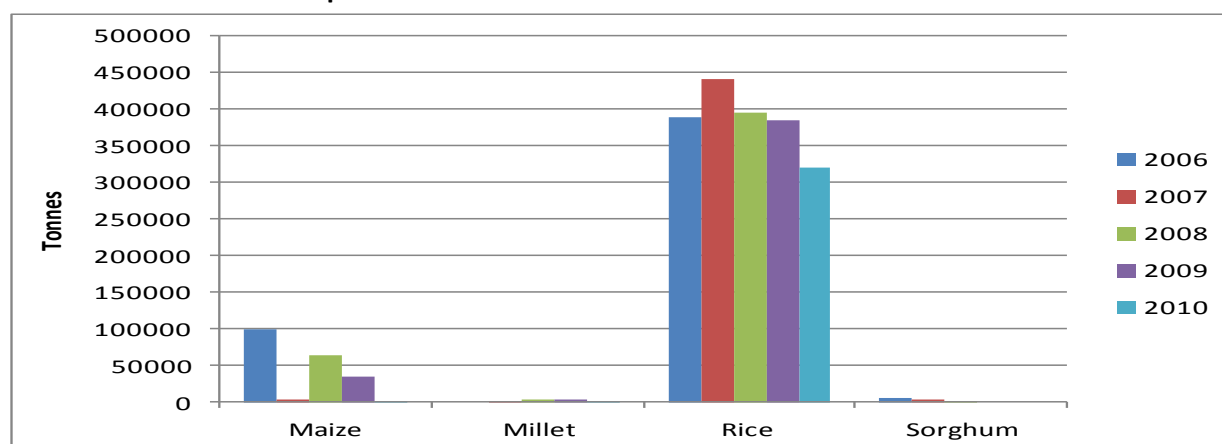
Source: FAOSTAT data

Annex 8: Draft Agenda for ODD Market Analysis (12-23 October 2012)

Date	Activity	Time
Friday 12 October	Arrival at the airport in Accra (EK788 from Abidjan)	4: 20 PM
Saturday 13 October	• Depart Accra (Fly 540) • Arrive Tamale	6:45 AM 7:35 AM
Sunday 14 October		
Monday 15 October (Tamale)	• Meeting with wholesale trader (some members of their association) • Meeting with commodity transportation association (some members) • Markets survey (interviews with some retailers, shops, etc.)	40 minutes 40 minutes The rest of the day
Tuesday 16 October (Tamale to Walewale)	• Markets survey (interviews with some retailers, shops, etc.) • Depart Walewale, go to Bolga	40 minutes The rest of the day
Wednesday 17 October (Bolga and go to Wa)	• Meeting with wholesale trader (some members of their association) • Meeting with commodity transportation association (some members) • Markets survey (interviews with some retailers, shops, etc.) • Depart Bolga, go to Wa	40 minutes 40 minutes 40 minutes
Thursday 18 October (Wa)	• Meeting with wholesale trader (some members of their association)	40 minutes

	• Meeting with commodity transportation association (some members)	40 minutes
	• Markets survey (interviews with some retailers, shops, etc.)	The rest of the day
Friday **19 October** **(Tamale)**	• Depart Wa, go to Tamale	All day
Saturday **20 October (Accra)**	• Depart Tamale (Fly 540) • Arrive Accra	8:05 AM 8:55 AM
Sunday **21 October (Accra)**		
Monday **22 October (Accra)**	• Data analysis, report writing • 1st conclusions to the team, Debriefing to CO	All day
Tuesday **23 October**	• Debriefing to partners • Depart Accra to Dakar	1 hour The rest of the day
Wednesday 31 October	• First drat	