Ghana Country Office Market Assessment in Fentantaa, Egyeikrom and Ampain Refugee Camps

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Executive summary

The UN Country Team together with the Government of Ghana continue to provide humanitarian assistance to refugees from Cote d'Ivoire residing in three camps - Fetanta,Egyeikro and Ampain - in the Brong Ahafo, Central and Western Regions. With a total population of 7778, meeting the food and nutritional needs of these refugees requires a close examination of the current food assistance strategy and the exploration of other transfer modalities to replace the existing general food distributions.

The WFP Country Office in Ghana therefore initiated this market assessment to explore the feasibility of food assistance programming based on cash, voucher or in-kind transfers in these refugee camps. The main aim of the assessment was to conduct an analysis of local market conditions close to the refugee camps and to assess the capacity of traders to respond to increased purchasing power and demand for food commodities. A total of 65 traders were interviewed in 13 markets in the three regions hosting the refugee camps.

The key messages, which need to be specifically considered for the feasibility of cash or voucher projects, are as follows:

- While domestic production of white maize covers over 90% of the food needs of the Ghanaian population, domestic production of rice covers only 40% of the local needs, with 60% of the rice needs imported from other countries.
- Climate hazards can have an important negative impact on cereal production. In 2011 a drop of 800,000 MT of maize harvest has been observed due to poor moisture conditions.
- Traders have the capacity to respond to increased households' purchasing power as large quantities of food commodities are available in stock. About 41.5% of traders had more than 5MT of food commodities in stock while another 9.2% had between 2.5 to 5MT.
- Nearly half of the retailers (47.8%) are able to replenish their stocks of food commodities within one to two days after existing supplies become exhausted while another 41.3% are able to replenish their stocks within two days to one week after supplies are exhausted.
- Overall, 69% of traders are able to purchase goods on credit while another 31% have no access to credit. Furthermore, 60% of the credit received is normally in-kind as food and is generally accessible to traders one to two days after the credit request has been made.
- Among smaller retailers, 72% are able to access credit in the form of food from wholesalers or other traders as compared to 68% for wholesale traders.
- Income earning opportunities are limited to menial construction work and weeding of farm lands in some of the host communities. Due to the very low wages paid to the refugees, their purchasing power is very low.
- Physical accessibility to market centres is one of the key constraints facing residents of the three camps who have to travel long distances (between to 3 to 10km) to reach the nearest market.
- Markets are generally well integrated and this facilitates the flow of goods from the major markets of Techiman and Ejura to the southern sections of the country. At the regional level, market integration is reflected in the flow of imported food items from urban markets to rural markets
- Most markets are conducted on bi-weekly basis during which food items that are usually not available in shops, such as plantain, cassava, vegetable and yam can be purchased. In these localities, some locally produced food commodities such as rice and beans are only available in the local market stalls and are sold in small tins and containers.

- Despite the sustained growth in the Ghanaian economy since 2011, the increase in inflation to 11.9% in September 2013 as compared to 9.4% in September 2012 could likely affect the purchasing power of households and access to basic food commodities.
- Financial transfer systems are available close to the assessed markets, with rural banks and commercial banks providing such services. About 90% of traders had business relationship with financial service providers.

1.0 Background, objectives and methodology

1.1 Background

Ghana is a fairly stable democracy with well-established institutions and has gone through four successive elections since 1992. The gains in democratic governance and the recent surge in foreign direct investment along with the discovery of oil in the coastal areas of the country have spurred significant growth in the economy. Despite the progress in economic development, Ghana is ranked 135th out of 186 countries[1] and has large regional disparities in socio-economic indicators such as poverty and malnutrition.

In 2011, heightened political tension in the neighbouring country Cote d'Ivoire triggered the influx of refugees across the western borders of Ghana, notably into the Brong Ahafo, Central and Western Regions. Since the establishment of three refugee camps in 2011 in Ampain (Western Region), Egyeikrom (Central Region) and Fetentaa (Brong Ahafo Region), UNHCR and the UN Country Team have coordinated the provision of humanitarian assistance to these asylum seekers in the camps. The combined total of refugees in the three camps is currently 7778.

The refugee camps currently benefit from General Food Distribution thanks to additional funding received from the Bureau for Population, Refugees and Migration, but these distribution will come to an end in January 2014. Continuing livelihood support will be required by the most vulnerable groups in this population. WFP has been providing livelihood and mitigation support to food insecure rural communities through Food for Asset/Training (FFW/T) programs. The WFP Country Office also has supported the government to implement a Food Security and Nutrition Monitoring System (FSNMS). In accordance with WFP's strategy, which is closely aligned with the strategy of the Government of Ghana, the WFP Country Office clearly indicated its intention of starting Cash for Assets/Training (CFA/T) activities upon the termination of the general food distributions in the three camps.

The Ghana Country Office has therefore undertaken this preliminary study, including a market analysis, in order to settle on a ready-to-use package that would ascertain which transfer modality, or mix of modalities, is the most appropriate for WFP's interventions. This is to lay the foundation for cash and voucher programmes starting in February 2014.

1.2 Objectives and Methodology

The Ghana Country Office initiated this market assessment to examine the feasibility of food assistance programming that is based on cash, voucher or in-kind transfers in Ampain, Egyeikrom and Fetentaa (Figure 1) and to provide WFP with essential information for decision-making in the context of deploying a combination of the above transfer modalities. More specifically, the objectives of the study were to:

- Examine the links between markets, household food security and livelihoods;
- Conduct competition analysis (e.g. hoarding and monopolies);
- Evaluate food traders' capacity to respond to increased household purchasing power (e.g. storage facilities, duration of stocks and stock replenishment lead-time);

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[1] UNDP (2013), Human Development Report

- Assess traders' access to credit: channels and costs;
- Analyze food-insecure and vulnerable households' effective demand (including physical access to markets, access to credit, purchasing power); and
- Evaluate macro risks e.g. inflation, supply shortage, financial institution failures, security problems or corruption.
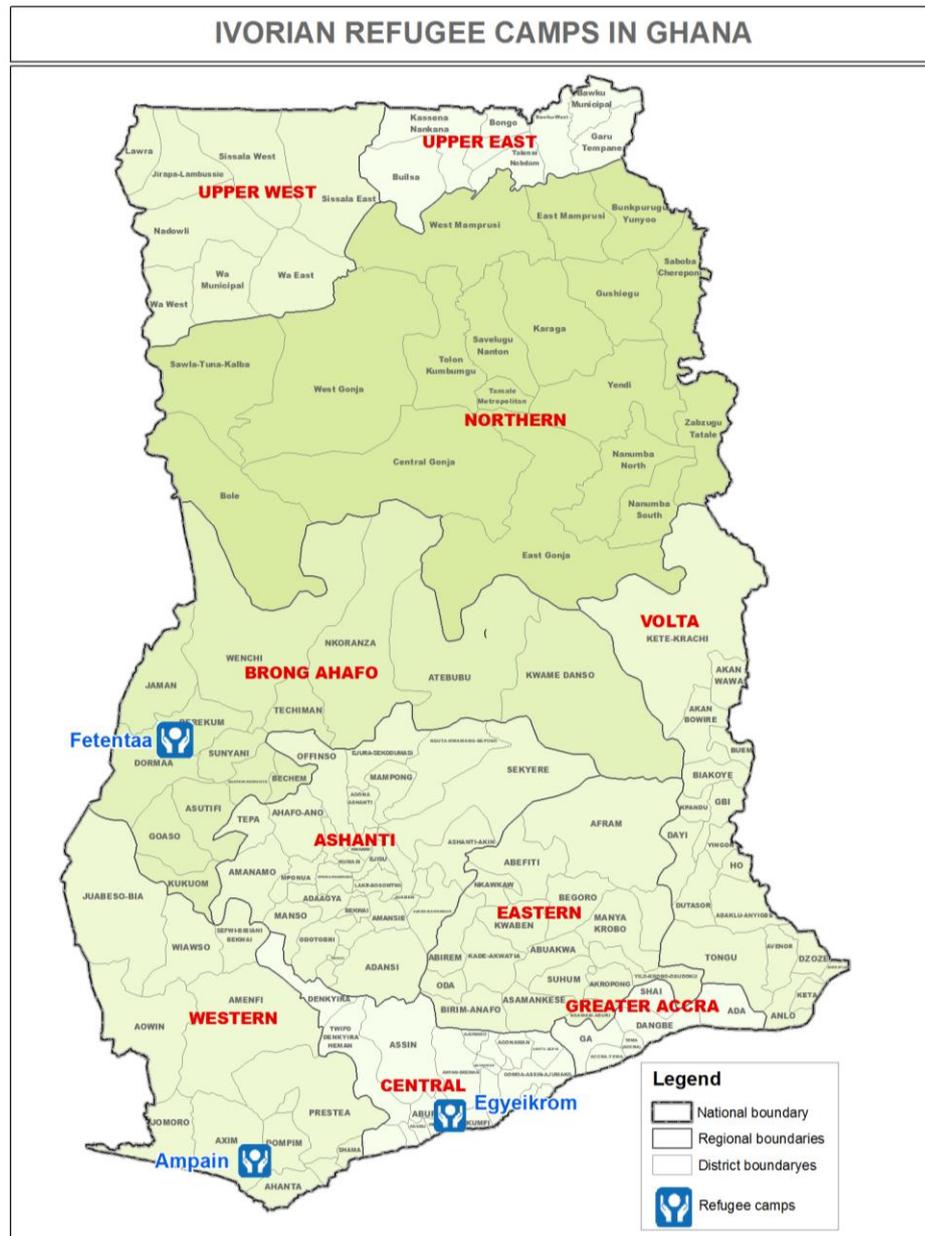
Source: Trader survey in Ghana, October 2013

This assessment made use of both secondary and primary data collected from market centres in the three regions where the refugee camps are operational. Agricultural production data from the Statistics, Research and Information Directorate of the Ministry of Food and Agriculture and market price data collected by the same unit were analyzed.

The primary data collection was carried out from the 9th to the 27th of October 2013 in 13 markets (Table 1) in the Brong Ahafo, Central and West Regions using the trader survey questionnaire which was designed to capture the views of traders at the level of collectors, retailers and wholesalers. The market survey also covered the major market of Techiman, which is the central market for trade in all locally produced food commodities in the country. It is centrally located in the middle part of Ghana, making it conducive for the arrival of food supplies from major surplus producing areas and the transmission of food commodities to areas of deficit production.

The questionnaire was designed to effectively cover all issues pertaining to storage capacity, the sources of food commodities and barriers to the availability of food products.

Table 1: Selected markets near refugee camps

Region	Refugee Camp zone	Market name
Brong Ahafo	Fententaa	Berekum
		Drobo
		Sunyani
		Techiman
Central	Agyeikrom	Ayensudu
		Beposo
		Mankessim
		Cape Coast
		Elimina
Western	Ampain	Aiyninase
		Esiama
		Elubo
		Takoradi

Source: Trader survey in Ghana, October 2013

Owing to the fact that a Joint Assessment Mission between the UNCHR and WFP was carried out in September 2013, the market assessment did not include any household level data collection.[2] Therefore, sufficient data on food access and the nutritional status of the refugees is already available from the JAM assessment report.

Markets were selected for inclusion in the assessments based on their proximity to the refugee camps and the importance of those markets in food purchases of refugees (Figure 2). Initial consultations were carried with managers of the refugee camps to ascertain the markets being utilized for common food and non-food items. In each refugee camp, the two closest markets being patronized were selected along with at least two regional markets. In each market, at least 3

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[2] WFP/UNCHR, 2013. Joint Assessment Mission Ghana Report

retailers and 3 wholesalers for the main commodities were interviewed. In the 'regional' markets, at least 1 wholesale trader and 1 retailer were interviewed along with a resource person within each of market chains.
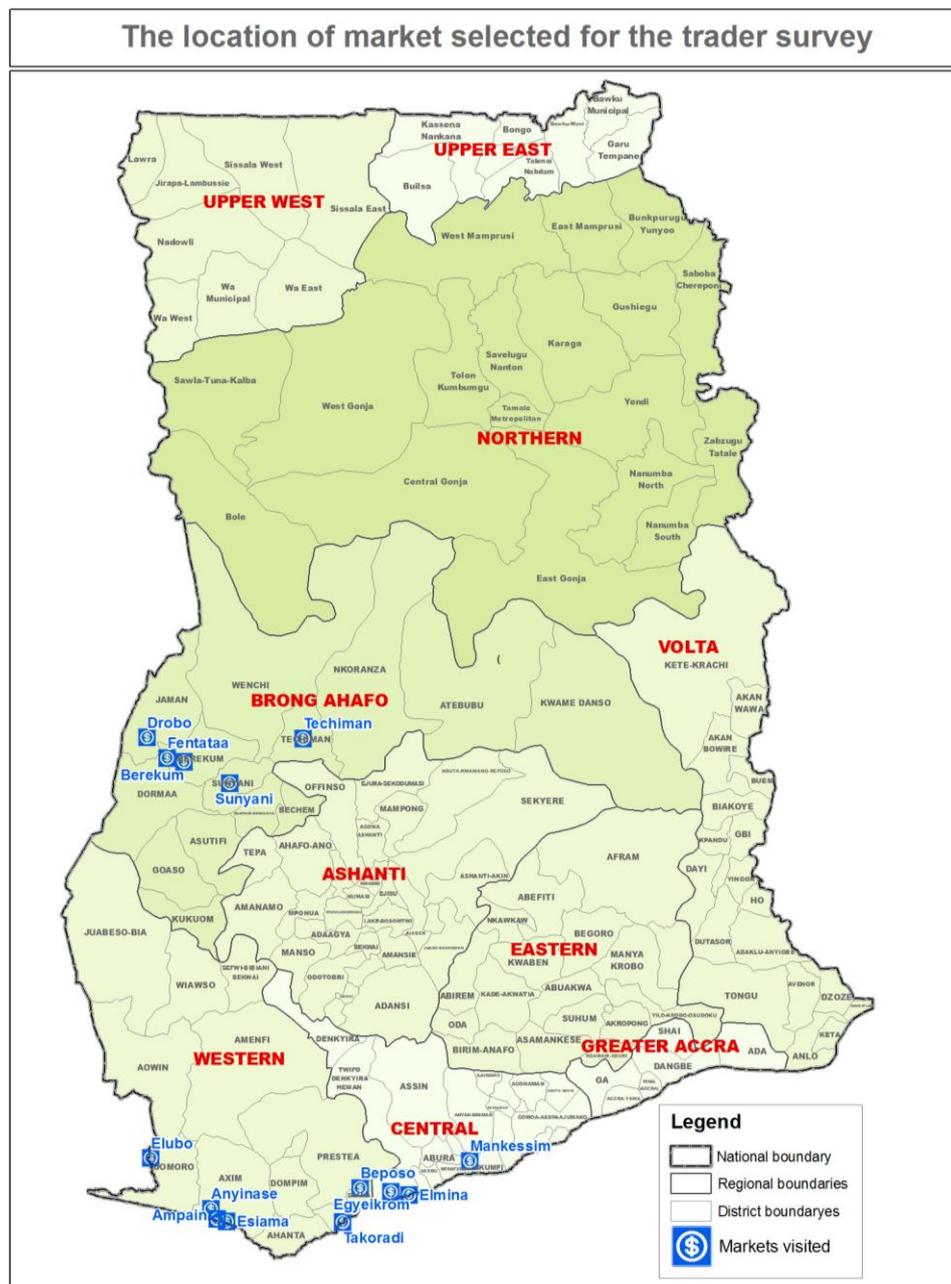
Source: 2013 market assessment

1.3 Limitations

A key limitation for the market assessment was that the visits to some of the markets did not coincide with the weekly market days when many traders are usually present. This means the assessment team had to carry on with the survey by targeting those who could be found as it was not possible to reschedule another trip to coincide with the market day.

2.0 General analysis/Secondary data

2.1 Macro-economic factors

Ghana's current Gross Domestic Product (GDP) at 40,170,718,538 GHS is estimated to have grown by 15% in 2011 and 7.9% in 2012 spurred on by strong growth in cocoa and gold output as well as an expansion in the oil sector[3]. The mining sector continues to play a significant role in the growth of the Ghanaian economy with gold alone accounting for over 90% of the foreign exchange earnings from minerals[4].

Despite the sustained growth in the economy since 2011, increasing public sector expenditure along with other structural constraints contributed to an increase in inflation to 11.9% in September 2013 as compared to 9.4% in September 2012[5]. The continuing increase in inflationary trends is likely to affect the purchasing power of households and the associated increase in the cost of living could have serious implications for food insecurity at the household level.

2.2 Import/Export and Exchange rate

Ghana's trade with other countries is based on the export of a few primary raw products such as gold, cocoa beans, cashew, lumber and most recently, crude oil[6]. The total value of imported goods was US$ 12,785.42 million in 2011. Ghana mainly imports rice, sugar, fruits, food ingredients, fish products and chicken which have a total value of US$ 15,968.42 million. Thus, Ghana's exports lagged behind imports, giving rise to a balance of trade deficit of US$ 3,183 million[7]. Earnings from the export of commodities continue to be vulnerable due to the limited number of commodities exported as well as the narrow range of the export market which is mainly to industrialized countries. Thus, the continuing trade deficit and insufficient accumulation of foreign exchanges reserves contributes to pressure on the Ghanaian cedi due to increased demand for the US dollar for the importation of goods. Shortly after the redenomination of the Ghanaian cedi in July 2007, it quickly attained parity with the US dollar in early 2008. Since late 2008, the cedi has consistently depreciated against the US dollar and other major currencies and was trading at over 2 GHS to 1 US dollar in September 2013.[8] As local rice production satisfies only 40% of the local demand in Ghana, the rice import bill for 2010 was US$ 450 million. Rice is generally the second most important staple in Ghana after maize[9] and as the consumption of rice continues to increase due to growing urbanization and growing consumer preference, the production and importation of rice is expected to increase further.

Figure 3 shows the depreciation of the Ghanaian Cedi against the US dollar over a five-year period. The steady depreciation in the value of the cedi since 2008 implies that the prices of imported commodities continue to rise.

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[3] World Bank, (2013), Ghana Overview
[4] Mumuni E, Seidu Al-hassan, and Oladele O.I. "Effects of Mining on Smallholder Agriculture in Asutifi District of the Brong Ahafo Region, Ghana" in Life Science Journal 2012;9 (3)
[5] Ghana Statistical Service, Consumer Price Index Newsletter, September 2013
[6] African Development Bank, OECD Development Centre, UNDP and Economic Commission for Africa (2012), African Economic Outlook 2012
[7] Institute of Statistical, Social and Economic Research, (2012) 2012 External Sector Outlook for Ghana, *Policy Brief 7, University of Ghana*
[8] Oando Currency Converter (2013)
[9] Angelucci F., Asante-Poku A. and Anaadumba P., (2013), Analysis of incentives and disincentives for rice in Ghana. Technical notes series, MAFAP, FAO, Rome.
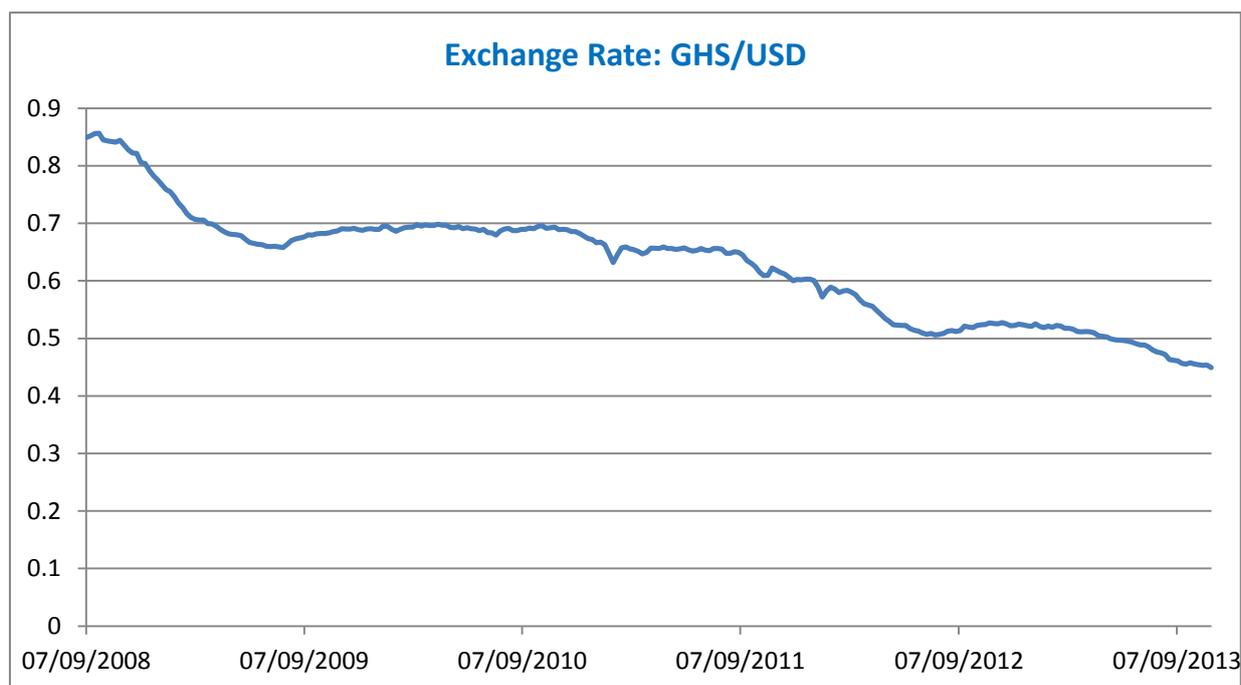
Source: Oando.com

3.0 Food availability

Ghana's food supplies (or cereal supplies) are secured through two channels: firstly, Ghana imports approximately 60% of the total rice needs mainly from Thailand and Vietman. Secondly, local production of white maize covers over 90% of the national food consumption needs, and Ghana is an importer of yellow maize which is used mainly for the poultry industry[10]. A deficit in maize production during the 2011 growing season coupled with high grain prices prompted the Government of Ghana to import 15,000 metric tons of yellow maize in April 2012 to stabilize its market availability.[11] Only 40% of the national rice needs is met through local production with the remainder being imported at a cost of USD 450 million in 2010.[12] Consequently, the high cost of imported rice affects households' access to the commodity, given a low purchasing power in both urban and rural areas. The intensification in the use of irrigation systems is expected to help increase rice production, which would consequently decrease Ghana's dependency on rice imports.

For the following analysis, it has to be underlined that maize and rice are the two staple food commodities widely consumed across Ghana. Hence, the following food production and availability analysis will focus mainly on maize and rice covering the period of 2008 to 2012, while including some preliminary results of the 2013/2014 agricultural season. Since 2008, the production of most staple cereals has been on the rise to meet the increasing demand for food by the growing population. Between 2008 and 2010, the production of maize increased across the whole country largely as a result of favourable agro-meteorological conditions. During the 2011 growing season, cereal production in Ghana as a whole was negatively affected by poor distribution of moisture.

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[10] Angelucci F., Asante-Poku A. and Anaadumba P., (2013), Analysis of incentives and disincentives for rice in Ghana. Technical notes series, MAFAP, FAO, Rome.
[11]Richard Nii Abbey, (2012), Poultry farmers accuse gov't of sabotage, JoyOnline Business news
[12] Angelucci F., Asante-Poku A. and Anaadumba P., (2013), Analysis of incentives and disincentives for rice in Ghana. Technical notes series, MAFAP, FAO, Rome.

However, during the 2012 growing season, the total maize production increased above the level recorded in 2010[13]. This ensured that domestic food production of the commodity was generally adequate to meet the needs of the population.

Figure 4: Annual trend in maize production in mt from 2008 to 2012
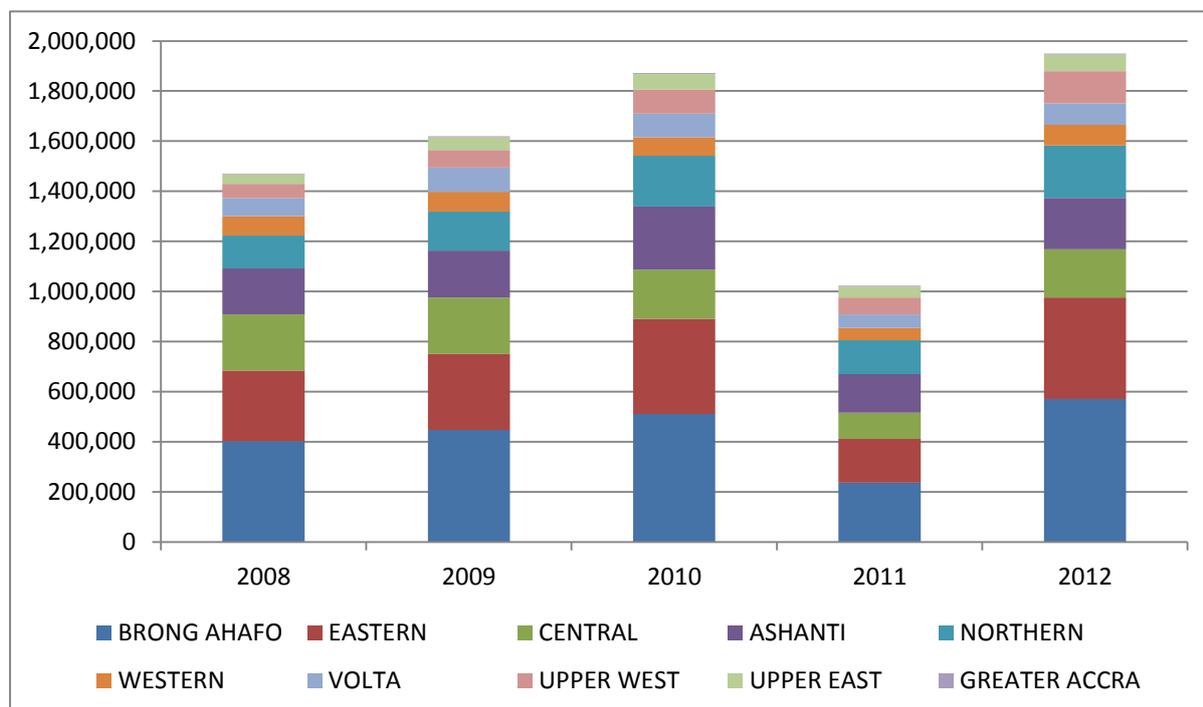
Source: Ministry of Food and Agriculture

Figure 4 represents the total maize production in metric tons between 2008 and 2012. Production underwent a steep increase between 2008 and 2010, followed by a decrease in 2011 below the level observed in 2008. The large decrease in 2011 was mainly due to the fact that most parts of Ghana experienced poor seasonal moisture conditions during the greater part of the growing season resulting in lower than normal crop yields for both the first and second season harvest. In the northern half of the country, unfavorable rain patterns prevailed from May through July which constrained normal crop germination, with crop development suffering a serious setback as periods of dry spells lasted up to 4 weeks in some locations. In two out of the three regions where the three refugee camps are situated – Brong Ahafo and Central Regions - maize production in 2012 was 570,350 MT and 192,069 MT respectively, while in the Western region which hosts the Ampain camp, maize production reached 82,825 MT. The 2013/14 cropping season was marked by erratic rainfall, which may adversely affect the harvesting prospects of some major food commodities. However, the adverse impacts of these climatic events do not appear to affect starchy staples such as cassava and yam. According to the Ministry of Food and Agriculture, the precipitation rates during the cropping season of 2013/2014 (March to August) compared with the 30-year average was lower in all regions except the Upper East and Brong Ahafo regions, which showed above normal cumulative amounts of rainfall respectively of 17.7% and 65%.[14] Maize production at the major belts of the Brong Ahafo, Central and Volta and regions may be slightly below last year's production levels. Provisional production estimates for 2013 compared to 2012 levels revealed that total cereal production declined marginally by about 1%. Maize production is projected to decline in volume by

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[13] Ministry of Food and Agriculture, (2012), "Provisional Crop Production Estimates for 2012" SRID, Accra
[14] "Evaluation of 2012/2013 export and 2013/2014 provisional cereal and food balance sheets". Ministry of Food and Agriculture, Ghana. Paper presented at the regional agricultural production validation workshop on cereal and food balance sheets in the Sahel and West Africa Lome, Togo, 20 - 22 November, 2013.

approximately 7 %, while millet and sorghum are forecast to drop by 0.5 % and 0.2 % respectively.[15] However, local rice production is projected to increase by 22 %, which is largely due to the intensification in the use of irrigation systems, primarily in some parts of the Volta and Northern regions, which would ensure all year production. Overall, maize remains the most important crop to meet national food needs and the 2013/14 production volumes remain almost 6% above the five year average (2008-2012). While the demand for imported rice has increased, the expected increase in local rice production will be an additional help in meeting the needs of the local population. In 2010, the three major local rice producing areas were the Northern Region (38.4%), Upper East Region (28.3%) and Volta Region (14.4%). The remaining seven regions produced between 1% and 6.6% of the total production.[16] However, as most Ghanaians currently have a greater preference for imported rice, continuous importation remains one of the key strategies for meeting demand in the country.

3.1 Cereal price development

This section looks at maize, local rice and cassava price development. These products represent the key food staples consumed in Ghana.

3.1.1 Maize

In the assessed markets, maize underwent a steep price increase between 2011 and 2012, which is explained by the poor harvests during the 2011/2012 agricultural season. Wholesale prices for a 100kg of maize varied from 49 GHS in Techiman to 93 GHS in Sekondi/Takoradi (Figure 5). The market price trend in the four selected markets also underscores the importance of Techiman as a source of market supply because prices are always lower.

Figure 5: Price trend for maize in selected markets
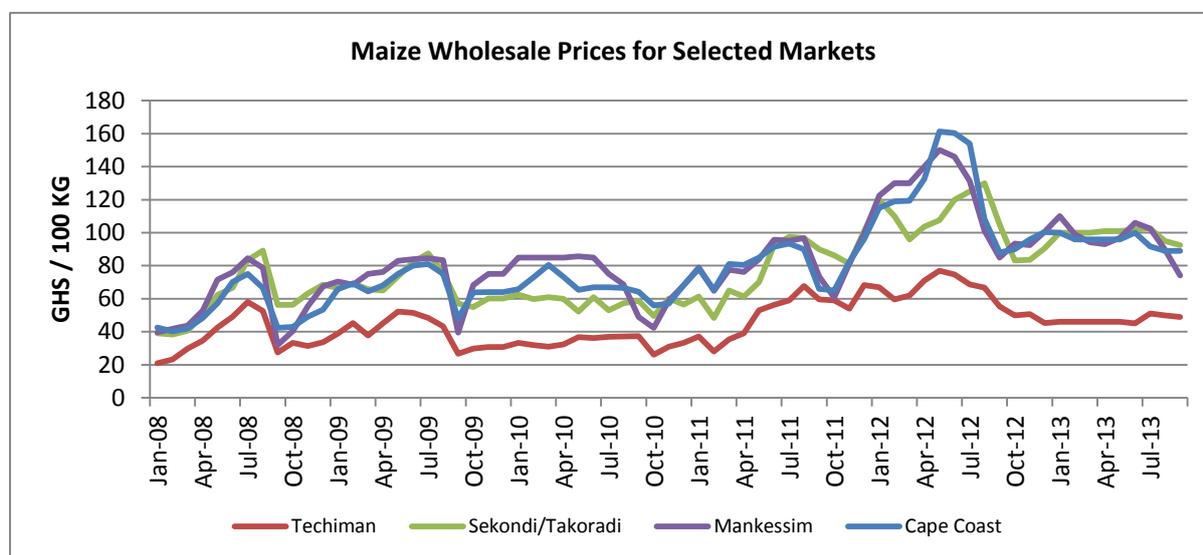
Source: Ministry of Food and Agriculture

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[15] Ibid.
[16] Angelucci F., Asante-Poku A. and Anaadumba P., (2013) Analysis of incentives and disincentives for rice in Ghana. Technical notes series, MAFAP, FAO, Rome.

3.1.2 Local Rice

Local cereal prices (maize and local rice) underwent three phases since 2008. Between 2008 and 2009, prices increased significantly. Prices were generally stable in 2010, but have been on the rise since January 2011 (Figure 6). Firstly, the upward adjustment in the price of rice is underscored by the persistent production shortfalls which have affected the major producing areas since December 2010. Secondly, the demand for locally produced rice has continued to increase over the past few years in response to the high cost of imported rice. Thirdly, the price increase also coincides with the increased purchase of rice and maize by the National Buffer Stock Company of Ghana, which likely contributed to increased market demand and prices increases.

Figure 6: Price trend for local rice in selected markets
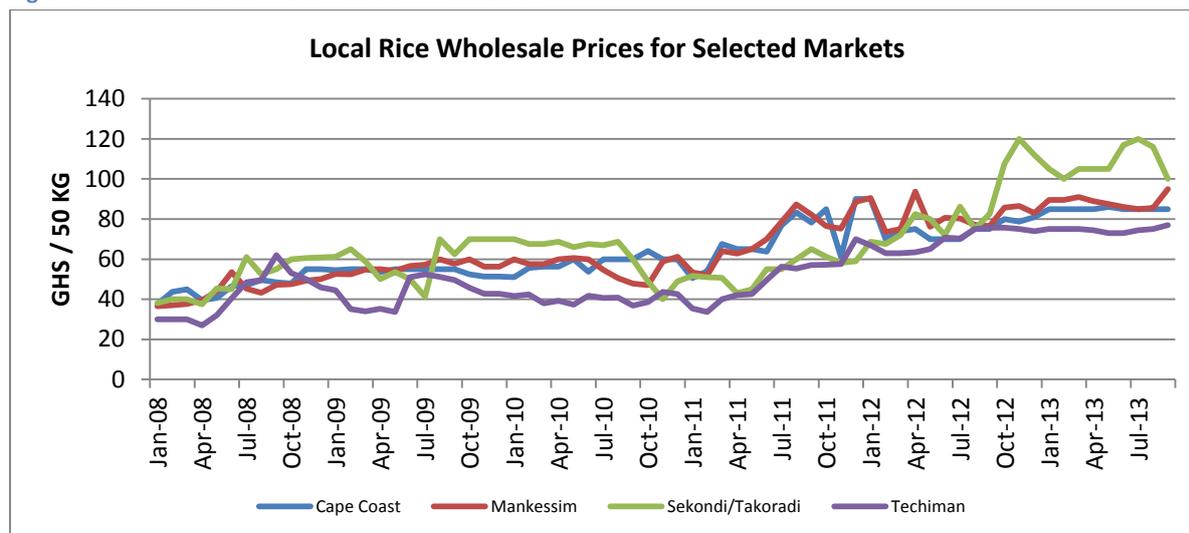
Source: Ministry of Food and Agriculture

3.1.3 Cassava

The wholesale price of cassava in Mankessim, Techiman and Cape Coast has been generally lower and stable as compared to Sekondi/Takoradi. The price trend in Sekondi/Takoradi may be a reflection of low production and market supply of the crop than in the other three selected markets. Since January 2012, the price of cassava has been on a rise in some markets, particularly in the Sekondi/Takoradi market (Figure 7).

Figure 7: Price trend for cassava in selected market
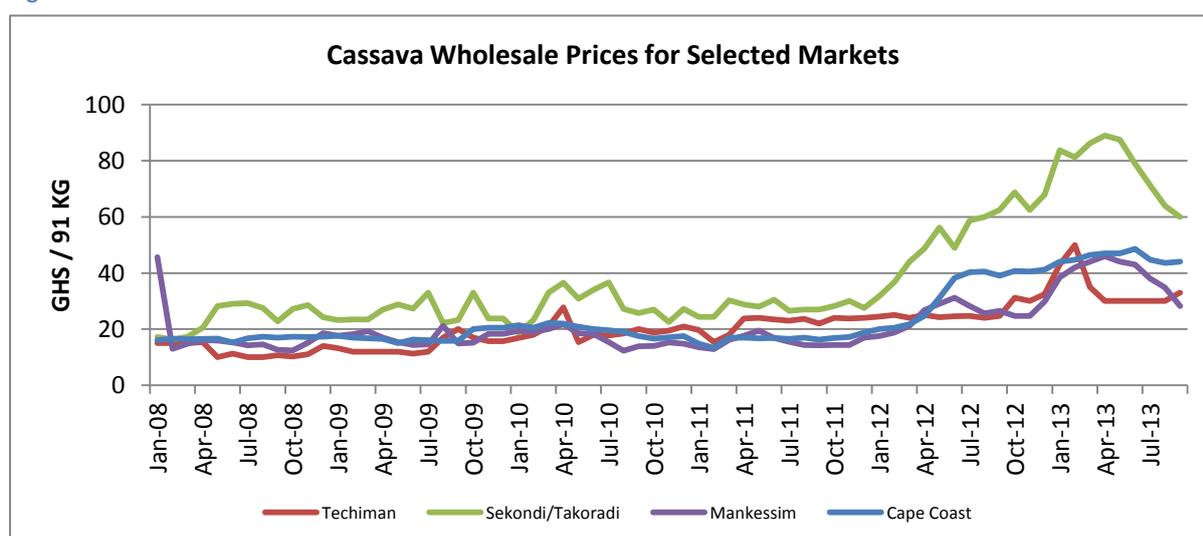
Source: Ministry of Food and Agriculture

4.0 Market integration

Market integration in this document is analyzed in relation to the transmission of price signals and commodity flows from areas of high production to other areas of low supply or production and how these dynamics contributes to price stability in different locations. An earlier study of market integration in northern Ghana considered the Pearson Correlation co-efficient and found that the northern markets of Wa, Tamale and Bolgatanga are well integrated on account of a positive correlation coefficient[17]. This report further considers market integration in more qualitative terms and in the context of factors such as access roads, transportation cost and distances between markets, restrictions to movement and possible production failures.

Markets in Ghana are generally integrated for both imported commodities and locally produced food items. Over 80% of the wholesale traders of imported food item such as rice and oil receive their supplies from wholesales in Kumasi, Accra or Tema. Theses regional market networks which are well connected by efficient transport system are very influential in facilitating the flow of imported food items to other parts of Ghana. The major reasons accounting for the differences in the prices of imported food items are the cost of transportation and profit margins.

Locally produced food commodities such as rice, cowpea, maize, millet, sorghum and yam flow from surplus producing areas of northern Ghana, Brong Ahafo Region and parts of the Ashanti Region to the southern parts of Ghana. In fact, the central market for trade in local food commodities is Techiman, which was frequently mentioned as the source of supply for cereals and legumes in all areas covered by the market assessment. Thus, changes in the supply conditions of these locally produced cereals and legumes in the northern middle section of Ghana tend to have a significant effect on prices in the rest of the country. The following sections show the results of a correlation analysis of wholesale prices for selected markets in Ghana for maize, local rice and cassava. Overall:

- Maize markets in Ghana are well integrated
- Rice and Cassava markets are moderately integrated
- The markets that stand out as highly correlated are not the same for all commodities.

4.1 Maize price integration

Local maize markets are generally well integrated. Fluctuations in maize prices are largely correlated across Ghana. Price signals are transmitted in the market and lead to a strong co-movement of prices. The average coefficient of inter-market variations is 0.86 for all markets (Figure 8). The most integrated markets for Maize are the markets of Accra, Sunyani, Obuasi and Kumasi. Their prices are highly correlated with those of other markets in Ghana. The most isolated (i.e. least integrated) markets in terms of price fluctuations are the markets in Ejura, Wa and to a lesser extent Mankessim.

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[17] WFP (2012) Ghana - Rapid Market Assessment in Tamale, Bolgatanga, and Wa

Figure 8: Market integration for maize

	Accra	Bolga	Cape Coast	Ejura	Ho	Koforidua	Kumasi	Mankessim	Obuasi	Sekondi/T	Sunyani	Tamale	Techiman	Tema	Wa
Accra	1	0.919264	0.92016	0.730865	0.921378	0.91805	0.94673	0.886633	0.949632	0.942406	0.935189	0.924777	0.900914	0.937683	0.872339
Bolga		1	0.798198	0.716358	0.860466	0.80768	0.918414	0.788974	0.878441	0.902862	0.87908	0.921359	0.904082	0.844505	0.831225
Cape Coast			1	0.763242	0.870027	0.93096	0.886378	0.945791	0.913568	0.844304	0.912505	0.856081	0.813807	0.866491	0.747256
Ejura				1	0.775485	0.815455	0.752621	0.720059	0.796288	0.674547	0.848102	0.819421	0.835274	0.654477	0.664495
Ho					1	0.904096	0.890845	0.842792	0.906299	0.849292	0.924732	0.91197	0.890722	0.848374	0.855617
Koforidua						1	0.884118	0.861926	0.92026	0.857122	0.939924	0.863136	0.884848	0.851669	0.81166
Kumasi							1	0.861923	0.939017	0.937464	0.918268	0.937088	0.916547	0.891338	0.87043
Mankessim								1	0.909039	0.811226	0.89443	0.824344	0.791944	0.833982	0.68966
Obuasi									1	0.896908	0.950722	0.900558	0.911957	0.882505	0.848521
Sekondi/Takoradi										1	0.866561	0.884987	0.870894	0.936479	0.852466
Sunyani											1	0.934304	0.93966	0.862682	0.81144
Tamale												1	0.933003	0.840494	0.847545
Techiman													1	0.806088	0.866044
Tema														1	0.804105
Wa															1

Source: Ministry of Food and Agriculture

4.2 Local rice price integration

Limitations: Missing data for Ejura and Wa can affect the results (correlation test performed on the data available, so smaller sample and therefore less reliable).

The markets for local rice are much less integrated than for Maize. The average correlation coefficient is 0.65 for the rice, compared to 0.86 for maize. In other words, local rice prices do not always fluctuate together (Figure 9). The correlation coefficient by means of contract does not exceed 0.8 for rice, while they are all greater than 0.75 for maize. The markets most integrated markets are Sunyani, Techiman, Cape Makessim Coase and Bolga. Prices on each of them are in co-movement with one another. One the other hand, fluctuations of market prices in Obuasi, Koforidua and Tamale are much less correlated.

Figure 9: Market integration for rice

	Accra	Bolga	Cape Coast	Ejura	Ho	Koforidua	Kumasi	Mankessim	Obuasi	Sekondi/Takoradi	Sunyani	Tamale	Techiman	Tema	Wa
Accra	1	0.703085	0.870388901	0.390895	0.841618	0.445472	0.665436	0.84587596	0.505548	0.508064622	0.845876	0.499189	0.679092	0.686131	0.589136
Bolga		1	0.8206692	0.658852	0.852847	0.517399	0.838013	0.86847219	0.563434	0.706318759	0.888263	0.607848	0.913534	0.6648	0.831029
Cape Coast			1	0.61845	0.913897	0.71318	0.803044	0.93966388	0.536147	0.713968998	0.932084	0.55649	0.836213	0.713062	0.707965
Ejura				1	0.402292	0.510242	0.639305	0.61894303	0.504268	0.674220817	0.691314	0.352113	0.770474	0.468948	0.567461
Ho					1	0.661121	0.809542	0.92507849	0.499098	0.632754581	0.865355	0.583437	0.802073	0.652371	0.833369
Koforidua						1	0.630987	0.66165691	0.252756	0.754320418	0.622936	0.363884	0.630588	0.343208	0.329871
Kumasi							1	0.85492629	0.467913	0.752106964	0.851695	0.598834	0.870056	0.650006	0.75539
Mankessim								1	0.608468	0.744665788	0.933165	0.538711	0.867376	0.64447	0.700752
Obuasi									1	0.42460009	0.610323	0.457109	0.552663	0.083634	0.21052
Sekondi/Takoradi										1	0.732078	0.500725	0.79745	0.336214	0.355058
Sunyani											1	0.591175	0.904118	0.783504	0.808832
Tamale												1	0.640622	0.372611	0.851695
Techiman													1	0.679249	0.860623
Tema														1	0.742247
Wa															1

Source: Ministry of Food and Agriculture

4.3 Cassava price integration

Limitations: Missing values for Bolga, Ejuga and Wa.

Cassava markets appear moderately integrated, like those of local rice. The average correlation coefficient of price series is 0.68. Local prices therefore influence each other, but are also determined by other local factors (Figure 10). The Bolga market appears to be rather isolated. Its correlation coefficient is close to zero, which means that prices in this market are largely determined by factors that do not affect other markets. However, the absence of a long price series for this market probably skews the results. Note however, as for maize, a disparity in the integration of local markets. Some markets (Accra, Sekondi, Koridua, Kumasi) exhibit co-movement of prices while some

other markets are much less interconnected, which means that the price depends on other factors (local or not common to the others). These include Ejura and Tamale markets.

Figure 10: Market integration for cassava

	Accra	Bolga	Cape Coast	Ejura	Ho	Koforidua	Kumasi	Mankessim	Obuasi	Sekondi/Takoradi	Sunyani	Tamale	Techiman	Tema	Wa
Accra	1	0.349225681	0.958104924	0.649299	0.828137	0.908977	0.919064	0.851827	0.956546	0.968129772	0.88596	0.584585	0.807539	0.936141	0.789969
Bolga		1	-0.489352245	-0.11197	0.324419	0.014175	0.148902	0.053147	-0.41713	0.112835685	0.035062	0.406702	0.60242	-0.34395	0.622969
Cape Coast			1	0.655291	0.86336	0.943876	0.899338	0.845155	0.966597	0.956188863	0.902309	0.549725	0.778437	0.934986	0.797745
Ejura				1	0.506114	0.63983	0.555257	0.618045	0.646178	0.631928004	0.61933	0.288402	0.524029	0.690455	0.494862
Ho					1	0.842413	0.830871	0.803208	0.897675	0.861234446	0.832073	0.511411	0.635739	0.819149	0.705207
Koforidua						1	0.918802	0.792736	0.944367	0.9308678	0.891017	0.645456	0.858018	0.951659	0.748649
Kumasi							1	0.797679	0.912623	0.914749965	0.864776	0.667719	0.866453	0.914619	0.715663
Mankessim								1	0.852437	0.835124175	0.807257	0.409596	0.689757	0.775126	0.693676
Obuasi									1	0.96545881	0.915023	0.562088	0.782049	0.942732	0.750829
Sekondi/Takoradi										1	0.909959	0.570636	0.801194	0.935879	0.770918
Sunyani											1	0.572601	0.767217	0.900987	0.676443
Tamale												1	0.748006	0.663617	0.611171
Techiman													1	0.847742	0.648301
Tema														1	0.727804
Wa															1

Source: Ministry of Food and Agriculture

5.0 Market structure and conduct

The market system in Ghana is structured into rural markets (where collectors have a direct interaction with farmers), the assembly and distribution markets as well as the urban consumer markets.[18] The following provides a detailed description of these markets.

5.1 Characteristics of rural markets

Most rural markets are organized in such a way that trading activities takes place during specific days of the week. Most of the trade in rural markets is in locally produced agricultural commodities, with cereal grains, freshly produced vegetables, roots and tubers as some of the most commonly traded food commodities. In some rural markets, there are a small number of shops which sells imported food items.

5.2 Characteristics of assembly markets

Like rural markets, trading activities usually take place during the market day with large quantities of agricultural commodities on sale by collectors from rural markets. Goods are purchased and aggregated by traders for further transactions in major consumer markets in the urban areas. In most cases, the prices of food commodities tend to be lower in assembly markets and are in turn lower in rural markets or collector markets. Most assembly markets host some shops which sell imported food items such as rice, canned fished and wheat flour.

5.3 Characteristics of urban consumer markets

Urban markets are characterized by the presence of a large assortment of imported and local food commodities. There is a large presence of both wholesale and retail shops to cater for the needs of the large urban population. Although many consumer markets may have designated market days, active trading activities takes place daily, but additional stocks of locally produced food items are sometimes brought in from assembly markets during the designated market days.

In all the markets visited, imported rice was more prevalent than locally produced rice. In the particular case of markets near the Fetentaa refugee camp in the Brong Ahafo region, local rice is sold by a handful of traders on market days at small retail level and the demand is generally lower than that of imported rice.

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[18] WFP (2012) Ghana - Rapid Market Assessment in Tamale, Bolgatanga, and Wa

6.0 Trader assessment

This section provides the results of the markets survey which was carried out in the 13 markets. A total of 65 traders were interview in the three regions hosting refugee camps. In all, 37 traders were small retailers, 6 were medium retailers, 2 were large retailers and 20 were wholesale traders. It is important to note that some of the wholesale traders also engaged in some form of retail activities. Up to 77% of the traders were female while 23% were male, implying that trading activities in the surveyed markets may be dominated by women. The questionnaire focused on the following areas: sources of food commodities in the markets, the capacity of traders, the number of wholesale/retail traders in the markets as well as access to credit and the capacity to respond to changes in demand.

6.1 Commodity flows

Table 2 illustrates various wholesale markets based on the proportion of traders who purchased their goods from those markets. Close to 35% of traders in the survey purchased their food commodities from Techiman market which is the central source of locally produced food items in Ghana. This is followed by 14.3% for Kumasi. It is important to note that whereas Techiman is a source of locally produced food commodities, Accra, Tema, Kumasi and Takoradi are the main sources of imported food items such as rice and oil. Other markets providing essential sources of locally produced food commodities ranging from local rice to maize, soya bean, sorghum and cowpea include Tamale and Ejura. In Berekum market which is frequented by residents from the Fententaa refugee camp, 57% of traders sourced their rice, oil and other food items from Kumasi. In Drobo market which is also used by residents of the Fententaa camp, 71.4% of the rice and oil sold by traders is sourced from wholesalers in Kumasi.

Table 2: Major source of food commodities

Key market sources of food commodities

Region	Market	%
Brong Ahafo	Techiman	34.9
Ashanti	Kumasi	14.3
Northern	Tamale	7.9
Central	Cape Coast	7.9
N/A	Rural market	7.9
Western	Takoradi	6.3
Greater Accra	Tema	6.3
Ashanti	Ejura	4.8
Greater Accra	Accra	3.2
Central	Mankessim	3.2
Brong Ahafo	Suyani	1.6
Brong Ahafo	Berekum	1.6

Source: Trader Survey in Ghana, October 2013

Figure 11: Flow of local and imported food items in Ghana
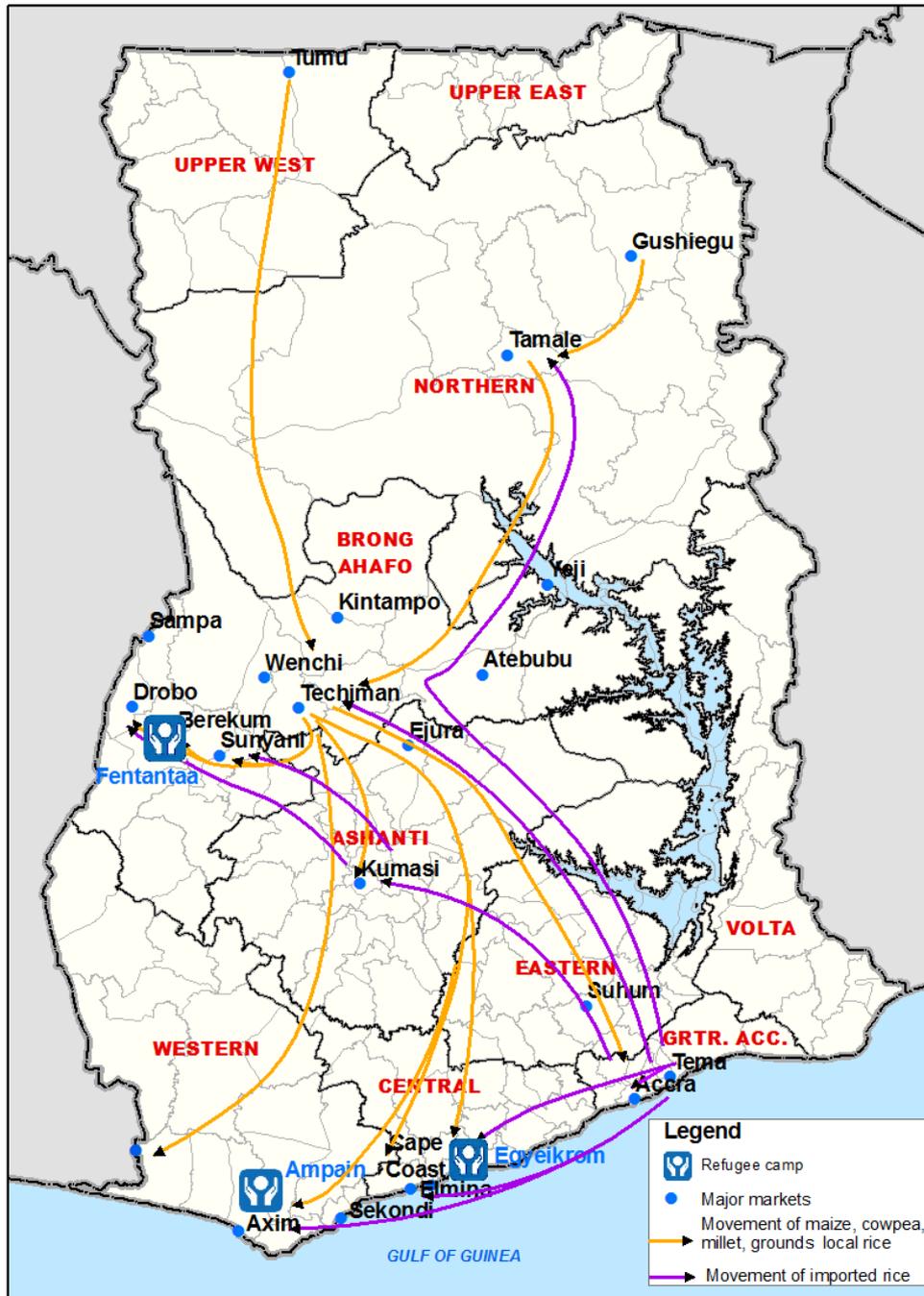
Source: 2013 market assessment

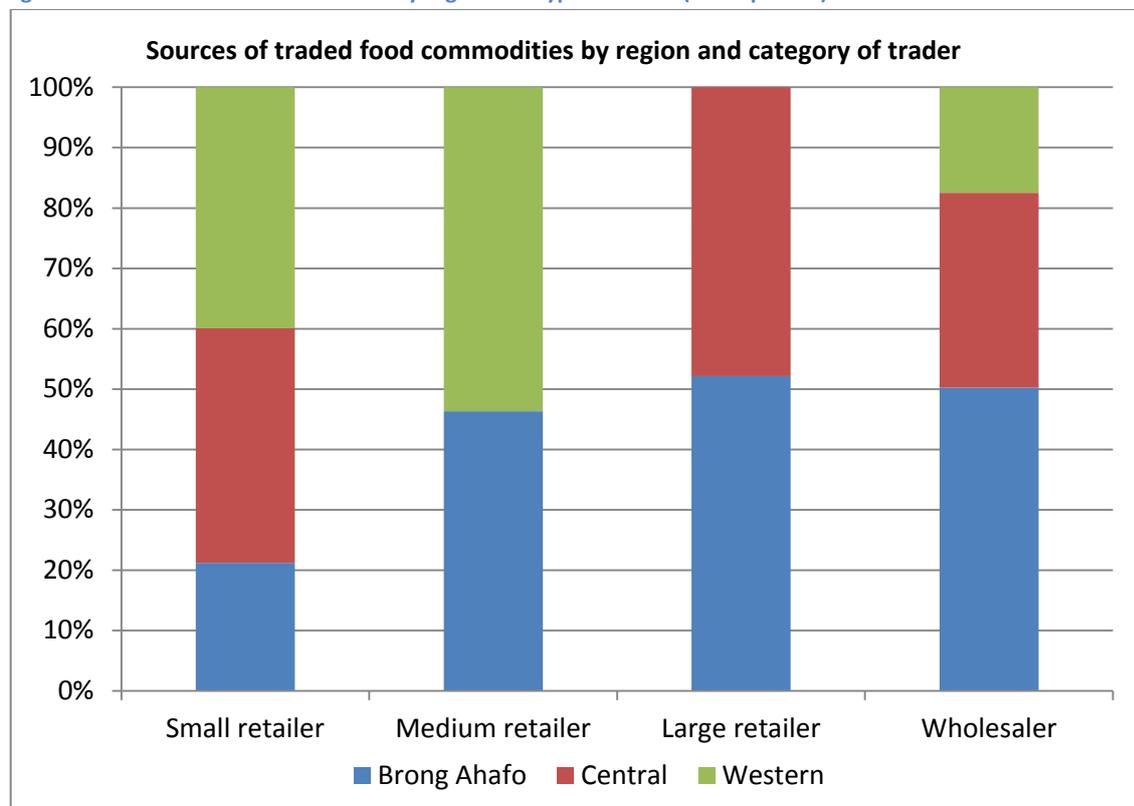Figure 11 demonstrates the flow of local rice, maize, cowpea, groundnuts and millet as well as imported rice in Ghana. In Ayensudu which is the nearest market to the Agyeikrom refugee camp, 33% of traders sourced their food items, mostly roots and tubers, as wells as vegetables from farmers in nearby communities. In Ainyinase which is the market used by residents of the Ampain camp, the sources of food items for traders ranged from 44.4% for Techiman (local grain), 22.2% for Ejura (local grain), 11.1% for Takoradi and 22.2% for Tema. Although locally produced food items are common in all of these markets, there are limited stocks of locally produced rice.

At the regional level, the dominant category of traders in the surveyed markets is retailers (Figure 12), who make up 68% of traders in the Western Region and 36% in the Brong Ahafo Region. With

respect to wholesaler traders, 45.5% are associated with markets in the Brong Ahafo Region with 29.2% and 15.8% associated with the Central and Western Regions respectively.

Source: Trader survey in Ghana, October 2013

As shown in Table 3, the vast majority of traders get their supplies of food items from wholesale sources, mostly in other towns, as well as other traders dealing in the desired commodities.

Table 3: Main suppliers of food commodities

From whom do you get your food commodities?	%
From a wholesaler in a different village/town	43.8
Traders in another market	39.1
From a farmer	14.1
Import myself	1.6
From a wholesaler in the same village/town	1.6

Source: Trader survey in Ghana, October 2013

6.2 Credit strategy and financial capacity

The survey assessed the capacity of traders at various levels of the market chain to access credit to facilitate the purchase of food and other commodities. Overall, 69% of traders are able to purchase goods on credit while another 31% have no access to credit. 60% of the credit is normally given in-kind as food commodities.

Traders' ability to buy goods on credit

Source: Trader survey in Ghana, October 2013

Among smaller retailers (Figure 13), 72% were able to access food on credit from wholesalers or other traders as compared to 50% among large retailers. Among traders classified as wholesalers, 68% had access to credit, implying that among all categories of traders, trading activities may not be significantly constrained by the lack of credit. The system of granting credit among traders is based purely on trust and the trader is usually given a grace period of one to two weeks to repay the amount covering the quantity of goods received. Repayment of this in-kind credit is usually carried by depositing the amount owed into the bank account of the lender within the stipulated time to ensure that any future request for credit will be granted.

6.3 Stock

The strategy for restocking among traders is fairly similar across all markets bordering the camps in the three regions. Most traders – whether they trade in local food items or imported commodities in stores – often ensure that stocks are not completely exhausted before it is replenished. This ensures that customers are continually assured of the availability of food supplies or traders can adequately respond to increased demand. Nearly half of retailers (47.8%) are able to replenish their stocks within one to two days when available supplies become exhausted (Table 4) while another 41.3% are able to replenish stocks within two days to one week after supplies ran out.

Table 4: Duration for stock replenishment among retailers

Length of time for stock replenishment (retail)	
Duration	%
One-two days	47.8
Two days-one week	41.3
One-two weeks	8.7
More than two weeks	2.2

Source: Trader survey in Ghana, October 2013

The length of time for stock replenishment is shorter in urban markets than in rural markets possibly due to higher demand for commodities. Overall, the selected markets are characterized by higher demand and supply of imported rice than the locally produced rice. Among traders categorized as wholesalers, 77% are able to replenish depleted stocks in less than one week (Table 5). The traders asserted that they are constantly well supplied by major importers in other urban areas who see a continuous flow of goods as a strategy to expand their network of retailers.

Table 5: Duration for stock replenishment among wholesalers

Length of time for stock replenishment (wholesale)	
Duration	%
Less than one week	77.3
Two days-one week	18.2
One-two weeks	4.5

Source: Trader survey in Ghana, October 2013

Overall, 41.5% have a storage capacity of more than 5 metric tons while another 33.8% of traders have a low storage capacity of 0-20 bags (Table 6).

Table 6: Quantities of food commodities in stock

Quantity of stocks	%
More than 5 MT(over 100 bags)	41.5
0-1 MT(0-20 bags)	33.8
1-2.5 MT(21-50 bags)	15.4
2.5-5 MT(51-100 bags)	9.2

Source: Trader survey in Ghana, October 2013

The overwhelming majority of traders with low storage capacity are mostly small retailers (54.1%). On the other hand, 80% of all wholesale traders have storage capacity of over 5 metric tons as compared to just 16.2% for small retailers (Table 7). In the Brong Ahafo Region, the majority of traders (72.7%) interviewed have storage capacity of more than 5 metric tons.

Table 7: Quantities of food commodities in stock by type of trader

	Type of trader by storage capacity			
	0-1 MT(0-20 bags)	1-2.5 MT(21-50 bags)	2.5-5 MT(51-100 bags)	More than 5 MT(over 100 bags)
Small retailer	54.1%	18.9%	10.8%	16.2%
Medium retailer	33.3%	0%	0%	66.7%
Large retailer	0%	0%	50.0%	50.0%
Wholesaler	0%	15.0%	5.0%	80.0%

Source: Trader survey in Ghana, October 2013

6.4 Communication and mobile phone coverage

Most of the major mobile phone networks are present in markets close to the refugee camps. These networks include Tigo, MTN, Airtel and Vodafone. Overall, 91% of traders had a cell phone with 52% subscribing to the MTN mobile phone network. The proportion of traders subscribing to Vodafone, Tigo and Airtel is 13.8%, 10.8% and 6.2% respectively. The MTN mobile phone company has the most reliable network in all the three regions. The easy access to mobile phone communication enables traders to easily arrange the restocking of food commodities and to improve operational efficiency.

6.5 Business expansion capacity and constraints

Although traders are able to access credit to support their businesses, very often this credit is an in-kind facility for which the traders are usually expected to repay within a specified period of time. A request for credit is made after the purchase of some goods, with the credit facility given to increase the total stock for the trader. About 45% of traders mentioned lack of access to credit or the inadequacy of it as one of the main barriers which affect the availability of food commodities and reduces their capacity to have higher stocks.

Trading in locally produced food commodities mostly take place in local market stalls where traders sell their food items in small containers. Trade in locally produced food stuff is not well structured in most markets except in Techiman which is the point of aggregation in large quantities by wholesale traders from whom it is purchased for poultry feed, breweries and other industrial purposes.

7.0 Conclusions

Local markets are functioning well in all the three regions with a large number of shops open for business. It must be noted, however, that in some of the rural market such as Beposo, Ayensudo, Anyinase and Drobo, serious trade in locally produced food commodities such as plantain, cassava, vegetable and yam takes place mostly during the market day. In these localities, some locally produced food commodities such as rice is only available in the local market stalls and is sold in small tins and not in shops.

Most markets are conducted on bi-weekly sessions during which goods that are commonly not available in the shop can be purchased. All the markets visited in the three regions have stocks of beans, maize, sorghum, millet and groundnuts which mostly come from Techiman, implying an

efficient flow of good across the country. On the other hand, most imported food communities such as rice originates from Accra and Tema.

While maize and rice are the two most widely consumed cereals across Ghana, maize remains the most important crop in terms of local production volumes to meet national food needs. The 2013/14 production volumes remain almost 6% above the five year average (2008-2012), while local rice production is projected to increase by 22 % due to the intensification in the use of irrigation systems.

Markets are generally well integrated, allowing for the flow of goods between markets or between areas of surplus production to areas of low production. Maize markets are better integrated than rice and cassava markets. Locally produced food commodities are available in all the market visited, with Techmina and Ejura as the main sources of such commodities. At the regional level, market integration is reflected in the flow of imported food items from urban markets to rural markets, but there is also an efficient flow of food commodities between rural markets and consumer markets. All markets visited during the assessment are accessible as roads are in relatively good conditions which allow for the movement of goods and services.

The results of the assessment suggest that traders have the capacity to respond to increased households' purchasing power and demand as large quantities of food commodities are in stock. 42% of traders had more than 5MT in stock while another 9.2% have between 2.5 to 5MT. These traders also have the capacity to replenish their stocks in a timely manner, with 47.8% of retail traders able to replenish in one to two days, while 77.5% of wholesale traders are able to replenish in less than one week. Market environments are not affected by any regulations such as tariffs, commodity movement restrictions or security concerns. Financial transfer systems are available close to markets, with rural banks and commercial banks providing such financial services. Up to 69% of the traders surveyed are able to purchase goods on credit while another 31% have no access to credit.

In the three refugee camps, the purchasing power of the residents is very low as only a few of them have access to income earning opportunities to complement their food rations with condiments. Physical accessibility to markets is one of the key constraints in the refugee camps. Refugees in the three camps have to travel long distances to reach the nearest market which comes with transportation cost. Esiama market which is the closest to the Ampain camp and is often visited to purchase some basic food needs is 4 kilometers away. The Anyinase market which is also about 8-10 kilometers away from the Ampain camp is also used by the refugees. The cost of transportation to Esiama and Anyinase is GHC 1.5 and GHC 2.5 respectively.

The closest market to Egyeikrom is at Ayensudu near Elmina, which is 3 kilometers away and traveling to the market entails taking a taxi at the cost of 70 pessawas. The Beposo market which is about 8 kilometers away is also used by the residents of Egyeikrom Refugee camp. The cost of transportation from the Egyeikrom camp to Beposo is GHC 3. Refugees at the Fententaa camp travel to the Fetentaa Township to access a mini market, but the main market for food commodities is at Berekum which is about 10 kilometers from the camp. Many others also travel to Drobo market which is about 12 kilometers away to purchase food items. The cost of transportation to either Drobo or Berekum is GHC 3.

8.0 Recommendations

1. Considering the limited access to income by refugees, the long distances travelled to markets coupled with the rising inflation in Ghana, the refugee population is being affected by poor access to food. A key response for the refugee population in the three camps is to use a combination of cash and food. The cash distribution will enable households to meet others needs in the market which are not covered by the in-kind food assistance.
2. The existence of strong market infrastructure and the large network of food supply (for both imported and locally produced) sources across the country are indications that markets are resilient to any shocks and are conducive for the cash interventions.
3. A market monitoring system should be instituted in the three refugee camps to understand the impact of the cash intervention on prices of key staples. This monthly monitoring will also check on the continuing capacity of traders to meet the demand for various food commodities.

ANNEX

Indicator/ Fentanta	Poor (1)	Average (2)	Good (3)
Market integration			Good
Market function			Good
Physical access	Poor		
Ability to buy good on credit 3			Good
Market environment			Good
Financial transfer systems			Good

Source: Trader survey in Ghana, October 2013

Indicator/Egyeikrom	Poor (1)	Average (2)	Good (3)
Market integration			Good
Market function		Average	
Physical access	Poor		
Ability to buy good on credit 3		Average	
Market environment			Good
Financial transfer systems			Good

Source: Trader survey in Ghana, October 2013

Indicator/Ampain	Poor (1)	Average (2)	Good (3)
Market integration			Good
Market function		Average	
Physical access	Poor		
Ability to buy good on credit 3			Good
Market environment			Good
Financial transfer systems			Good

Source: Trader survey in Ghana, October 2013

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