Market Assessment

Towards a Market-Based Food Assistance to Refugees

RWANDA

October 2014

Data collected in
May 2014

Table of Contents

List of Figures

List of Tables

List of Maps

Acronyms

AfDB	African Development Bank
ALPS	Alert for Price Spikes
CAADP	Comprehensive Africa Agriculture Development Programme
CB	Central Bank
CCP	Common Country Programme
CFSVA	Comprehensive Food Security and Vulnerability Analysis
COMESA	Common Market for Eastern and Southern Africa
DRC	Democratic Republic of Congo
EAC	East African Community (EAC)
FAO	Food and Agriculture Organisation of the United Nations
FEWS NET	Famine Early Warning System Network
GSI	Grand Seasonality Index
JAM	Joint Assessment Mission
MDG	Millennium Development Goals
MIDIMAR	Ministry of Disaster Management and Refugee Affairs
MINAGRI	Ministry of Agriculture and Animal Resources
MINICOM	Ministry of Trade and Industry
OAU	Organization of African Unity
ODK	Open Data Kit
PDA	Digital Assistants
PRRO	Protracted Relief and Recovery Operation
RMSE	Root Mean Squared Error
RWF	Rwandan Francs
SES	Simple Exponential Smoothing
UN	United Nations
UNHCR	United Nations High Commissioner for Refugees
WB	World Bank
WB	World Bank
WHP	World Food Programme
WV	World Vision

Acknowledgements

Executive Summary

World Food Programme Rwanda Country Office conducted a market assessment in May/June 2014 to determine the feasibility of market-based food assistance (cash or vouchers) to Congolese refugees living in the five refugee camps of **Gihembe, Nyabiheke, Kigeme, Kiziba and Mugombwa**. This follows a successful pilot cash transfer to the refugees in Gihembe refugee camp in Gicumbi district, Northern Province. The assessment is in line with corporate plans (WFP Strategic Plan 2014-2017) to increase the proportion of market-based food assistance that may have the benefits of increasing beneficiaries' choices, higher dietary diversity, higher food consumption scores and better nutritional outcomes, and potential contribution to local economic development.

The central question for the assessment was: *Will there be adequate availability of food of good quality and diversity that refugees can access easily, consistently and cost-effectively through local markets?* Key issues include availability, prices, market systems, trader capacity, and constraints that have implications for sustained and cost-effective food access through cash or vouchers.

The methodology consisted of review and analysis of secondary information, key informant consultations and interviews, trader survey using a structured questionnaire, and observations in markets and refugee camps. The trader survey, which was centerpiece assessment, covered 528 traders (wholesale and retail) across 31 markets around the five refugee camps located in five districts (and four provinces) including Gicumbi (Northern), Gatsibo (Eastern), Karongi (Western), and Nyamagabe and Gisagara (Southern) as well as Kigali hub markets. The findings led to the following conclusions and recommendations.

➢ **Nyabiheke, Gihembe** and **Kigeme** refugee camps (in that order) were found to be suitable for market-based food assistance. The markets serving these camps generally have abundant supply of diverse dry and fresh food commodities including cereals, pulses, roots and tubers, bananas, vegetables, fish and meats. These markets were functioning well, and had large number of traders with capacities to deliver adequate quantities of food to meet the expected increase in demand for key food commodities. These markets have good and fairly predictable supply of key food commodities, mainly from local production and also through imports from neighbouring districts, provinces or countries such as Uganda. The camps are served by markets that are located on or close to primary roads and are well integrated into the main commodities supply chains (especially cereals, beans and roots and tubers). Further, at least 2-3 markets are within walking distance to these refugee camps, ensuring easy and safe access by the refugees.

➢ **Kiziba camp** was found to be partially suitable for market-based food assistance. This was mainly due to the fact that the capacity of the markets to supply adequate and predictable quantities of food commodities is relatively limited. A market-based food assistance project could be considered on a limited scale as a pilot. This could be in the form of partial monetization of ration (for selected commodities that are available – e.g. cereals, pulses or vegetables) or full ration of cash/voucher transfers to a limited number of refugee households. Establishing a market within the vicinity to the camp could enhance the chances of success and stimulate markets, and the scope for expansion of the pilot.

➢ Meanwhile market-based intervention is currently not recommended for **Mugombwa** camp as conditions are not suitable. This is primarily due to the limited supply of food commodities on the local markets in relation to the number of refugees. This emanates from poor local production and poor marketing chains due to its relative remoteness. In addition, trader capacities are low and market access by the refugees living in the camp is low.

➢ It is recommended that consideration be given to **vary transfer values between camps and between seasons.** Although markets are generally integrated across the country, price levels, trends and volatility are high and vary significantly across the country with price peaks between October and November. These pose potential challenges for implementing cash or vouchers and have serious implications for setting transfer values. Uniform transfer value for all refugee camps and throughout the year (based on average prices) will lead to differ quantities of food being purchased across the participating camps and different months; and this has implications for food and nutrition outcomes.

➢ It is recommended that consideration should also be given to **expanding price monitoring**, particularly in key markets refugees will access. This will ensure regular monitoring of the food security outcomes and help guide decisions including on any need to change transfer values, and market support to improve functioning and competitiveness.

➢ It is further recommended that WFP and partners should consider **establishing market structures inside or near refugee camps** as in Nyabiheke camp in order to ease or improve market access, especially for refugee households unable to travel long distances to buy food or exchange their voucher for food.

➢ It is recommended to establish a strategy for capacity building of traders (wholesale and retail) to **improve storage conditions and practice**s to ultimately enhance food quality, particularly at markets targeted for market based interventions. Observations at the markets revealed weak practices of food storage.

1. Introduction

The primary purpose of the assessment is to establish the feasibility of market-based food assistance to Congolese refugees living in five camps[1] in Rwanda. The underlying intent is to move from in-kind food assistance to market-based (cash or vouchers) assistance in line with WFP's transition from a 'food aid' to 'food assistance' agency and the new Strategic Plan (2014-2017). This shift is in turn informed by now widely accepted position that cash/voucher transfer can be an effective instrument for delivering humanitarian assistance. Recent experience has shown that additional benefits of market-based assistance and depending on the context can include giving choice to beneficiaries, higher dietary diversity leading to better food consumption scores and nutritional outcomes; and local economic development.[2]

However, it is essential to ascertain that conditions for undertaking market-based assistance are right, and WFP's corporate position is very clear on that. The central question for this assessment underscores the main concerns about what could go wrong: *Is there/ will there be **adequate availability** of food of **good quality** and **diversity** that refugees can **access easily, cost-effectively** and **consistently** through local markets?* The assessment seeks to answer this question through investigating the following constitute elements using a combination of methods and instruments detailed in the section on methodology.

- o **Food Availability**: the analysis looks at the physical presence of food on local markets; consistency of supply over time (seasonal) and space (other markets); sources of food supply (local, regional or international) and how these contribute to spatial and seasonal availability; and the market systems (with its constituent elements - traders, infrastructure, transport, policies and regulations) that influence availability and prices.
- o **Food Prices**: the focus is on analysis of price levels, trends, spikes and seasonality in relation to desirable expectations of stable prices that would assure consistent and cost-effective food access. This also looks at spatial and temporal price behaviour, and how these could change in response to increased market demand associated with introduction of cash/vouchers and their implications for transfer values.
- o **Marketing systems**: key elements include ascertaining the presence of markets close to the camps where refugees can access easily at minimal transport cost and without exposure to other risks; assessing the number and capacity of traders to supply adequate quantities of food in the markets; assessing quantities and diversity of food commodities on the markets; assessing current price levels and trader expectations of seasonal price changes, supply response to increases in demand.
- o **Constraints:** the analysis also looks at the market infrastructure in place and road and transport networks linking markets and producing areas to key markets; and potential impediments (e.g. infrastructure, policy/regulations, etc.) and other challenges traders face that could impact on the supply and prices of food commodities.

These elements are assessed using a variety of tools and instruments and the findings are used to draw firm conclusions on the suitability of markets-based food assistance in each of the five camps.

---

[1] Cash transfer is already being implemented in Gihembe refugee camp on a pilot basis.
[2] WFP Cash & Vouchers Policy.

The rest of the report is structured as follows. Section 2 provides the background on refugee situation in Rwanda and Rwanda's socio-economic conditions; Section 3 details the objectives and methodology used for the assessment; Section 4 presents the findings and analyses the implications; and Section 5 draws synthesis, conclusions and recommendation.

2. Background

2.1   Refugee Situation and WFP Assistance

Rwanda is home to approximately 76,000 refugees, the majority of whom, 73,752 are living in five camps across the country and about 3,000 in urban areas (2014 JAM Report). Most of the refugees are from North Kivu (83%) and South Kivu (9%) regions of the Democratic Republic of Congo (DRC) bordering Rwanda. Majority refugees are Kinyarwanda speaking, the official languages in Rwanda and this has enabled their easy settlement.

The Government of Rwanda has been supportive to the refugee situation and earlier hosted refugees from both Burundi and DRC. Through the Ministry of Disaster Management and Refugee Affairs (MIDIMAR), the government has and continues to provide protection to refugees in fulfilment of its obligations under the 1951 Geneva Convention on the Status of Refugees and the Organization of African Unity's 1969 Convention of on refugees.

The United Nations High Commissioner for Refugees (UNHCR), the UN agency with the mandate for refugee affairs has continued to support the government to guarantee protection under international refugee law and to seek durable solutions for the refugee caseload. The World Food Programme is responsible for providing food assistance to the refugees. At the time of the assessment, about 73,000 refugees were receiving food assistance in the five (5) refugee camps of **Gihembe** in the north, **Nyabiheke** in the east, **Kiziba** in the west, and **Kigeme** and **Mugombwa** in the south of the country (see Map 1).

WFP in collaboration with partners started to implement a pilot cash transfer programme in Gihembe refugee camp over the months from January 2014. This pilot cash transfer programme was introduced based on the recommendation of a market study conducted in August 2011, the 2011 Joint Assessment Mission (JAM) and a joint UNHCR-WFP Evaluation of Contribution of Food Assistance to Durable Solutions in Protracted Refugee Situations in November 2012.

The 2014 Joint Assessment Mission found out that the pilot cash transfer Gihembe was a success in terms of implementation and meeting food needs, and acceptance by refugees. It recommended its continuation as well as to consider such transfer modality in the remaining camps (Kiziba, Nyabiheke, Mugombwa and Kigeme). This provided the impetus to this market assessment. The assessment is also in fulfilment of WFP's Corporate Guidance that requires markets assessment to establish the feasibility of expanding or initiating any market-based intervention.

Map 1 - Rwanda with Refugee Camps and Main Transport Routes
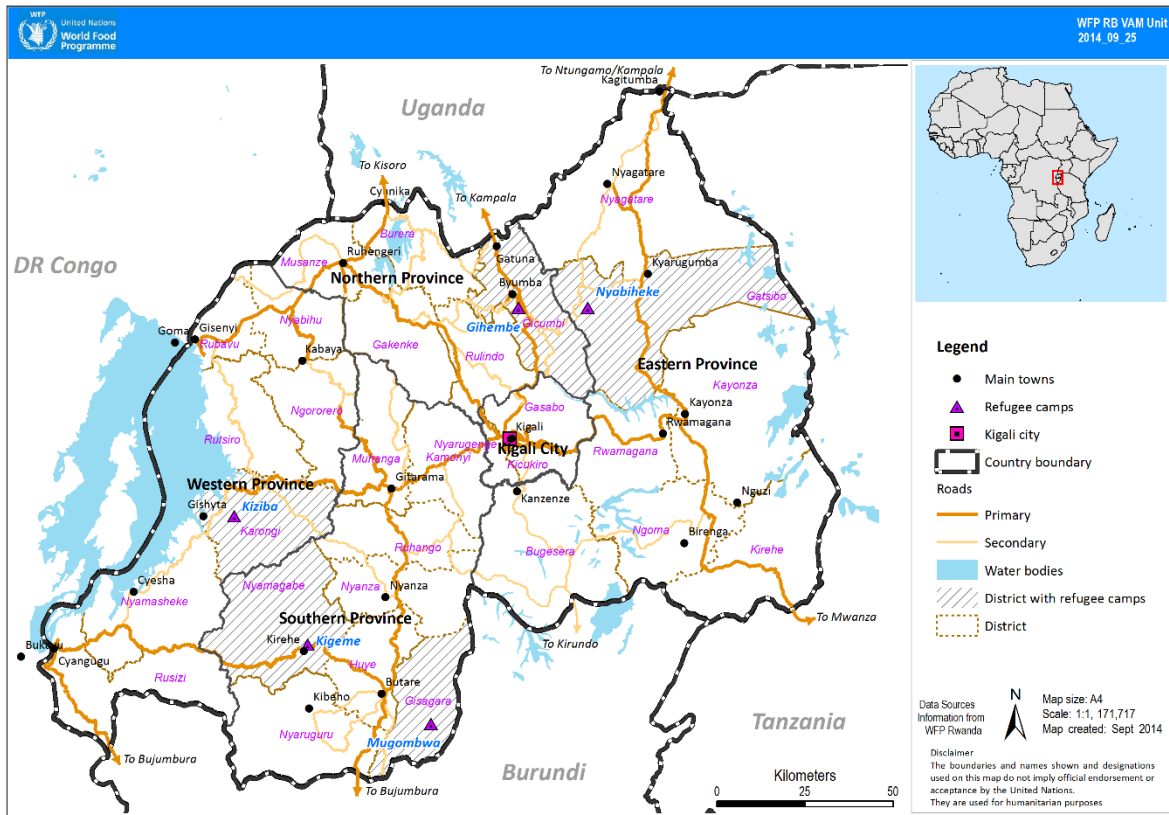
WFP established presence in Rwanda in 1972. Its programmes in 2014 have been designed to provide food assistance to 192,900 beneficiaries through a Protracted Relief and Recovery Operation (PRRO) and a Common Country Programme (CCP). The PRRO targets the 76,000 refugees living in the five refugee camps, 15,000 former Rwandan refugees who have returned home and 9,000 school children from local community around camps. Meanwhile the Common Country Programme focuses on national capacity development and on modelling innovations targeting 92,900 beneficiaries (Executive Brief, May 2014).

2.2   Socio-Economic Background

Rwanda is a least developed country and ranks 167 (out of 187 countries) on the 2013 UNDP Human Development Report. World Bank estimate puts the total population at 11.78 million persons in 2013, an increase of over 300 percent from the 2.9 million in 1960. Rwanda has population density of 464[3] people per square kilometre making it one of the highest in Africa. The country has limited natural resource base. Agriculture is the main sector and contributes over 33 percent of the gross domestic product (GDP) and 80 percent of total export revenue. Agriculture has also been identified by the government as the number one pillar to achieve economic development and food security. The per capita income currently stands at USD 644, and the government aims to raise this to USD 1,240 by 2020.

---

[3] World Bank Development Indicators for 2012.

Rwanda has made a remarkable socio-economic recovery following the 1994 genocide that led to the collapse of the economy, social services and civil society. This is demonstrated by very impressive GDP growth rate averaging 7.2 percent per annum[4]; improved road networks linking all part of the country; and rapid improvements in socio-economic indicators and progress in achieving Millennium Development Goals targets. The latest World Bank[5] statistics show that the poverty head count in 2011 was 44.9 percent, which is an improvement from 56.7 percent in 2006. Gross primary school enrolment in 2012 was 134 percent, significantly higher than the averages for sub-Saharan Africa and low income countries.

Rwanda was the first country to adopt and implement the continental development framework, the Comprehensive Africa Agriculture Development Programme (CAADP), which commits African governments to dedicate at least 10 percent of their annual budget to agriculture. There has subsequently been rapid growth in the agricultural sector, which remains the mainstay of the economy. The Government's Vision 2020 identifies good governance, productive and market-oriented agriculture, and regional and international economic integration as three of the six pillars of to achieve an ambitious economic and social progress across the country. It also seeks to transform the country from low-income agriculture-based economy to knowledge-based and service-oriented economy by 2020.[6]

However, the country will continue facing socio-economic challenges for a long time, food insecurity being one of them. The most recent Comprehensive Food Security and Vulnerability Analysis (CFSVA) report (WFP, 2012) found that half of the households (51 percent) reported having difficulty in accessing food in the 12 months preceding the survey. It also revealed that prevalence of chronic malnutrition among children under five years of age stood at 43 percent (albeit down from 52 percent in 2009). Crucially, the report revealed that 36 percent (i.e. over one-third) of the population was from households headed by women or orphans, which a structural issue that will have socio-economic implications for years to come.

3. Objectives and Methodology

3.1 Objectives of Assessment

As noted above, the overall objective of the assessment is to assess and determine the appropriateness of using cash or vouchers as instrument of food assistance to refugees living in the camps in Rwanda. The specific objectives are detailed in the terms of reference (TOR – Annex 1) and summarized as follows.

❖ Identify and sketch the supply chain of key staple commodities critical to food security of refugees; analyse availability of food commodities including seasonality; analyse the market environment, including relevant government policies and regulations, road and transport infrastructure, etc.; describe the market structure including key actors and institutions relevant to supply chains, barriers and constraints to trade and to increase supply.

---

[4]Real GDP growth slowed down to 4.6 percent in 2013 due to lower than programmed performance in agriculture and the suspension of budget support disbursements in 2012.
[5] http://data.worldbank.org/country/rwanda
[6] http://www.worldbank.org/en/country/rwanda/overview

❖ Analyse market conduct, i.e. price setting behaviours, weights and standards including transparency of transactions, competition and potential corruptive behaviour; identify key market outcomes such as seasonality and volatility patterns of prices, market integration with supply sources, including physical flow of commodities.

❖ Analyse market's potential for respond to increase in demand, looking at storage facilities, duration of stocks, stock replenishment lead-time, and expected price changes to increase in demand; collect and analyse price data including price scenarios for use in developing food baskets and transfers values, and to support cost efficiency/effectiveness analysis; and analyse potential increase in market demand that would result from cash/voucher transfer and likely price inflation.

❖ On the basis of the analyses, draw clear conclusion on the feasibility of market based assessment in each of the five refugee camps; and provide appropriate recommendations on key issues and next steps, including on any bottlenecks to increasing supply and strengthening supply chains.

3.2   Methodology

The market assessment bases its findings on secondary and primary data analyses. Information was collected using a variety of methods that include: review of reports and statistical data; consultation and interviews with key informants; trader survey using structured questionnaire; and market observations.

The main reports reviewed were from WFP and other UN agencies (e.g. CFCVA 2012, JAM 2014 Report) and from key government ministries and departments including Disaster Management, Agriculture, Trade and Commerce, Central Bank, Statistics, among others. Other important sources included Famine Early Warning System Network (FEWS NET), World Bank, and African Development Bank. The reviews provided vital background contexts and valuable information for interpreting the findings of the analyses. The process of secondary data collection also entailed web-searches and physical visits to (and meetings with) key institutions including the Ministry of Trade and Industry, Ministry of Agriculture and Animal Resources, large food commodity traders, the largest milling company, among others. Production, price and export/import statistics were obtained from sources including the Ministry of Agriculture, Trade and Commerce, Central Bank, and other online sources.

The monthly food price data were used to conduct analysis of seasonality and market integration of those markets deemed important for both the supply chain of the main staple food commodities. The analyses focused on key markets in the district where the five refugee camps are situated, and which refugees have most access to. However, price time series data for the main food commodities were available only for a limited number of markets. Granger Causality Analysis was conducted on those time series to test for market integration and to identify the leading markets.

The primary data collection was through trader survey undertaken by five teams of enumerators that covered about 29 markets around the five refugee camps (Gihembe, Nyabiheke, Kiziba, Mugombwa and Kigeme) and 2 markets in Kigali. Some 582 traders were interviewed using a structured questionnaire to obtain information on: trader profiles, supply and demand conditions of the traders' main commodity, traders' storage capacity, and the capacity of traders to increase supply if market demand were to increase

due to the provision of vouchers or cash to refugees. Of these 582 traders, 399 were retailers, 64 were wholesalers, 117 performed a mix of wholesaling and retailing, and 2 farmers selling their produce.

In each district where camps are located (and surrounding districts), between five and seven markets were selected for in-situ interviews (see Table 1). The main selection criteria included proximity to the camps (5-10km radius) and the size (importance) of the market in the supply chain. The information for market selection were validated by district and sector authorities. Additionally, the assessment covered two markets in Kigali, representing the Rwandan main market hubs. Observations and key informant interviews (only) were undertaken in two other markets of Kisaro (Rulindo District) and Mimuli (Nyagatare District) due to their importance in the supply chain.

Table 1 - Markets Surveyed

Refugee Camp	Date	Markets Surveyed/ Observed	Sector	District	Market Days	# of interviews
Gihembe	19-May-14	1. Byumba	Byumba	Gicumbi	Daily	37
	19-May-14	2. Kisaro*	Rulindo	Rulindo	Monday	0
	20-May-14	3. Yaramba	Nyankenke	Gicumbi	Tuesday	20
	20-May-14	4. Rusine	Rulindo	Rulindo	Tuesday	21
	21-May-14	5. Rutare	Rutare	Gicumbi	Wednesday	21
	22-May-14	6. Rebero	Ruvune	Gicumbi	Thursday	15
	23-May-14	7. Gaseke	Mutete	Gicumbi	Friday	20
Nyabiheke	21-May-14	1. Rwagitima	Rwagitima	Gatsibo	Wednesday	25
	21-May-14	2. Mimuli	Mimuli	Nyagatare	Wednesday	0
	22-May-14	3. Mugera	Gatsibo	Gatsibo	Thursday	27
	23-May-14	4. Kabarore	Kabarore	Gatsibo	Friday	26
	24-May-14	5. Ngarama	Ngarama	Gatsibo	Saturday	15
	24-May-14	6. Kiramuruzi	Kiramuruzi	Gatsibo	Saturday	24
Kiziba	19-May-14	1. Bwishyura	Bwishyura	Karongi	Friday, every day	21
	19-May-14	2. Kivuruga	Gitesi	Karongi	Monday/Thursday	19
	19-May-14	3. Ryaruhanga	Mubuga	Karongi	Monday/Thursday	20
	20-May-14	4. Kibirizi	Rubengera	Karongi	Wednesday/Saturday	32
	20-May-14	5. Gasenyi/Rwariro	Mutuntu	Karongi	Thursday/Sunday	0
Mugombwa	20-May-14	1. Kibilizi	Kibilizi	Gisagara	Daily	12
	23-May-14	2. Kibangu	Muganza	Gisagara	Tuesday/Friday	21
	21-May-14	3. Migina	Mugombwa	Gisagara	Wednesday/Friday	20
	21-May-14	5. Gisagara	Ndora	Gisagara	Wednesday/Saturday	21
	22-May-14	6. Ngoma	Ngoma	Huye	Daily	41
Kigeme	23-May-14	1. Gatovu	Musebeya	Nyamagabe	Monday/Friday	21
	23-May-14	2. Kigeme	Gasaka	Nyamagabe	Daily	8
	23-May-14	3. Gasarenda	Tare	Nyamagabe	Tuesday/Friday	16
	21-May-14	4. Kabacuzi	Gasaka	Nyamagabe	Daily, Saturday	21
	22-May-14	5. Karambi		Huye	Thursday	20
N/A – Hub	30-May-14	1. Nyabugogo		Nyarugenge	Daily	27
	30-May-14	2. Nyarugenge		Nyarugenge	Daily	11

The full list of markets is presented in Table 1 (above), showing the camps they serve, dates of coverage, the sector and district, market days and number of traders interviewed. Interviews were conducted by a team of 3 enumerators and a supervisor who administered approximately 18 trader questionnaires per market. Except for Kibirizi (Karongi district) where logistical reasons prevailed, the open market days determined the day of the visit. Most markets opened for one or two days, with the exception of a few

(largely district markets) that operate daily. For the purpose of the analysis and given that the Ngoma market in Huye serves is not only accessible to Mugombwa based refugees and traders but also to those in Kigeme, results from this market are reflected in the aggregation for both camps.

Trader selection was based on purposive sampling covering primarily the key commodities maize meal, maize grain, sorghum, beans, rice, and cassava, while ensuring the coverage of a broader list of commodities including vegetables, tubers and sugar. The commodities covered in the survey and the number and overall percentage of traders interviewed is presented as Annex 2.

The data from individual trader interviews were recorded in Personal Digital Assistants (PDA) with a questionnaire formatted by the Field Kit (Open Data Kit). This increased the speed of data collection, data accuracy, and timeliness of data for analysis. In addition to the trader interviews, each team leader made observations on the number of wholesalers and retailers, the availability and approximate quantity of each food item, overall food quality and the level of trade activity. For triangulation and overview purposes, team leaders also interviewed key informants including government officials, committee members of traders groups, market supervisors or wholesalers of significant size. The interviews helped to establish rough estimates of trade volumes, transport capacity per market, as well as understanding of the availability (or provision) of market services to traders. These helped to establish the role of the market in the physical supply chain (sourcing from and supplying to) and triangulating availability levels by season for the key commodities.

Prior to data collection, the 20 pre-identified and experienced enumerators as well as two staff from World Vision International underwent a 3 days training on key concepts and purpose of the assessment and on the trader questionnaire and its administration. The training included field testing of the questionnaire on three markets in Kigali. The large team was split in two sub-teams; the first of 3x4 enumerators covered markets around Kiziba, Mugombwa and Kigeme markets in Western and Southern provinces; the second sub-team of 2x4 enumerators covered Northern and Eastern provinces. The field work took place from 19-25 May 2014 in the provinces; and on 30 May in the hub-markets in Kigali.

Data were analysed with MS Excel 2013, SPSS 20 and STATA.

4. Main Findings

4.1 Market Infrastructure and Trading Environment

The analysis considered the overall market environment in which commodity trade takes place across the country. This includes transport and market infrastructure, government policies and regulations, security, and any tendencies towards collusion and corruptive practices, all of which have implications for the smooth operation of commodity markets and food market access by refugees living in the five camps.

4.1.1 Transport Infrastructure

Rwanda has extensive road network that transverses all regions of this small landlocked country (see Map 1). In the aftermath of the 1994 genocide when social and economic infrastructures were in state of decay, the government embarked on massive investments with assistance from development partners notably the European Union, China, Japan, among others. Road transport remains the principal means of transport within the country and with neighbouring countries - Uganda, Tanzania, Burundi and DRC – with most of the country's external trade depending on it. The internal road network of secondary and tertiary roads between (and within districts linking sectors) were observed to be accessible and of good quality. These roads play critical roles in the movement of food commodities from high production areas to main consumption or deficit areas.

In the context of food availability to refugee camps, the eastern *Kagitumba-Kayonza-Kigali* main road runs through highly productive districts of Nyagatare and Gatsibo with three of the main markets (Kabarore, Rwagitima and Kiramuruzi) lying along this route. This route plays a crucial role in the supply of food commodities to markets that serve Nyabiheke camp. It is also key to supplies to the hub markets in Kigali that supply relatively deficit regions in the west and south of the country. The central main route of *Gatuna-Byumba-Kigali* also runs through the productive district of Gicumbi and key markets including Byumba and Gaseke that serve Gihembe camp. This route also efficient enables commodity flows to hub markets in Kigali city.

Meanwhile the main routes to the west and south include *Kigali-Gitarama-Kibuye route; Gitarama-Nyanza-Huye route;* and *Huye-Gikongoro-Cyangungu* route. These routes are critical to food commodity flows from the central hub-markets (Nyabugogo and Nyarugenge) in Kigali to markets that serve Kiziba camp in the west and Kigeme and Mugombwa camps in the south. Indeed several markets that expect to be the principal sources of food supply to these refugee camps are situated along these main roads or associated secondary roads.

4.1.2 Physical Infrastructures

It was established through the field visits to the markets that the government has invested in the development of market infrastructures. The markets that the assessment teams visited invariably consisted of a centrally located large permanent structures with concrete floors and corrugated iron-sheet roofing that ensured all-weather operation of the markets. The internal structure of concrete stalls for selling the main food commodities; while the sales of other commodities such as cooking bananas,

---

livestock, among others took place on surrounding open grounds. In general, the facilities looked well managed and maintained providing assurances of food quality.

4.1.3   Policies & Regulations

In general, the government has been active in supporting the setting up of the markets and managing the facilities through its district and sector administrative systems. The government has also encouraged the setting up of farmer cooperatives and buys some of the food commodities (such as beans and maize) at prices that are established at the beginning of the growing season. However, the government does not control who should be involved in food trade nor sets market prices. Quality standards for raw and processed food commodities do exist and are also gazetted, however, enforcement across market players remains weak. Thus, transaction costs for traders and processors in the formal trade sector and are more likely to be controlled, will generally be above those operating in the more informal sector. Various administrative fees, taxes and licenses are paid by traders. The most important ones is the "trading license tax" which is a local tax levied on profit-oriented activities (*droit the patente*).[7] The tax rate for all value added tax registered profit-oriented activities depends on the turnover (Table 2) while other activities get taxed based on the type of activity (Table 3). Further fees can be locally established and collected on monthly bases, e.g. for security, cleaning etc. of the market places. Finally, VAT applies only to the formal market. Overall, these taxes do not seem to over dully restrict trader entry into food trade and on commodity supply.

Table 2 - Annual Trading License Tax for Profit Oriented Activities (as of 2012)

Turnover (Rwf)	Tax (in Rwf)
1 - 40,000,000	60,000
40,000,001 - 60,000,000	90,000
60,000,001 - 150,000,000	150,000
>150,000,000	250,000

Table 3 – Trading License Tax for Other Profit Oriented Activities (as of 2012)

Type of activity	Rural area	Towns	City of Kigali
Vendors without shops, small scale technicians who do not use machines	4,000	6,000	8,000
Transporter of people and goods on motorcycles	4,000	6,000	8,000
Trader and technicians who use machines	20,000	30,000	40,000
All other vehicles besides bicycles	40,000 on each vehicle		
For transport activities by boat	20,000 on each boat		
Other profit oriented activities	20,000	30,000	40,000

---

[7] Official Gazette nº 03 bis of 16/01/2012
(http://www.minecofin.gov.rw/fileadmin/documents/Law%20regulating%20sources%20of%20revenue%20and%20property%20for%20decentralised%20%20entities%20and%20governing%20their%20management.pdf)

4.1.4 Collusion and Corruptive Practices

The assessment sought to establish the extent of any tendencies towards collusive and corruptive practices along the commodity value chains. Besides the guide prices the government provides, actual market prices were largely found to be determined by forces of supply and demand. Very large number of traders were found to sell food commodity (beans, maize, Irish potatoes, cooking bananas, sweet potatoes and vegetables) that in general precluded the likelihood of any collusions in price-setting. Interviews with wholesalers in Nyabugogo market in Kigali indicated that there were variations in commodity prices at that level too. Price variations at the retail levels for most commodities in each market tended to be small, reflecting competitive trading environment. However, it was established that there were only five large commercial traders operating in the country, all from Kigali through a network of buyers and millers. It is therefore possible that these traders and millers could use their market power to influence prices, especially in deficit regions.

4.1.5 Supply Chain Main Commodities in Rwanda

The supply chain for main commodities tends to be short as illustrated in the case of beans in Figure 1 below. From the farm-gate, marketing of beans follows two principal channels, with a third minor one. The main channel consists of collectors and assemblers purchasing from farmers for delivery or collection by large traders, most times with financing from the large traders. The large trader usually provide transport to move the commodities to large urban markets (usually in Kigali) where they are sold to medium and small scale traders who sell on to final consumers. Some of the large traders also supply government institutions and food aid agencies, and also do export or import. Deficit districts in the west and south of the country also tend to be supplied from Kigali, making the chain slightly longer.

The second channel consists of purchases by cooperative from their members (farmers) for sale to government institutions and relief agencies. The third but smaller channel consists of farmers selling to small traders, who in turn sell to consumers in surrounding local markets. A variant of this is limited famer sales to consumers on the local markets.

The WFP market study in 2011 included analysis of the supply chain for maize and broadly revealed a similar trend (Annex 3). It shows that maize is sold to collectors and assemblers, from where they are then sold to wholesalers, processers and finally to consumers through a network of retail outlets. The main difference with the beans supply chain is that maize is sold on consumers as maize grains or maize flour after milling. The supply chain is much shorter for other commodities such as potatoes, roots & tubers, bananas and vegetables which are perishables and therefore do not stay long on market shelves. In addition, some of the commodities are bulky and therefore tend to be sold locally.

Figure 1 - Supply chain map of beans
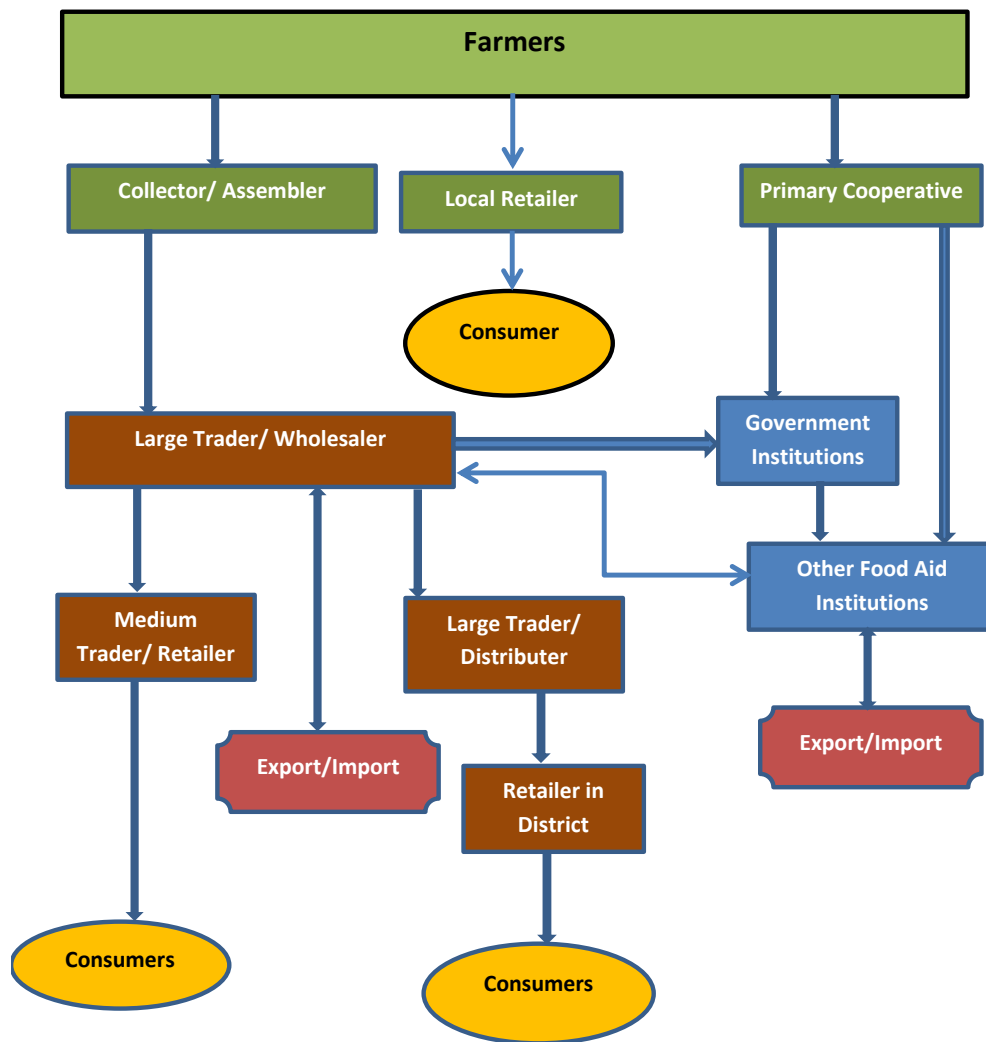
4.2 Food Availability

Rwanda has relatively high level of food self-sufficiency, in that most of the national food requirements is supplied through domestic production with small proportion through trade, mainly from its East African neighbours. Rwanda has witnessed rapid growth of food production emanating from improved government policies and support; this has increased the overall food availability and self-sufficiency level. This progress can largely be attributed to the government's implementation of the Comprehensive African Agricultural Development (CAADP) adopted by African countries in 2003.[8] Rwanda was the first country to adopt this framework and obtain some US$50 million development assistance linked to this.

---

[8] The CAADP framework was regarded critical for a balanced and sustainable economic development of the continent. Among others, it committed African governments to assign at least 10 percent of their annual budget to agricultural sector and to attain growth rate of at least 6 percent per annum.

4.2.1 Domestic Food Production

Rwanda produces diverse food crops with maize and beans as the main staples. Other key crops include cassava, Irish potatoes, bananas, sweet potatoes and a wide variety of vegetables and pulses. Production takes place during two main seasons – **Season A** from September to January; and **Season B** from March to June in the following year. The main harvests for these seasons take place during the drier months of February and July-August, respectively. A limited production also takes place in marshland areas during drier period (**Season C**). Crop production is predominantly rain-fed and at subsistence level. According to the findings of the CFSVA 2012, only 4% of households practiced some form of irrigation. Thus, food production and spatial and temporal food availability across the country is strongly influenced by the performance of the rainfall seasons.

The CFSVA (2012) findings revealed that production of beans takes place across the country with more than 90 percent of agricultural households involved in it. This is followed by sweet potatoes (45%), maize (42%) and cassava (40%). Other important food crops including banana, Irish potatoes and sorghum are produced by significantly fewer farm households of 28%, 15% and 13%, respectively. However, in terms of tonnage of production cooking bananas, cassava, Irish potatoes and sweet potatoes feature as the highest commodities. Meanwhile the main livestock produced in the Rwanda in order of numbers are chicken, goats and cattle. Rabbits, pigs, sheep and ducks are also raised, but in smaller numbers. The CFSVA (2012) puts the number of households rearing animals at about 70 percent spread across the country.

Mapping of production distribution for CFSVA 2012[9] reveals that maize production takes place across the country, with most productive parts being the north-eastern and parts of north-west. Beans are also produced in most parts of the country, with the most productive areas being the north, east, central and parts of the south. Irish potatoes production is greatest in north and north-east; while sweet potatoes perform well around north-central parts of south east. Productive areas for cooking bananas is predominantly the eastern part of the country; cassava in south-central; and sorghum along the east and parts of south and south-east.

Food production in Rwanda has grown rapidly in recent years with the production of maize and beans averaging over 15% between 2011 and 2013 seasons (Figure 2). Official statistics for 2013 production shows that total production of maize was around 660,000 MT; production of beans was 433,000 MT; while total production of cassava and Irish potatoes were 2,920,000 MT and 2,233,000 MT, respectively. However, production of these crops are not evenly distributed across all the livelihood zones.

---

[9] WFP (2012), CFSVA and Nutrition Survey, Map 2 & Map 3.

Figure 2 - Growth of Production of Main Commodities
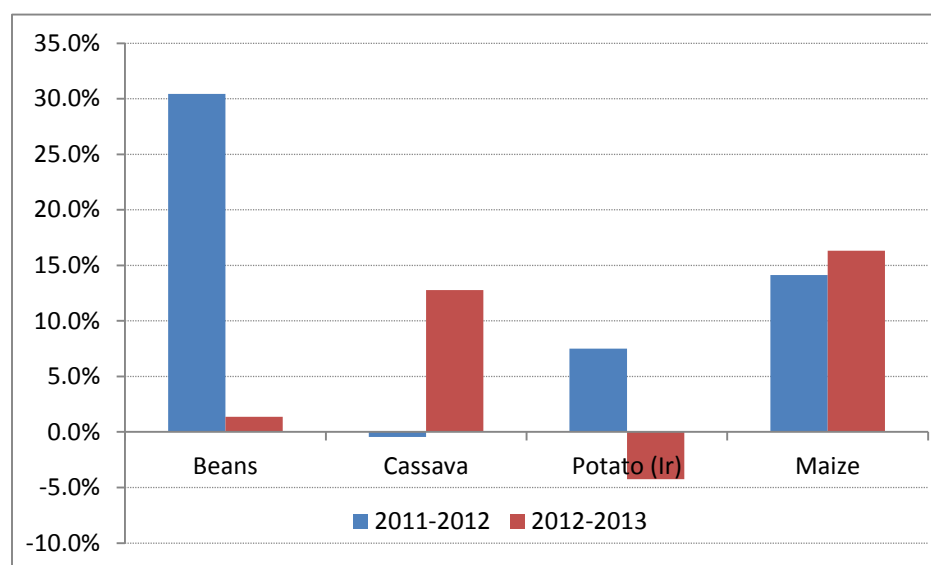
Production Surplus

One of the indicators used to establish potential availability of food commodities in the districts and markets in which refugee camps are located is the concept of "marketable surplus". The marketable surplus is a measure of the quantity of food commodity over and above what is needed by the population in that district (i.e. total production *minus* aggregate consumption requirement). This was computed for all districts using production data for maize and beans in 2013 season (see Figure 3 and Annex 4 for production data).[10]

The results show that four out of the five districts hosting refugee camps (Gatsibo, Gicumbi, Karongi and Nyamagabe) had surplus production while Gisagara had deficit. Gatsibo (Nyabiheke camp) had the largest marketable surplus of approximately 35,000 MT, and was followed by Gicumbi (Gihembe camp), Karongi district (Kiziba camp) and Nyamagabe (Kigeme camp). The findings are consistent with known facts that most of the production of maize comes from the Eastern and Northern Provinces. Overall, the total marketable surplus across all districts was about 335,000 MT.

---

[10] Total production represents the combined output of each commodity from Seasons A and B; while aggregate consumption is computed using the per capita consumption requirement from FAO statistics multiplied by the total population.

Figure 3 - Maize Marketable Surplus Production by District in 2013 (MT)
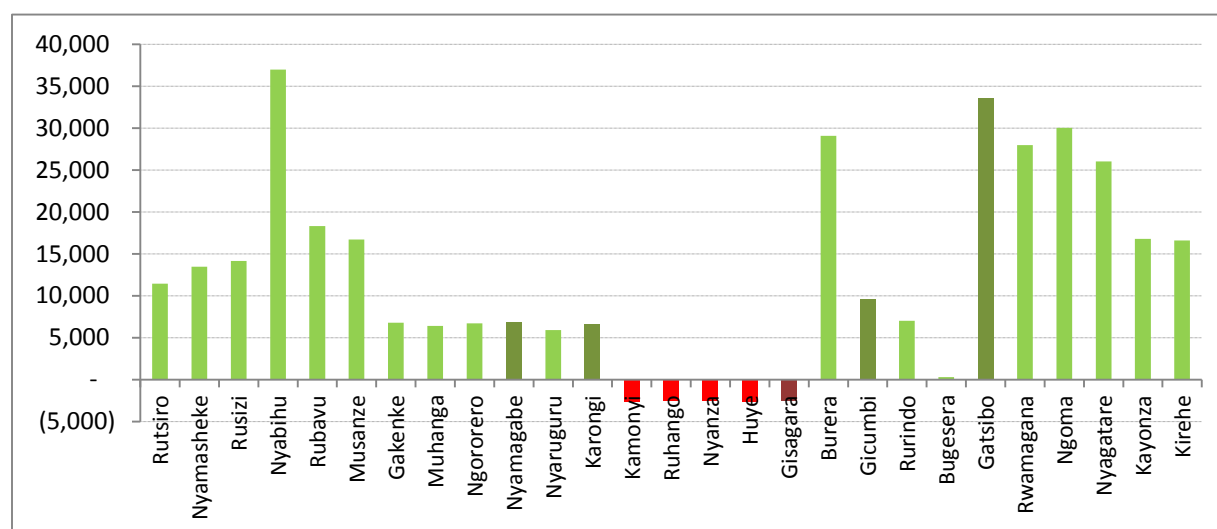
It is important to note that food commodities are traded cross districts with the expectation that the production situation in neighbouring districts will influence the total quantities available on markets in these districts. In this regard, the proximity of these districts to very productive districts (e.g. Nyagatare in relation to Gicumbi and Gatsibo districts) will have positive influence on food availability. On the contrary, the deficit Gisagara district that is situated between other deficit districts (including Huye and Nyanza) will expect to remain in sustained deficit situation. Overall, it is expected that the Nyabiheke and Gihembe refugee camps will have good supply of food commodities from local production; Kigeme and Kiziba camps will have intermediate availability; which the prospects for Mugombwa refugee camp will be poor.

4.2.2 Imports and Exports

Notwithstanding the impressive food sector performance, Rwanda remains net food importer, mainly from its East African neighbours – largely Uganda and Tanzania – though also net exporter of food commodities to the Democratic Republic of Congo (DRC) and Burundi. Rwanda's memberships of the East African Community (EAC) and the Common Market for Eastern and Southern Africa (COMESA) have brought the benefits of progressively improved trade with its neighbours.[11] Rwanda remains net importer of rice (from Tanzania, Pakistan and India), maize and maize flour (from Uganda and Tanzania), while exporting beans (Uganda, Burundi and DRC). According to FAO statistics, the main commodities imported (by volume) are wheat, maize, sugar and cooking oil.

Rwanda informally imported 1,132 MT of food commodities in February 2014 against total exports of 4,663 MT Uganda is the largest trading partner a net exporter of maize to Rwanda while also net importer of beans from Rwanda. On the other hand, DRC is net importer of food commodities, where imports account for 80% of food trade between the two countries.

---

[11] Notably the reduction of trade barriers, improved infrastructure, …

Figure 4 - Total Informal Imports and Exports (MT)
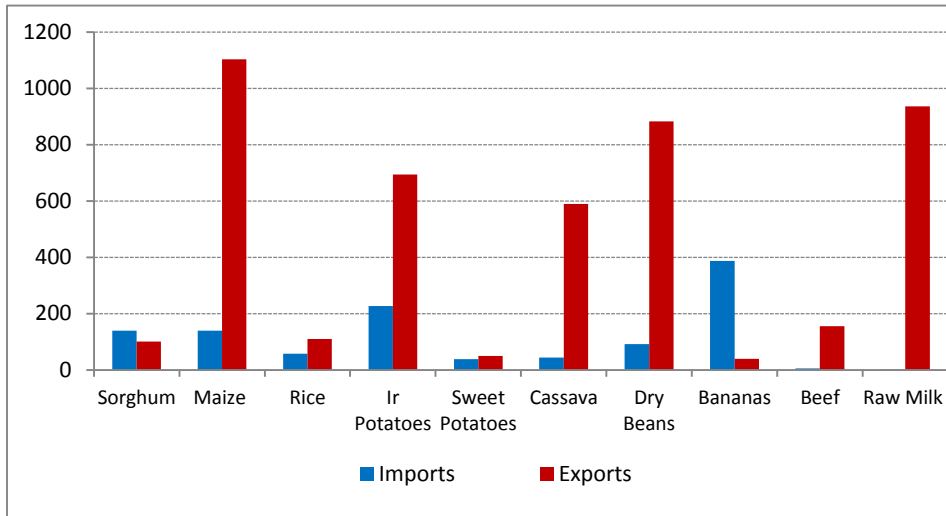
Figure 5 - Informal Commodity Exports and Imports (Kgs)
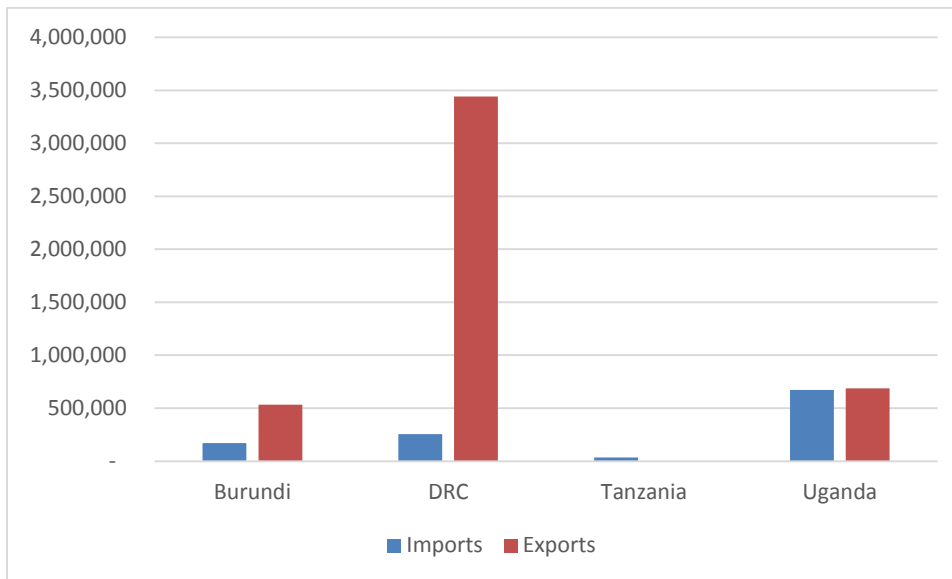
4.3   Analysis of Prices

The price analysis focuses beans and maize flour, two main commodities that form important part of the diet of refugees and Rwandese as well. They are also the commodities in the current in-kind food assistance to refugees, and expect to be a significant part of food purchases. The analysis covers seven markets that including Byumba, Gaseke, Kabacuzi, Kibirizi, Muhanga, Nyabugogo and Rwagitima and prices series over the period 2008-2014. Their selection was based on their size and importance to the food values chains, as well as the availability of at least 85 percent of the monthly price data in this period.

In addition, Byumba, Gaseke, Muhanga, Rwagitima and Nyabugogo are some of the main food commodity markets close to the refugee camps and represent a good spread of key markets across the country. Byumba and Gaseke are close to Gihembe refugee camp in Northern Province; Rwagitima is close to Nyabiheke camp in Eastern Province; Kibirizi is close to Kiziba camp in Western Province; and Kabacuzi is close to Kigeme camp in Southern Province. The sample represents characteristics of the beans and maize flour markets in Rwanda, however, the two camps in the South (Kigeme and Mugombwa) are represented by only one market (Kabacuzi).

The main analyses carried out include: inflation rates, price trends and seasonality indices; market integration; and alerts and price forecasts. These contribute to shedding light on the pattern and trends of commodity prices, their seasonal and spatial variations; and their potential impact or contribution to spatial and seasonal food availability on local markets within the vicinity of refugee camps. All these have consequences for food access by refugees as WFP Rwanda considers a shift to market-based food assistance to refugees.

4.3.1 Price Trends and Seasonality

Inflation
The figures for annual and monthly inflation illustrate that after a deflationary phase between July 2010 and March 2011, strong increases of food price inflation followed until October 2012 (19.8%), driving general inflation in the same year to peaks in March (12.1%) and October (11.7%). Subsequently, the inflation of food prices fell to much lower levels in mid-2013 before increasing again to above 10% in late 2013. The monthly changes of the indices of the food group as well as the general consumer index illustrated significant, reoccurring seasonal changes, with strong upward movements around September and March and reduction of price levels in December.

Figure 6 - General and Food Inflation 2009-14
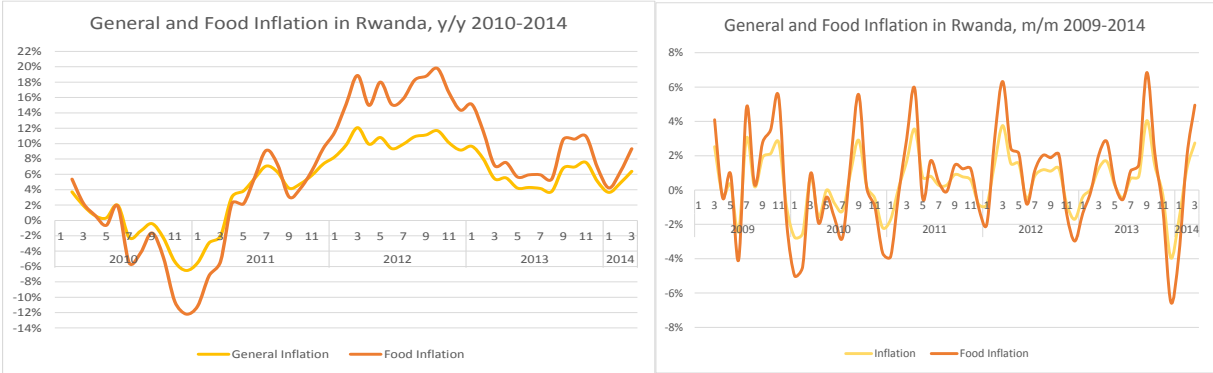
Source: Government of Rwanda[12]

Beans Prices

Figure 7 (below) presents the price trends for the seven markets (2009-2014), showing a general increase over the years. There is great similarity in the price pattern across these markets. As Table 4 shows, the

---

[12] http://www.statistics.gov.rw/publications/all/Indicator%20report

price correlation coefficients between markets average more than 0.84 in the whole sample. These high correlation coefficients indicate high degree of transmission of prices between markets; that markets across the country are generally well connected; and that a major price change in one main market could affect prices on other markets.

Figure 7 - Beans: Retail Prices (2009 – 2014) (RWF/kg)
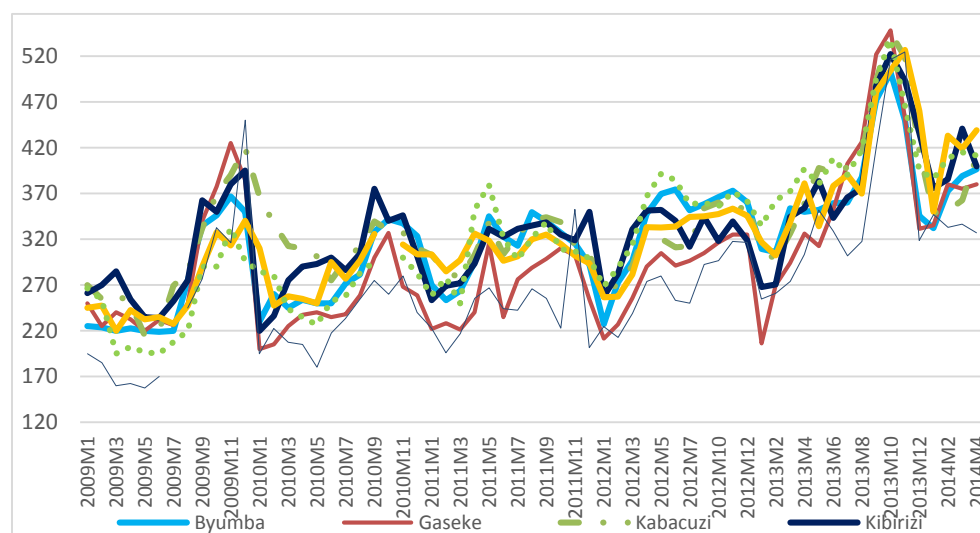
Data Source: Ministry of Agriculture Rwanda

Figure 8 also clearly shows that beans prices were at their highest levels ever in October and November 2013, with average prices at 525.42 and 490.24 RWF per kilogram respectively in the two months. These price levels were significantly higher than in the preceding months and far above the longer-term trend over the past few years. Compared to the same period in 2012, average beans price increased by 51% and 44%. The high prices in 2013 is also clearly illustrated in Figure 8 (below) presenting the prices of beans for the seven markets over a shorter period of October 2013 to April 2014.

Table 4 - Beans: Price Correlation Coefficients between Markets

Markets	Byumba	Gaseke	Kabacuzi	Kibirizi	Muhanga	Nyabugogo	Rwagitima
Byumba		0.88	0.82	0.89	0.89	0.92	0.87
Gaseke	0.88		0.86	0.90	0.82	0.80	0.87
Kabacuzi	0.82	0.86		0.84	0.83	0.80	0.85
Kibirizi	0.89	0.90	0.84		0.86	0.82	0.86
Muhanga	0.89	0.82	0.83	0.86		0.91	0.84
Nyabugogo	0.92	0.80	0.80	0.82	0.91		0.80
Rwagitima	0.87	0.87	0.85	0.86	0.84	0.80	
Average per market	0.88	0.85	0.84	0.86	0.86	0.84	0.85

Source: Rwanda Market Analysis (2014)

Figure 8 - Retail Prices for Beans (Oct 2013 - Apr 2014) (RWF/kg)
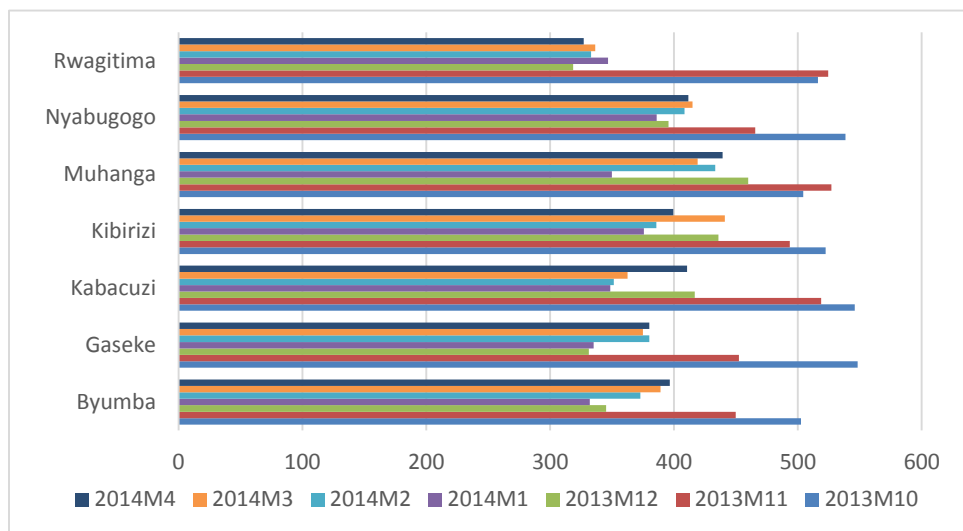
Data Source: Ministry of Agriculture

The high prices on the beans market was due to poor harvest caused by poor rains during Season B production. In all the markets price levels in October 2013 were above the 500 RWF per kilogram mark, with the highest prices levels recorded in Kabacuzi, Gaseke and Nyabugogo. But as shown in both Figure 7 and Figure 8, prices dropped sharply across all markets during the first four months of 2014.

However, in general, prices of beans tend to peak across most markets between October and November as depicted by the grand seasonal index[13] (GSI) (Figure 9). The GSI for the seven markets shows that the price of beans tend to be at their highest levels between September and December (with peak in October/November), and remain relatively stable (at mildly ascending rate) between January and June/July, before declining to their troughs in August.

---

[13] The grand seasonal index (GSI) is calculated by dividing the per month average prices by their center moving average.

Figure 9 - Grand Seasonal Indices for Retail Prices of Beans (2009-2014)
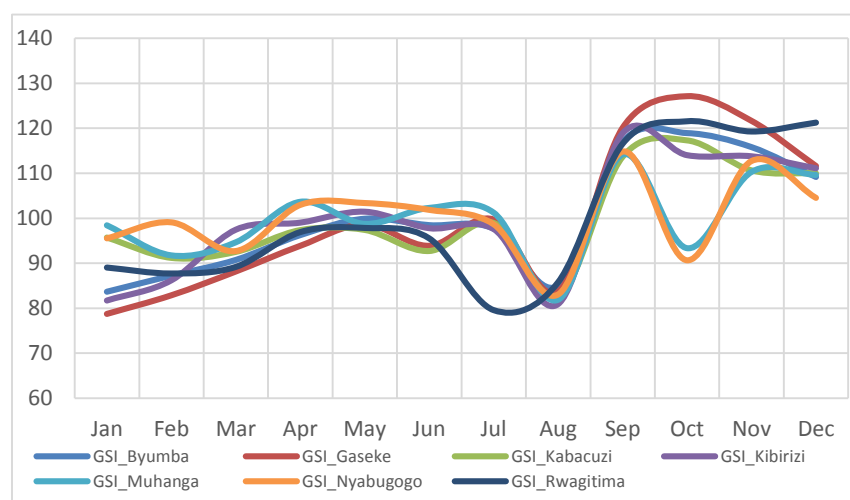
Data Source: Ministry of Agriculture

Note: Authors' calculations

The main exceptions to this pattern are prices on Rwagitima market, shown decline early from June to July, and on Nyabugogo and Muhanga markets where prices drop steeply between September and October and rising again sharply between October and November. The grand seasonal index is broadly reflective of the seasonal calendar where price are expected to fall following the first beans harvest between December and January. Prices are then expected to increases slightly and then stabilize through the harvest of May-June, which is follows before the depletion of stocks from the previous harvest. Subsequent to the second harvest, prices fall steeply from July to August before starting an ascent to the peak lean season (September to December).

Beans are important in the diet of Rwandese household, with 86% of household depending on beans that also contribute 11% of their dietary intake. The pattern of consumption is similar among Congolese refugees. Thus, the seasonal price volatility, especially between August and November, is expected to have considerable consequences for market-based food assistance. The average seasonal price in August of between 80-85 RWF is at least 10 percent below the average seasonal trend, while peak prices in October/November average about 20 percent above the seasonal trend. One clear implication is that at constant cash transfer value across the year, the amounts of beans that will expected to be purchased is expected to increase above or decreased below the intended ration levels. This implication of the sharp price swings will need to be taken into account in determining transfer values.

Maize Flour Prices

The analysis for maize flour is based on six markets that include Byumba, Gaseke, Kabacuzi, Kibirizi, Muhanga and Nyabugogo. These markets have a good spread across the country with adequate data. As Figure 4 shows, maize flour prices in the markets show similar trend over the period covered (2009-2014), pointing to a general integration of markets in broad sense. The average price correlation coefficients per market ranges from 0.14 to 0.77. In fact 83% of these coefficients are higher than 0.70 (see Table 5). The

pairwise price correlation coefficients between Byumba, Gaseke, Kabacuzi Muhanga and Nyabugogo are generally higher than 0.80.

Table 5 - Prices Correlation Coefficient for Maize Flour

Markets	Byumba	Gaseke	Kabacuzi	Kibirizi	Muhanga	Nyabugogo
Byumba		0.96	0.86	0.22	0.92	0.88
Gaseke	0.96		0.85	0.25	0.92	0.83
Kabacuzi	0.86	0.85		0.10	0.91	0.87
Kibirizi	0.22	0.25	0.10		0.16	-0.02
Muhanga	0.92	0.92	0.91	0.16		0.87
Nyabugogo	0.88	0.83	0.87	-0.02	0.87	
Average per market	0.77	0.76	0.72	0.14	0.75	0.69

Source: Rwanda Market Analysis (2014)

Figure 10 - Maize Flour Price Trends (2009 – 2014) (RWF/kg)
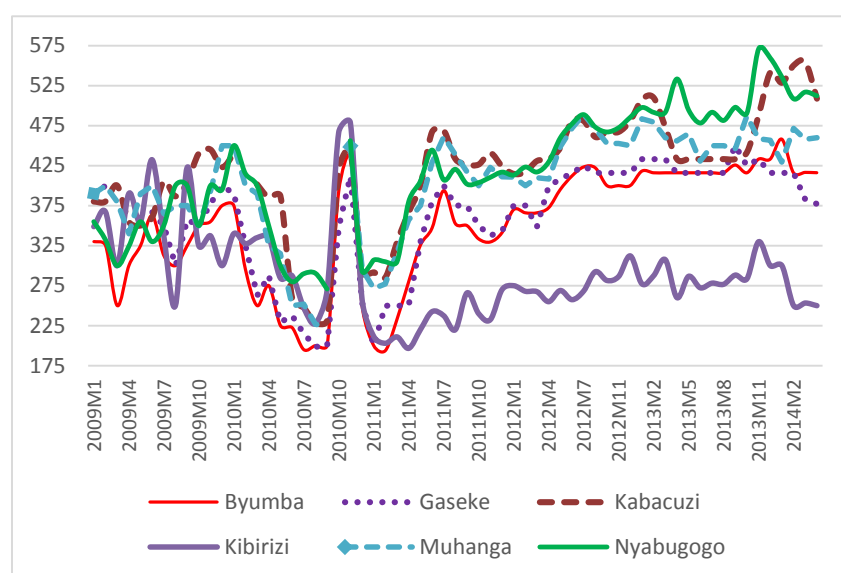
Data Source: Ministry of Agriculture Rwanda

However, as Figure 10 shows, the price levels on Kibirizi market from May 2011 diverged significantly from price levels on the rest of markets by over 100 RWF. Prior to June/July 2011, maize flour prices exhibited sharp swings across all the markets, but since then there has been fairly steady trend following the steep rise during the first half of the year (2011). Maize flour price levels are surprisingly high in Nyabugogo, the main hub market that is closest to the main maize flour mills compared to other markets. Kabacuzi has the highest prices during that period while the lowest prices were recorded on Kibirizi market.

Figure 11 - Retail Prices for Maize Flour (Oct 2013 –Apr 2014) (RWF/kg)
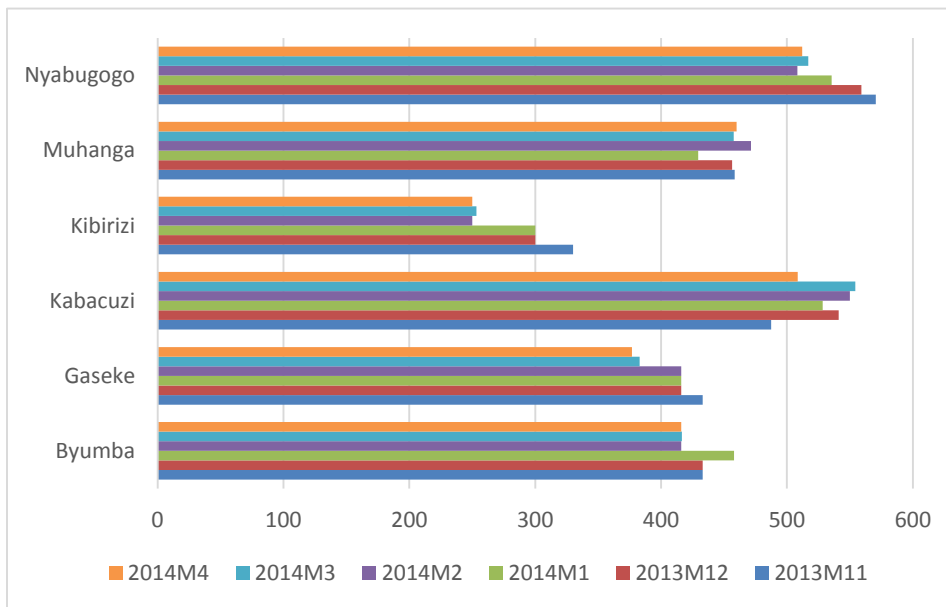
Data Source: Ministry of Agriculture Rwanda

The results of price analysis coving the last six months (November 2013 to April 2014 - see Figure 11), clearly shows that Nyabugogo and Kabacuzi had the highest maize flour prices. The average prices on Nyabugogo and Kabacuzi markets over the last six months were respectively 21% and 20% higher than the average price of the sample. In comparison to Kibirizi, prices in Nyabugogo and Kabacuzi are respectively 90% and 88% higher. The reason for the paradoxical price differences, especially between Nyabugogo and Kibirizi, is not clear in view of the fact that wholesale prices at the milling plants in Kigali are significantly lower than the retail prices in Nyabugogo. In principle, it should be profitable to trade between the capital and Kibirizi. This difference is probably due to local hammer mills supplying Kibirizi markets. The price difference between Byumba and Gaseke on the one hand and Nyabugogo on the other averaging around 100 RWF, which is relatively high. It should be noted that there is a milling company in Byumba; this together with imports from Uganda could in part explain the price difference.

The grand seasonal index (Figure 12) highlights a trend in line with the maize seasonal calendar. This shows that from January to August, maize flour prices are relatively constant but show a slight decrease in March and in August/September. These coincide with the end of the two harvest seasons (January-February and June-July), and show the adjustment period between harvesting, storage and marketing. From August, prices follow an upward trend which are more pronounced in Byumba and Kibirizi. The upward trend and the price peak at the end of the year reflect the lean season from November to December. Nyabugogo shows a more stable seasonal trend with prices remaining constant up to the end of second harvest and falling just before the lean season peaks. The comparatively late price decline in Nyabugogo, consistent with hub-market status, can be explained by a combination of late harvest and imports of maize and maize flour from the region, particularly from Uganda.

Figure 12 - Grand Seasonal Index of Retail Prices for Maize Flour
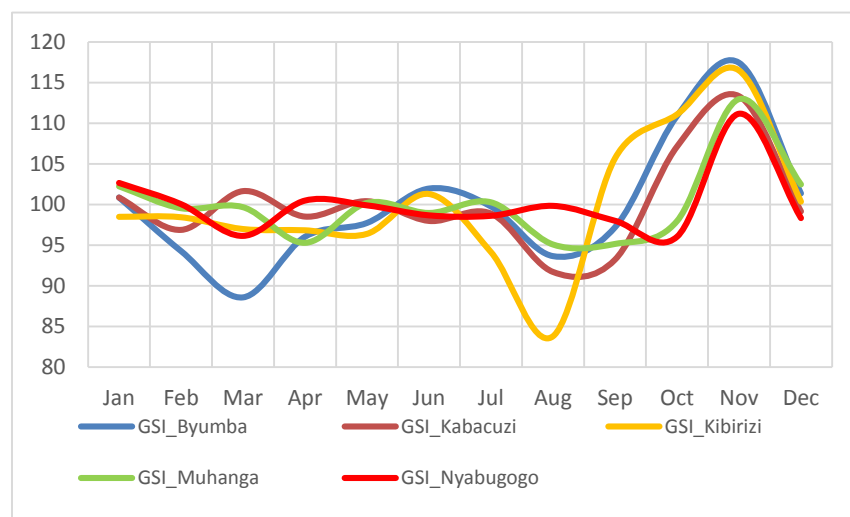
Data Source: Ministry of Agriculture

Note: Authors' calculations

4.3.2   Market Integration

This section presents maps which illustrate price transmission between key markets. The price transmission is analysed by a Granger causality test, which reveals the statistical relationship between prices without considering transaction costs and geographical accessibility of markets. The report discusses the results of the test where physical trade flows occur and where accessibility of markets is given, while eliminating spurious relationships. The market integration analysis is presented here only for the key beans and maize flour markets; the maps for other commodities such as cassava flour and local rice are presented as annexes.

Beans Market Integration

As discussed in other sections of this report, most beans are produced in Eastern and Northern provinces of Rwanda, especially in the district of Nyagatare and Gatsibo which also export to Uganda. The beans produced are conveyed to Kigali where they are then redistributed to the rest of the country, with Nyabugogo serving as the main market and hub.

The findings reveal that all the markets in the sample appear to be interconnected, with Byumba emerging as the leading market of the sample. This is not a surprising result, given that Byumba is located in the centre of the area of production. Byumba and Kibirizi are not influenced by other markets in the sample; the Granger causality shows a unidirectional causality between them and other markets. Regarding trade and price formation and the high number of markets Byumba granger caused, we deduce that it is the dominant market in the sample. Meanwhile Nyabugogo is granger caused by the other markets of the sample, but does not granger cause any of them. The findings also show that the markets close to the refugee camps in the north and east (Byumba and Rwagitima) are integrated with each other. Kabacuzi market, the only market in the sample close to the Southern Province camps is isolated from the leading

market (Byumba). Despite the missing link between Kabacuzi and the other markets, physical trade flows is a good reason to believe that price transmission passes through Nyabugogo.

Figure 13 - Storage facility by trader type
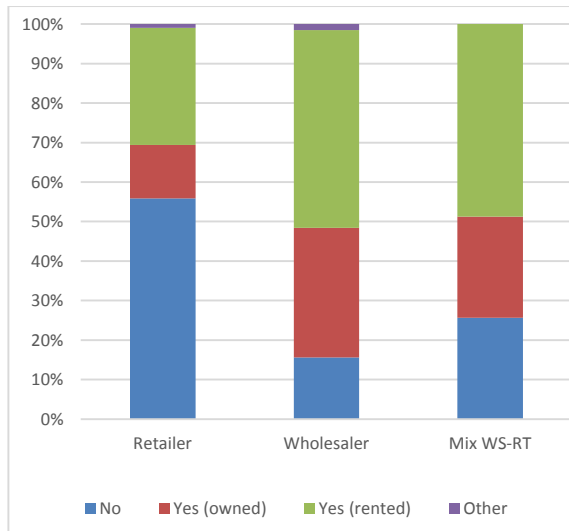
Figure 14 - Storage capacity by camp markets
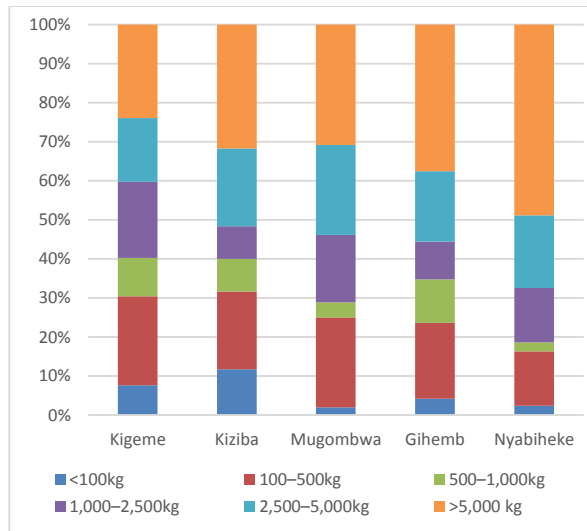
Source: Trader Survey, own calculations

Figure 15 - Integration of beans markets
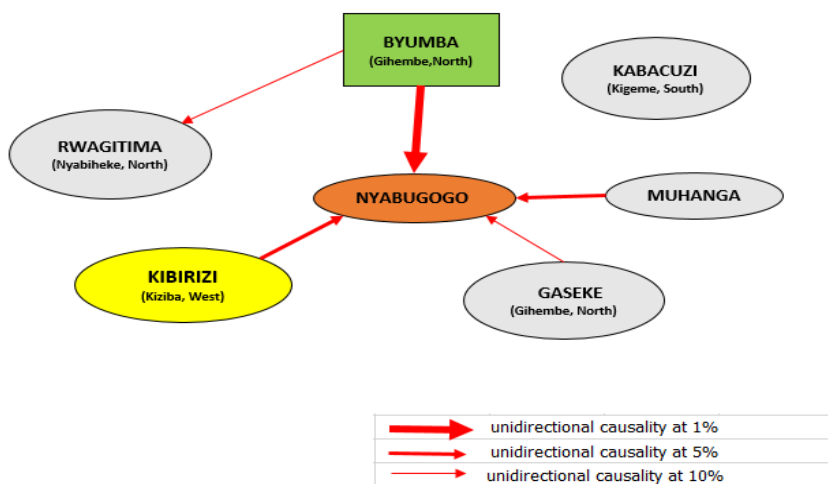
Maize Flour Market Integration

The integration analysis for maize flour market feature six markets – Byumba, Gaseke, Kibirizi, Muhanga, Kabacuzi and Nyabugogo. The findings show that the six markets are well interconnected, with all the markets (except Kibirizi) having a leading. Muhanga and Kabacuzi are simultaneously causing each other, and the Granger causality test shows a bidirectional causality between them. The price transmission is therefore quicker between these markets compared to others.

Figure 16 - Integration of Maize Flour Markets
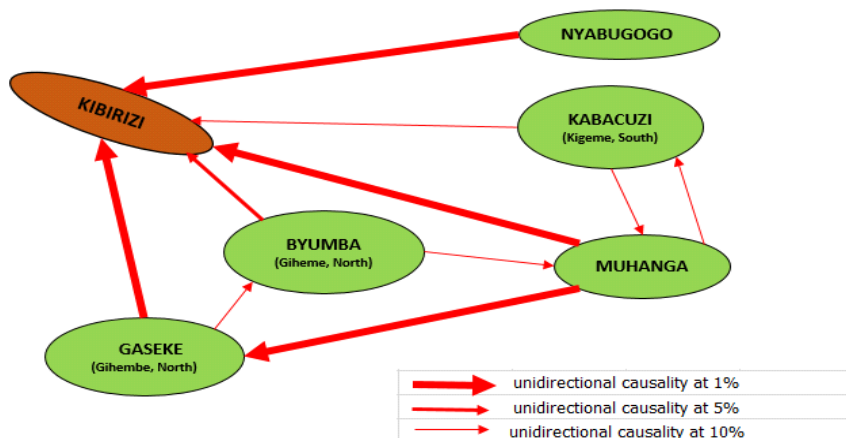
Source: Rwanda Market Analysis (2014)

Byumba is linked to other markets by a unidirectional causality with Muhanga. Generally, markets in the North appear to be well integrated with each other. Meanwhile Muhanga is the connection between the markets in the North and those in the South. This is also the case for cassava flour and local rice (see the Annex 4). The findings are surprising as this role is habitually ascribed to Nyabugogo. Kibirizi is the captive market of the sample, and is granger caused by all the other market of the sample.

The findings of the analysis show overall, that the markets of the commodities are integrated. In practical terms this means changes in prices in the markets are transmitted across the marketing chain. The integration of markets is support buy the fact that these commodity are physically traded across the country, flowing from high producing areas to more deficit regions.

4.3.3   Price Alerts and Forecasts

Price forecasts were computed using three methods, namely the Simple Exponential Smoothing (SES)[14], the Double Exponential Smoothing[15] and the Seasonal Holt-Winters smoothing[16] for two commodities - beans and maize flour. This featured five markets that include Byumba, Gaseke, Rwagitima, Kibirizi and Kabacuzi, that are important to food commodity supply to the refugee camps.

The findings are presented in Figure 17 (a-i) for each of the commodity and market combinations (also see Annex 6 for actual figures). The forecast lines plotted in 'green' depict the forecasts derived from the method having the lowest Root Mean Squared Error (RMSE), while the dashed lines show the 95 percent

---

[14] The Simple Exponential Smoothing (SES) method smoothes the price series using a weighted moving average of all previous observations, allowing for a higher weight to more recent ones, and thence being more responsive to changes occurred in the recent past.

[15] In addition to the SES, the Double Exponential Smoothing (LES) takes into account the trend. However, a major drawback of this method is the fact that the trend tends to dominate the forecasts after a few periods.

[16] The Holt-Winters method tracks the seasonal pattern as well, introducing a third equation, namely the seasonal component to the level and trend components. It is often considered as one of the best methods for short term seasonal forecasts.

confidence intervals, and are henceforth named upper and lower bands. The upper and lower bands are computed as the actual forecasts plus/minus two times the Root Mean Squared Error.

Figure 17 below plots[17] actual prices and forecasted prices for maize flour and beans up to the end of 2014 and includes the Alert for Price Spikes (ALPS)[18] for beans. These show that all the markets have experienced a crisis at the end of the year 2013 as earlier highlighted in the long-term trend analysis. Generally, the crises are followed by a stress or/and alert phase. Prices forecast are following an upward trend until October or November before falling in December. It is worth noting that prices worsen progressively in Rwagitima reaching a peak of 494.74 RWF per Kg in November 2014 before falling to 365 RWF per kg in December 2014.

Figure 17 - Price Forecasts and ALPS for Beans and Maize Flour Prices (2010-2015)

a)   Byumba- Beans

b) Byumba- Maize flour

c)   Gaseke – Beans

d) *Gaseke* - Maize flour

---
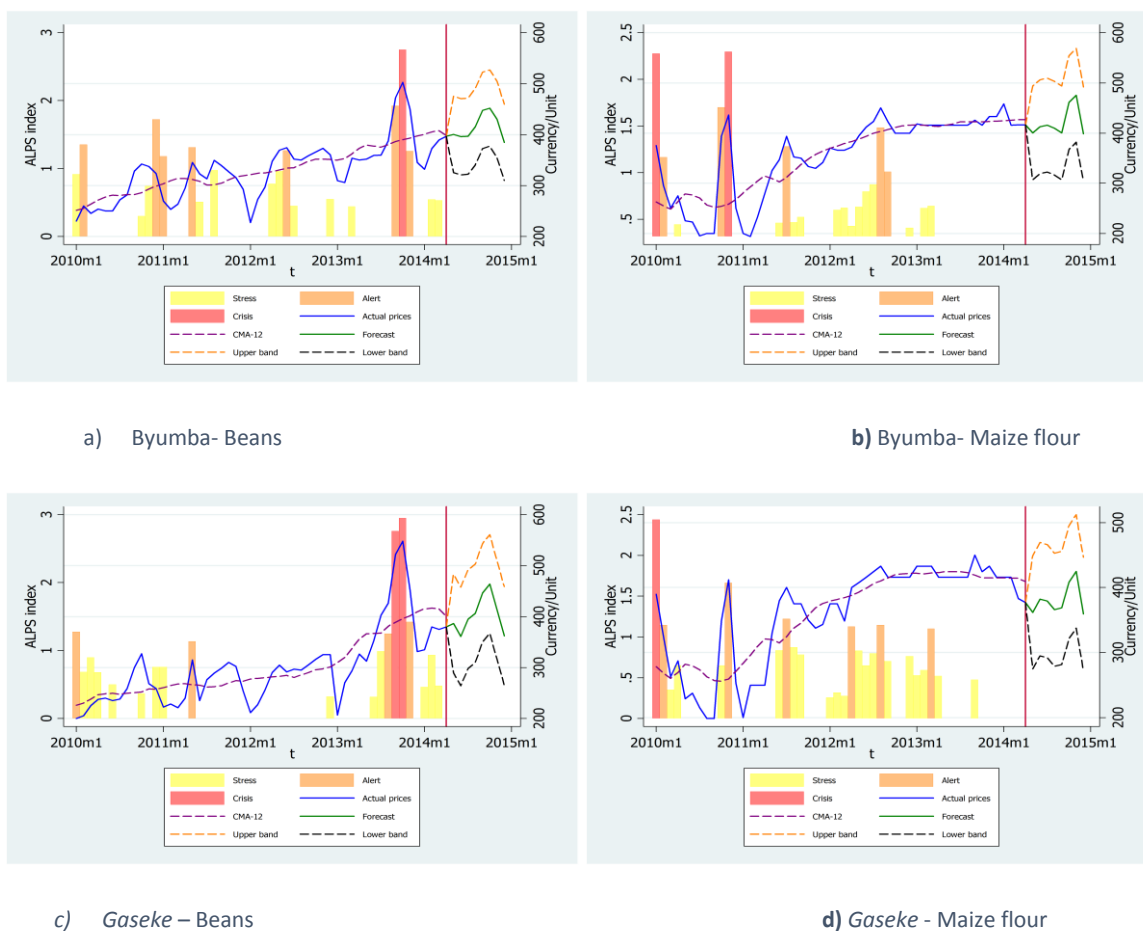
[17] Tables of figures with the price forecasts are available in Annex 6.

[18] The Alert for Price Spikes is an indicator that monitors the extent to which a local food commodity market experiences unusually high food price levels. It shows abnormal price levels of selected staple commodities and the number of markets per country with high food prices."
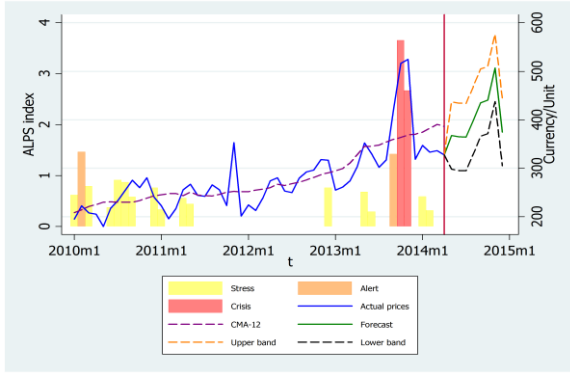
e) *Rwagitima-* Beans
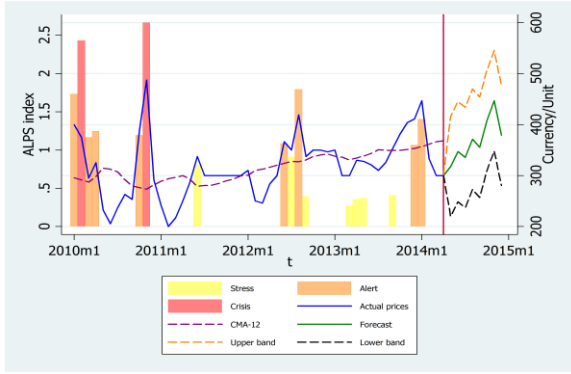
f) *Rwagitima-* Maize flour
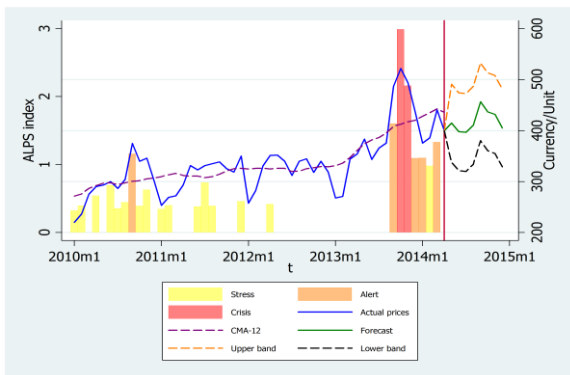
g)   Kibirizi- Beans

h) Kibirizi- Maize flour
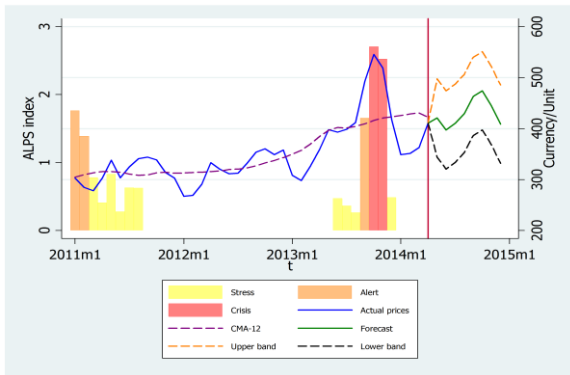
i) *Kabacuzi-* Beans
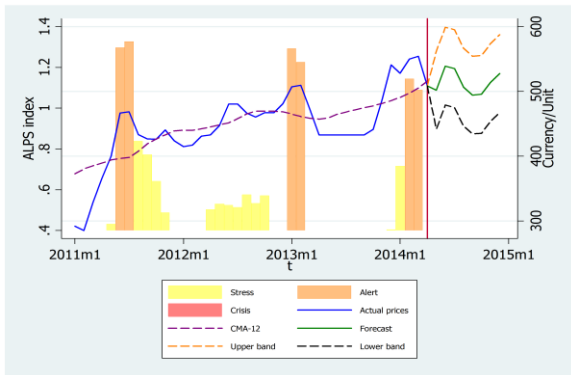
j) *Kabacuzi-* Maize flour

Data Source: Ministry of Agriculture

Note: Authors' calculations

Concerning maize flour, price forecasts remain constant following the recent price trend. However, all the markets except Kabacuzi experienced a price peak in November and December. This price peak does not seem worrying as the end of the year as it corresponds to the lean period in Rwanda.

4.4   Market Serving Refugee Camp

4.4.1   Gihembe Camp

Seven markets accessed by customers from the Gihembe refugee were covered in this cluster and included Byumba, Kisaro, Yaramba, Rusine, Rutare, Rebero and Gaseke (see Map 2). Five of the markets are in Gicumbi districts while two are in neighbouring Rulindo district. With the exception of daily market in Gicumbi, the rest of the markets are open one day in a week. Gicumbi market was also found to be the second largest and nearest markets (4.9 km) from the camp, and is most frequently accessed by refugees by walking. Gaseke market was assessed to be the largest but ranked as the third nearest to the camp; with limited access by refugees using the public transport system. Yaramba market is the second nearest to the camp, and found to be accessed by refugees, but it was found to be small and only open once a week on Tuesdays. Although Kisaro market is relatively near, this is a very small market largely accessed by the local population selling and buying small quantities of vegetables.

Map 2 - Gihembe Refugee Camp and Food Markets
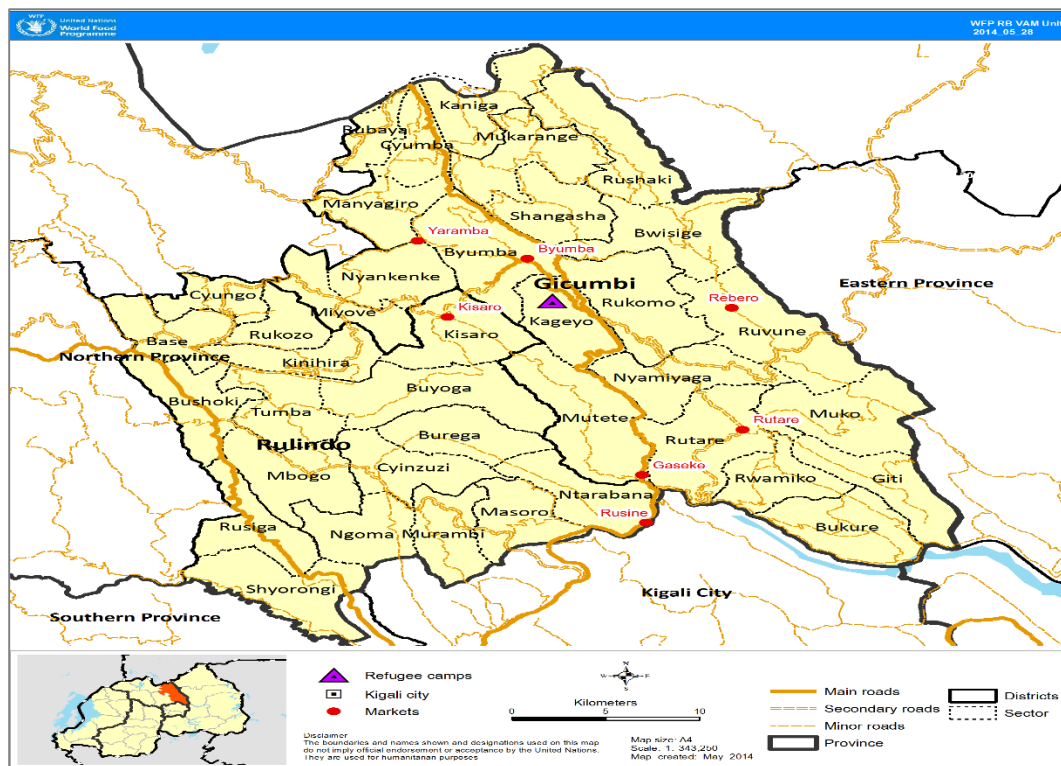
A critical evaluation of the importance of the markets suggests that Byumba would be the most important by virtue of not only its close proximity to the camp, but also its large relative size, and abundance of commodities on a daily basis. Both trader and key informant interviews reveal that it is well connected to the other markets and to supply sources in highly productive districts of Nyagatare and Gatsibo in Eastern province. Two other markets, Gaseke and Rusine lie on the main transport route towards the south. Although both are situated very far from the camp (therefore not easily accessible to refugees), they are nonetheless easily accessible to traders and therefore important to the supply chain serving refugees.

4.4.2   Nyabiheke Camp

Six markets in this cluster include Rwagitima, Mimuli, Mugera, Kabarore, Ngarama and Kiramuruzi (see Map 3), which are all open one day in a week. The largest market was Rwagitima, though it is located far from the camp and generally not easily accessible to refugees. Mugera was found to be the second largest, the nearest to the camp (approximately 2 km), and the most frequented by refugees.

Map 3 - Nyabiheke Refugee Camp and Food Markets
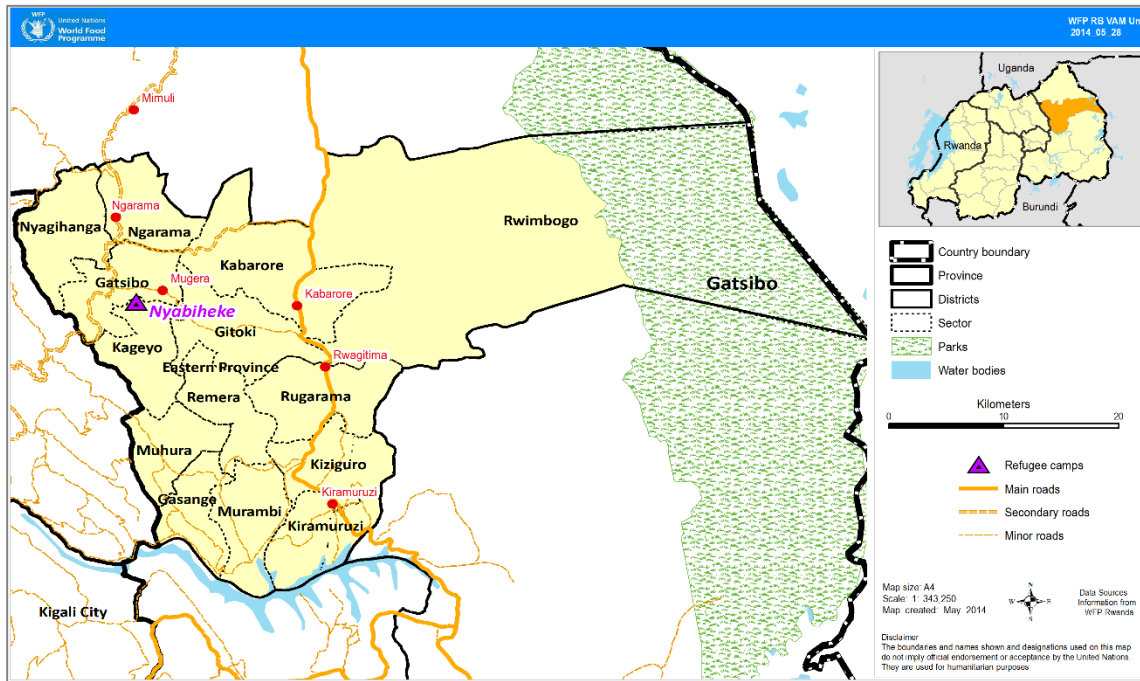
Ngarama, the second nearest to the camp (approximately 5km) is accessed by refugees by foot, but is relatively small and ranked 4th among the six markets. Mimuli in Nyagatare district and Kabarore and Kiramuruzi in Gatsibo are all situated over 20 km from the camp and are not easily accessible to the refugees. However, the latter two and Rwagitima are situated along the main transport route to productive Nyagatere district towards the north, and are therefore of important significance to commodity value chains. From practical standpoint, the most important markets to refugees are Mugera followed by Ngarama. However, there are also smaller markets that can serve the refugees, including a market build inside the camp and others situated on the periphery of the camp.

4.4.3   Kiziba Camp

The surveyed markets around Kiziba camp include Bwishyura, Kivuruga, Ryaruhanga, Kibirizi, Gasenyi/ Rwariro, all situated in Karongi district (see Map 4). **Bwishyura** is the largest market in a two-story building with adjacent open space, located 13 km north and downhill from the camp and is generally accessible to refugees. More than 70 retailers operate there, 30 of which only on Fridays (open market). All staple

commodities are on sale in addition to a large variety of vegetables, fruits, meat and oils. Meanwhile **Ryaruhanga/Mubuga**, the nearest market located 4km from the camp, ranks third largest and is the most accessible, although again downhill from the refugee camp. The market convenes twice a week (Monday, Thursday) with approximately 60 retailers, some of whom are retailing their own produce, and very few wholesalers (approx. 5). Main staples such as maize (flour) sorghum, rice and beans are available as are a range of vegetables, fruits and other commodities. A maize hammer mill within the village offers immediate processing of maize grain that often refugees barter or sell for other food commodities.

Map 4 - Kiziba Refugee Camp and Food Markets
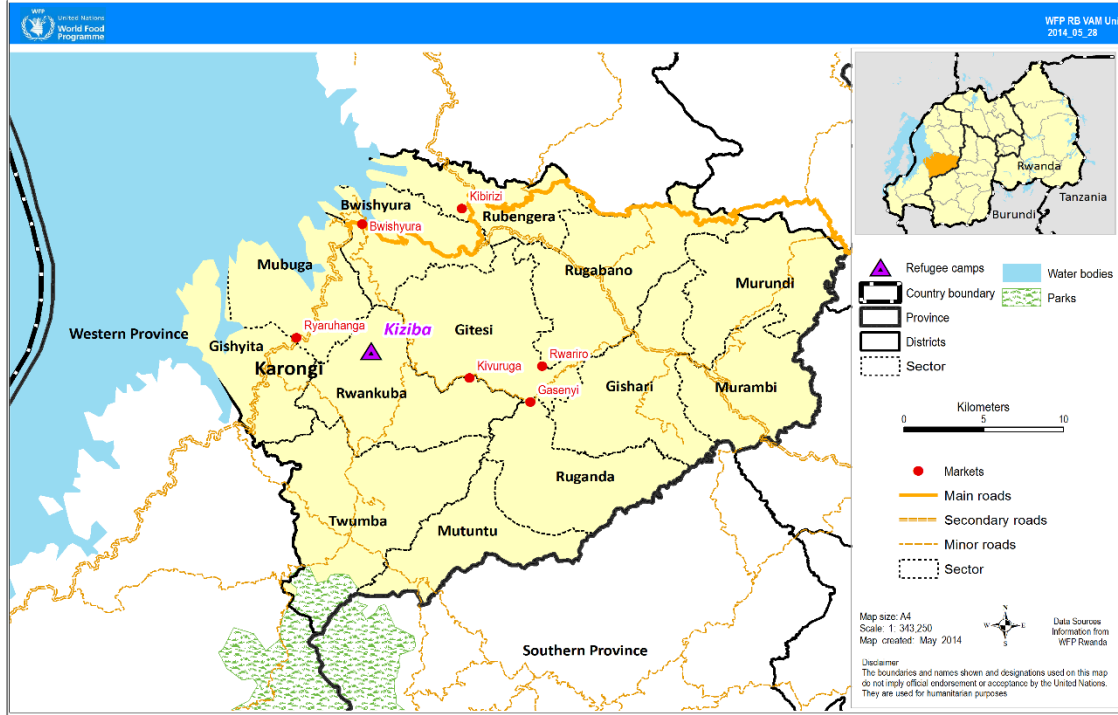
Kivuruga market is also very close to Kiziba camp (4-5km) and 16km away from Bwishiyura/Kibuye. Market days are twice a week, i.e., Monday and Thursday where all staple commodities are available. **Gasenyi/Rwariro** is more than 20km away from the refugee camp and not situated on any main transport corridor; as such, its capacity to supply the camp is very limited as is the demand by refugees. The large market of **Kibirizi** is 27km from the refugee camp, yet still frequented by refugees, and along the road towards the district headquarters. Open markets are on Wednesday and Saturday while close to 30 retailers or mixed traders open their shop on daily base. Bwishyura and Kibirizi are the two largest markets, respectively but at the same time the third and fourth distant markets. Their location are situated along the main transportation route illustrate their important role in the supply chain.

4.4.4 Mugombwa Camp

Map 5 - Mugombwa Refugee Camp and Food Markets
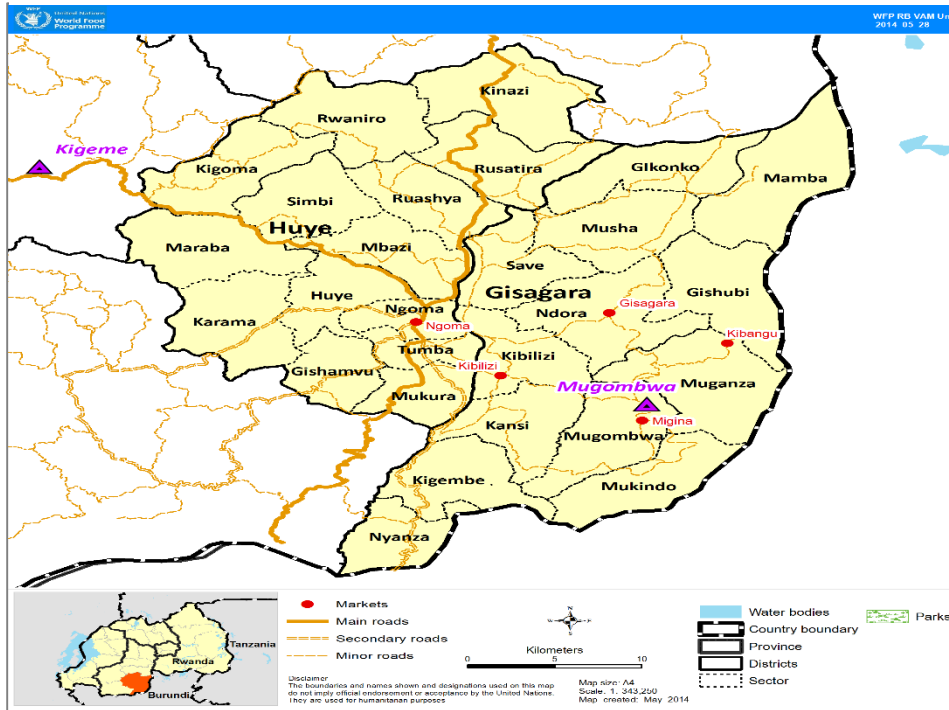
The main surveyed markets around Mugombwa refugee camp in Gisagara district include Kibilizi, Kibangu, Migina, Gisagara and Ngoma, the latter (Ngoma) situated in Huye town and district. Migina is the nearest (3.5km) and the second largest market that is open twice a week (Wednesdays and Fridays), and is accessible to refugees. Ngoma the only market in this cluster located along major transport/supply route and is the largest, yet most distant (25 km) and therefore not readily accessible from the camp. Meanwhile although Kibangu is the second nearest, it also the smallest markets and situated far from may supply routes. Together with Gisagara, the third largest, the contribution to refugee food access through the market is likely to be limited. Overall, the market clusters appear to be the least developed and furthest from main transport corridors. Coupled with the fact that this is a new refugee settlement in a district/ region that has poor production, access through markets will remain limited for the foreseeable future.

4.4.5 Kigeme Camp

Kigeme camp in Nyamagabe district is served by markets that include Gatovu, Kigeme, Gasarenda, Kabacuzi and Karambi, the latter located in Huye district (see Map 6). With the exception of Karambi and Gatovu that are most distant from the camp - and in case of Gatovu even off the main transport routes - , the rest are within walking and minibus distance from the camp. Kabacuzi market in Gasaka sector is the largest and second nearest, and is easily accessible to refugees in addition to being a daily market.

Map 6 - Kigeme Refugee Camp and Food Markets
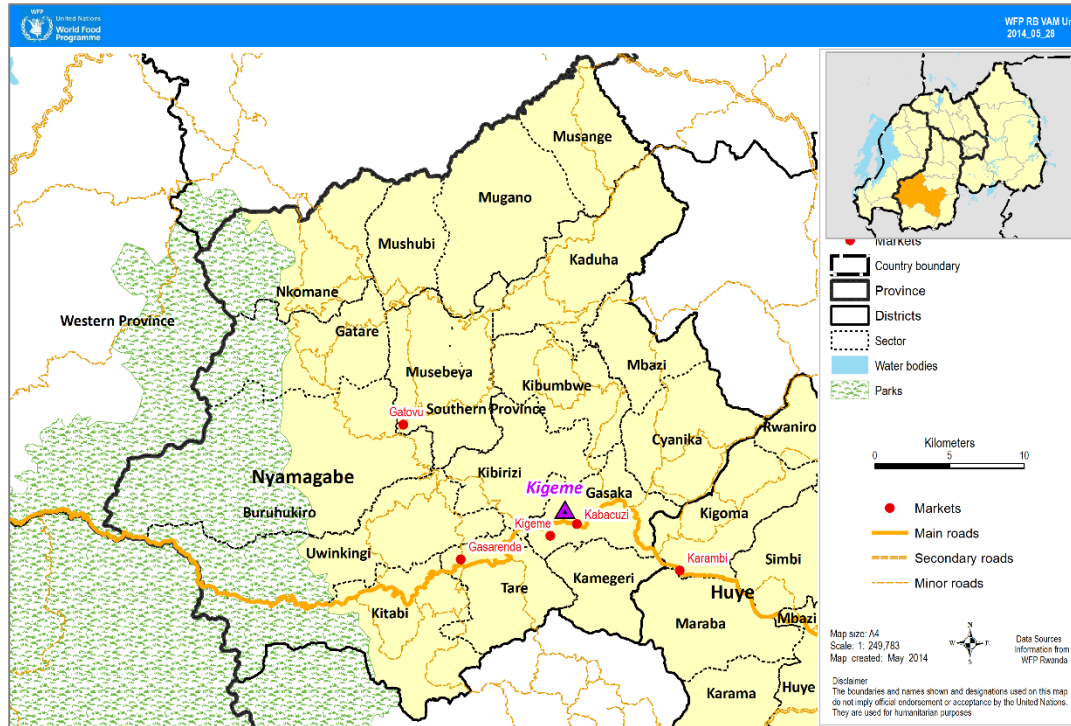
Kigeme market situated on the perimeters of the camp is the nearest, and most used by refugees including for selling. It is open daily, though the fourth smallest market. The fact that four out of the six markets (including Kigeme and Kabacuzi) are located along the main transportation route suggests that they can be easily supplied from major markets.

The overall picture emerging from the observations and interviews during the field visit was that refugees frequently visit these markets and will have no accessibility challenges.

4.4.6 Prospects for Food Supply:

Table 6 below presents the refugee camps and the main and surrounding districts in which they are situated in order to gauge the potential for food commodities supply and access to the camp residents. Based on production data for maize in 2013, district population projection and per capita consumption of maize, marketable surplus was calculated for each district. The overall assumption is that the existence of a sizeable marketable surplus would be the primary guarantor of market supply, and thereby availability

---

of commodities that refugees could access. In conjunction with the analysis of markets in each district, showing size, proximity to the camps and overall connectedness, the overall prospects for food availability in local markets and potential access by refugees is discussed below.

Table 6 - Refugee Camps and Districts

Refugee Camps	Districts	Neighbouring Districts	Other
1. Nyabiheke	Gatsibo	Nyagatare, Gicumbi, Kayonza, Rwamagana	Uganda
2. Gihembe	Gicumbi	Nyagatare, Gatsibo, Rulindo	Uganda
3. Kigeme	Nyamagabe	Karongi, Ruhango, Nyanza, Huye, Nyaruguru, Nyamaseke	
4. Kiziba	Karongi	Rutsiro, Ruhango, Nyamagabe, Ngororero, Nyamasheke	
5. Mugombwa	Gisagara	Huye, Nyaruguru, Nyanza	Burundi

Nyabiheke camp is situated in the productive district of Gatsibo in Eastern Province; which is boarded by the productive districts of Nyagatare and Gicumbi. Three of the markets in the survey (Kabarore, Rwagitima and Kiramuruzi) are located along the main transport route from Nyagatare and Uganda. The overall conclusion is that availability and accessibility of food commodities to refugees is expected to be high. This owes to a high production in local and surrounding districts, market connectedness and close proximity of markets to the camp, including one physically located inside Nyabiheke refugee camp.

Gihembe camp which is located in Gicumbi in Northern Province, has good record of food production. It also lies close to bordering districts of Nyagatare, Gatsibo and Rulindo that are major producers of food commodities including maize and beans. It is expected that refugee access to food commodities will remain high resulting from ready availability from local production and through the marketing system that is well connected to surrounding highly productive districts.

Kigeme camp in Nyamagabe in Western Region is surrounded by districts of moderate food production potential including Nyamaseke, Nyaruguru and Karongi and deficit districts of Ruhango, Nyanza and Huye. Considering its situation in and among moderate food producing districts, and the fact that most of the markets appear to be well connected to the national supply chain, prospects of food availability overall good.

Kiziba camp situated in Karongi districts of Western Region is bordered by districts of mixed food production among them Rutsiro, Nyamagabe, Ngororero and Nyamasheke that are moderate and Ruhango which is deficit. Taking into consideration supply from local and surrounding districts, and from other regions through marketing chains, the prospects for food availability on local markets accessible to the refugees would seem to be moderate to below moderate.

Mugombwa camp in food deficit Gisagara district in Southern Province is surrounded by Huye and Nyanza that are in deficit and Nyaruguru of moderate production. Gisagara also lies adjacent to the food deficit district of Ngozi in Burundi. Overall, the prognosis of market availability of food commodities from local production and supply from other districts and regions through the marketing chains looks poor.

4.5   Market & Trader Capacities and Constraints

This chapter discusses general constraints that different types of traders face and it analyses their respective response capacity - or lack thereof - to increased demand. The capacity of markets and traders and the constraints they face are critical factors in determining the feasibility of market-based assistance to the refugees living in the camps. Table 7 presents the results of analysis showing expected aggregate additional market demand based on current rations of the General Food Distribution that would occur in market clusters around the camps, the number of wholesale traders captured through observations and survey questionnaire[19], and required monthly aggregate market capacity on top of the existing demand. These are aggregated for each camp and presented separately for maize meals and pulses.

Table 7 - Market Capacity in Market Clusters around Camps

	Camps	Refugee Number	Monthly Demand (MT)	Whole-salers (observed)	Whole-salers (survey)	Monthly Capacity (MT) (observed)	Monthly Capacity (MT) (survey)	Retailers (observed)	Retailers (survey)	Weekly capacity (MT) (observed)	Weekly capacity (MT) (survey)
Maize Meal	Kiziba	16,500	203.0	45	44	4.5	**4.6**	70	24	0.72	2.11
	Kigeme	18,300	225.1	16	65	14.1	**3.5**	119	57	0.47	0.99
	Gihembe	14,600	179.6	8	59	22.4	**3.0**	130	129	0.35	0.35
	Mugombwa	7,000	86.1	16	7	5.4	**12.3**	52	8	0.41	2.69
	Nyabiheke	14,100	173.4	43	61	4.0	**2.8**	140	80	0.31	0.54
Pulses	Kiziba	16,500	59.4	14	77	4.2	**0.8**	60	11	0.25	1.35
	Kigeme	18,300	65.9	20	18	3.3	**3.7**	93	50	0.18	0.33
	Gihembe	14,600	52.6	7	26	7.5	**2.0**	100	103	0.13	0.13
	Mugombwa	7,000	25.2	15	86	1.7	**0.3**	67	89	0.09	0.07
	Nyabiheke	14,100	50.8	9	140	5.6	**0.4**	125	136	0.10	0.09

Source: Trader Survey, Market Analysis 2014

If the lower number of both estimates for the number of traders is taken, the range of additional required supply capacity for each maize meal wholesaler is between 4 tons in Nyabiheke and 22.4 tons per month in Gihembe. The more optimistic range for all camps would be between 2.8 and 5.4 tons per week in Kigeme and Mugombwa. For pulses, the more pessimistic range is between 1.7 and 7.5 tons per month. Despite the uncertainty about the number of wholesalers as well as the real increase in demand as a result of customer preferences, there is reason to believe that the additional requirements per wholesaler are within feasible ranges, thus suggesting sufficient capacity to supply.

A similar calculation is done at retail level. For the optimistic scenario and assuming that the observed number of retailers is correct, the additional capacity by retailer per week would range from 310kg of

---

[19] The number of observed traders is an estimate of the enumerator. The number obtained through the survey is an average of wholesalers' (or retailers') estimates as to how many traders of similar size and business activities are on the market. While there is some remarkable match of figures for Kiziba (maize meal) and Kigeme (pulses), the spread in Nyabiheke (pulses) points to the limitation of this approach.

maize meal in Nyabiheke to 720kg in Kiziba, while for pulses 90kg to 250kg per retailer in Mugombwa and Kiziba respectively would be the minimum required.

4.5.1 Capacity to Increase Supply

Traders were asked about their capacity to increase their supply in the event demand increased. The findings (Figure 18) shows that 86 percent of them indicated they would increase supply. About one-third of the total number of traders said they would do so within one week and as many as 63 percent saying they would do so in less than one month. A smaller proportion of 14 percent indicate they could not, or did not respond. The proportion of traders requiring at least one month is fairly large in Mugombwa and Gihembe with 27 and 34 percent respectively. In Gihembe, the wholesalers are less confident with a speedy capacity surge than in other camps. 55 percent reported to manage within one month with 33 percent even beyond one month, whereas in Kiziba and Nyabihke the 50 and 53 percent of the wholesalers could meet the increase in demand within a week's time. Perhaps the fact that cash is already distributed to refugees in Gihembe contributes to this observation. However, it is clear that traders will require some lead time thus necessitating good and timely communication and awareness raising.

Figure 18 - Increase of Supply Total and by Camp (Proporation of Respondents)
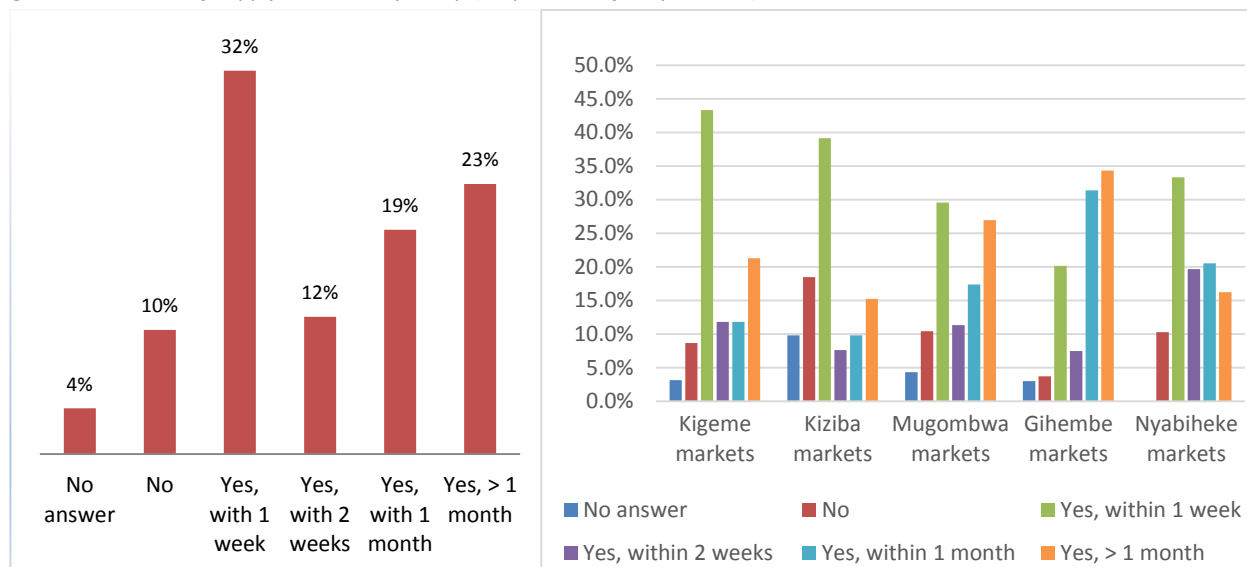
Source: Trader Survey, Market Analysis 2014

4.5.1 Storage Capacity

Figure 20 presents the level and distribution of storage capacity of traders according to market clusters around refugee camps. This varies with higher capacities reported by traders around Nyabiheke markets where nearly fifty-percent reported storage capacity of more than 5 MT. This was followed by Gihembe markets with 37.5%; Kiziba (32%); Mugombwa (31%) and Kigeme (24%). Besides Nyabiheke where less than one fifth of the traders had less than 1 MT storage, the average for the rest of the camps were comparable at between 29 – 40 percent. The storage capacity in Northern and Eastern Provinces were generally bigger than in Western and Southern Provinces (56-67% have >2.5mt)

Traders were asked about their capacity to increase storage capacity. Without surprise, the increase of 50% or more storage capacity was most often reported by traders that have already more than 5 tons of storage (22 percent). In general and without considering the 5 tons plus category, approximately a third of the traders reported not to be able to expand their storage. This is especially noted among retailers - and to a certain extent among wholesalers - in the western and southern markets.

The quality of storage and storekeeping practices can be considered a concern. Due to an often observed lack of specialisation on food retailing, food and non-food items are stored jointly which is particularly hazardous if cement is involved. Infestation of maize, lack of proper ventilation, and presence of rodents at virtually all supply chain levels are just examples that indicate opportunities for capacity building and improvement of poor storage practices.

Figure 19 - Storage facility by trader type
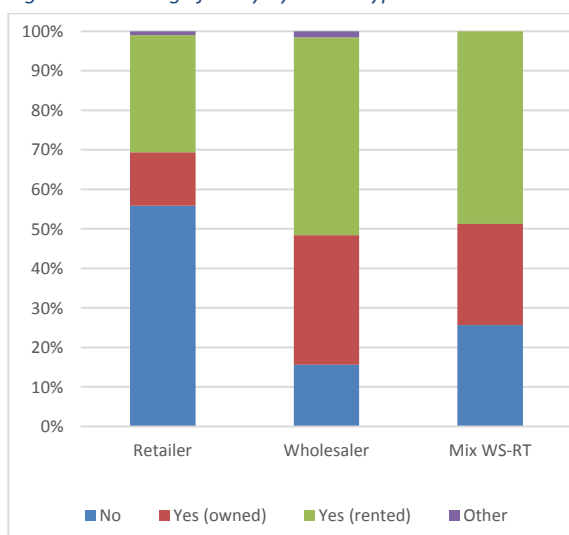
Figure 20 - Storage capacity by camp markets
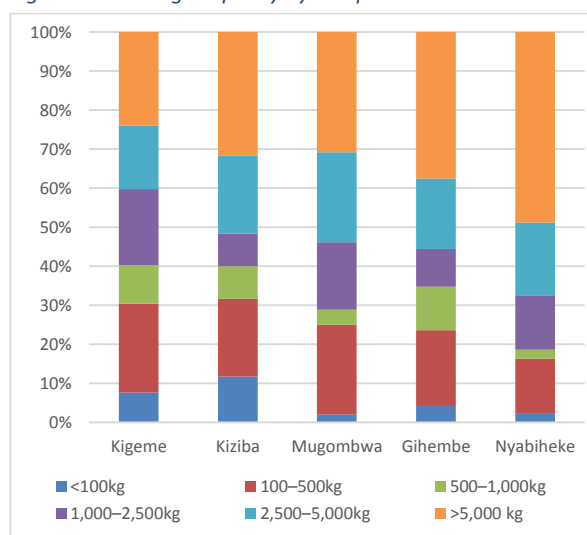
Note: % of respondents with access to storage
Source: Trader Survey, own calculations

It is also shown that majority of retailers (over 50%) had no storage facilities compared with about one quarter for mixed (wholesaler-retailers) and 15 percent of wholesalers. Of the traders in each category reporting storage capacity, majority of them rent their storage – with about 50 percent of the total number of wholesalers and mixed (wholesale/retailers) reporting this. Exactly one-third of wholesale traders own their storage compared with just over a quarter mixed traders and 14 percent of retailers.

4.5.2   Main Constraints

The results of the constraints traders face are presented in Figure 21-

Figure 23. The lack of demand and government restrictions/high taxes were the most reported, each by more than 58 percent of traders. These were followed by the lack of own capital (21%), low profit margin (16%), low or irregular supply (13%) and competition (11%). Other constraints of lower significance including lack of transport, lack of storage, insecurity, lack of credit, poor road conditions and low or

varying quality of produce were cited by very low percentages of traders (1-6%). Differences in perception between wholesalers and retailers exist for a variety of constraints, yet most notably for lack of irregular supply which was mentioned by more than 21% of wholesalers as opposed to 12% of retailers.

Cash and voucher transfers will tend to induce an increase in demand and thereby allows businesses to grow. But government restrictions and high tax burden that is cited by traders as a key constraint could undermine the expectation of the growth in business associated with C&V.

Figure 21 - Main Constraints to Increasing Trader Capacity
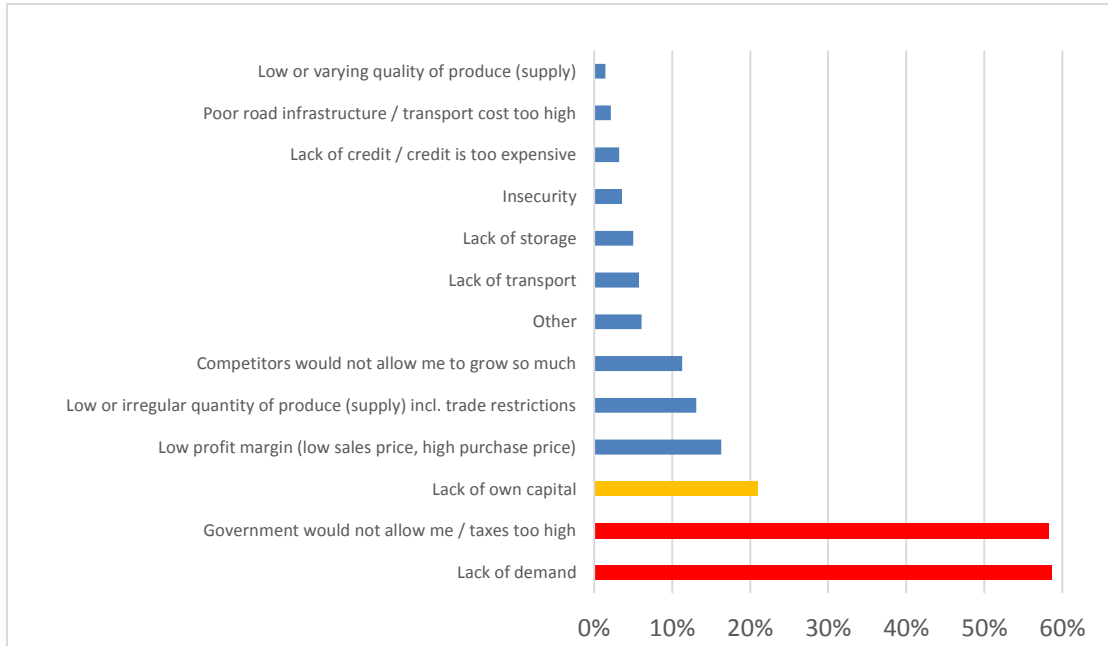
Source: Trader Survey, Market Analysis 2014

Figure 22 - Main Constraints to Increasing Trader Capacity by Trader Type
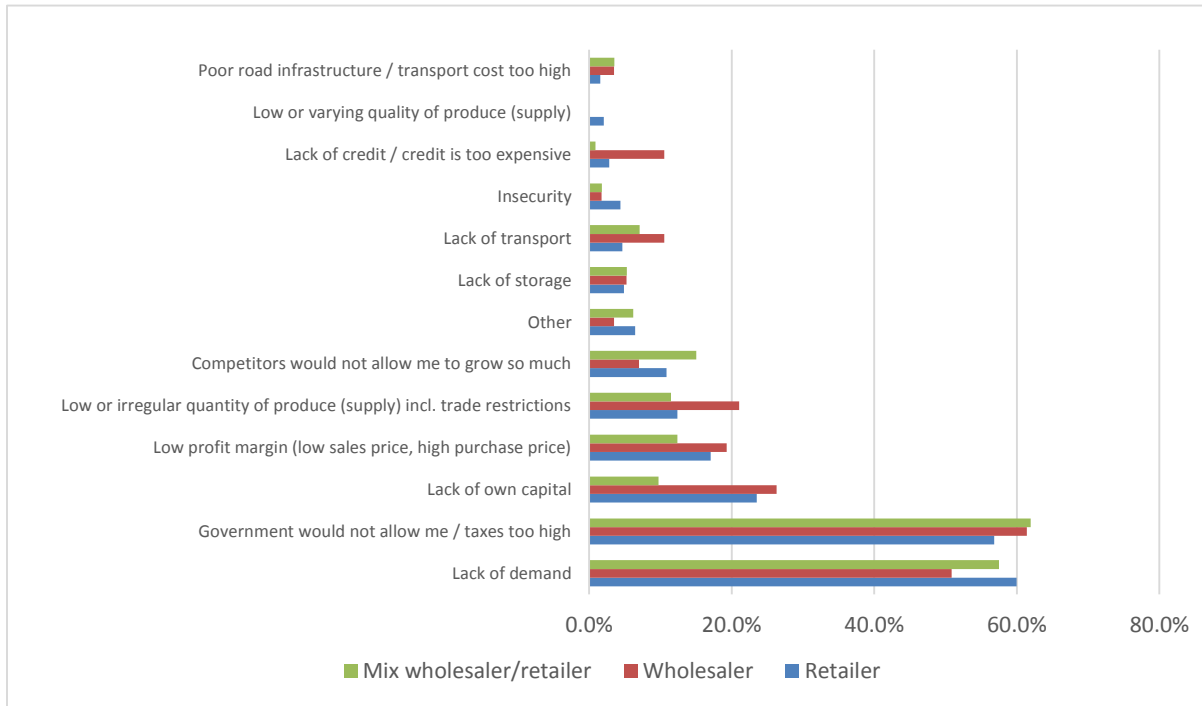
Source: Trader Survey, Market Analysis 2014

Figure 23 - Main Constraints to Increasing Trader Capacity by Camps (% of traders interviewed)
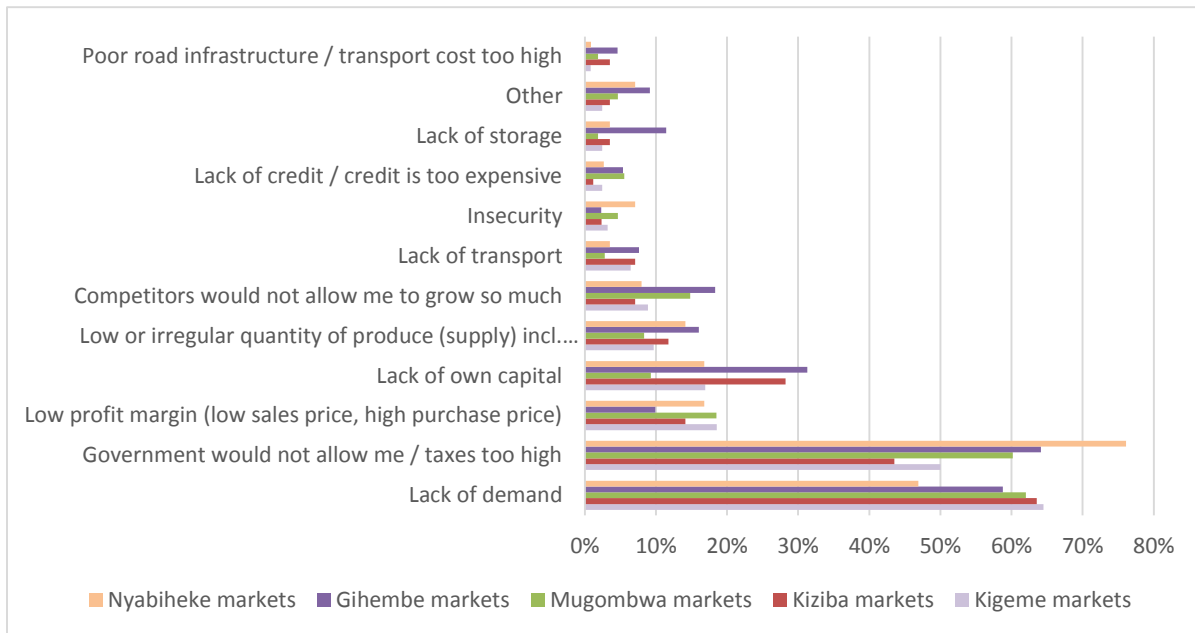
Source: Trader Survey, Market Analysis 2014

However, a breakdown of the constraints by camp clusters reveal some interesting variations for certain types of constraints. The lack of demand was highest in western and southern clusters (Kigeme, Kiziba and Mugombwa) with over 60 percent of the traders reporting compared with the northern and eastern clusters (Gihembe and Nyabiheke). On the other hand, complaints about government restriction or high taxes was highest in Nyabiheke with 76 percent of traders reporting this, followed by Gihembe with 64 percent of traders reporting. Traders reporting this for other clusters range from 44 – 60 percent. There was overall a mixed picture of the distribution of reporting for the rest of the constraints.

4.5.3   Access to Credit

Although access to credit was not reported as a major constraint at current level of trading, it is expected that this could become an important factor when traders are made to expand their supply or storage in response to increased demand. It is important to note that more than 90 percent of traders operate less than 2 kilometres from the nearest bank; and about 75 percent of them have bank accounts. However, the percentage of wholesalers with accounts was found to be greater than retailers. But access to formal credit was reported to be limited, with nearly 70 percent of retailers lacking access; about 50 percent of wholesalers and nearly 40 percent of mixed traders reporting lack of access. Of the traders with access to credit, banks are the predominant source for 74% of all traders; in fact wholesalers (87%) and mixed traders (89%) rely much more on banks than retailers (63%). Credit from other traders and money lenders applied only to 12% of traders that have access to credit, while family and other sources are similarly low (13%). However, about 21 percent of retailers with access to credit depended on this latter source. The repayment period for credits grants is often 1 month and longer.

Figure 24 - Access to Credit by Trader Type

Source: Trader Survey, Market Analysis 2014

5. Summary, Conclusions and Recommendations

5.1 Summary

The comparative summary of the suitability of market-based food assistance to refugees living in the five camps is presented in Table 8. This looks at key market indicators including food availability, price conditions, trader capacity in surrounding markets and degree of refugee access markets.

Food availability on markets from marketable surpluses from local production was overall judged to be high in markets around Nyabiheke and Gihembe camps; medium for Kigeme and Kiziba; but low for Mugombwa. Availability through internal and external trade was similarly judged to be high for Nyabiheke and Gihembe that are not only situated in the productive regions of the country, but also benefit from imports from neighbouring Uganda. The markets serving these camps are also well connected through good road networks that contribute to efficient functioning of the markets to assure availability of the key commodities. On the other hand, Kigeme, Kiziba and Mugombwa camps are situated in generally poor production regions and next to net importing countries (DRC and Burundi), making overall food availability through international imports low.

With regards to prices, the seasonality pattern appears similar across the market clusters serving the five camps, indicating a broad integration of markets across the country, confirmed by the co-integration analysis. Overall, price variability is high across all markets.

Table 8 - Summary of Findings

	Nyabiheke	**Gihembe**	**Kigeme**	**Kiziba**	**Mugombwa**
1. **Food Availability** (marketable surplus production in main and surrounding districts)	High	High	Medium	Medium	Low
2. **Food Availability** (imports [+] and export [-])	High	High	Low	Low	Low
3. **Price Conditions** (seasonality, trends, volatility, …)	Variable	Variable	Variable	Variable	Variable
4. **Storage capacity**	High	High	Medium	Medium	Medium
5. **Market Accessibility** (refugee access to local food markets)	High	High	High	Medium	Low
Overall Suitability	**++++**	**+++**	**++**	**+**	**-**

Traders' capacity to expand supply in response to increase in effective demand associated with market-based transfer is dependent on factors that includes their re-existing storage capacity or ability to expand this quickly through increased ownership or rentals. This is may be linked to pre-existing financial capital or ease of access to financial credit to expand their market operations. The overall impression was that

storage capacities in the Nyabiheke, Gihembe and Kigembe market clusters were comparatively higher compared with Kiziba and Mugombwa.

The findings of the analysis of refugee accessibility to markets further shows that this was high for Nyabiheke, Gihembe and Kigeme camps where at least three markets were in close proximity of these camps. Accessibility was medium for Kiziba, but low for Mugombwa camp where only one market was very close, yet not sufficiently large to serve the entire camp population, while other markets were generally more distant.

On the basis of the above, Nyabiheke camp is most suitable for market-based food assistance, followed by Gihembe and Kigeme both of which are also judged to be suitable. Kiziba is judged to be partially suitable, while Mugombwa is not yet suitable. The findings are similar to those of the 2011 market assessment[20] that recommended market-based food assistance in Nyabiheke and Gihembe, and was the basis for the ongoing pilot cash transfer to refugees in Gihembe refugee camp.

5.2   Conclusions and recommendations

Recommendation #1: Market-based food assistance should be considered for implementation in three of the five refugee camps – Nyabiheke, Gihembe and Kigeme.

On the basis of the findings of the analysis (availability, price conditions, market functionality and refugee accessibility to nearby markets), **market-based food assistance should be considered for implementation in three of the five refugee camps – Nyabiheke, Gihembe and Kigeme** – in that order. The findings suggest that overall, markets are functioning well and expect to deliver adequate quantity of food to meet expected increase in demand for key food commodities. The supply bases for key food commodities are strong, particularly for Nyabiheke and Gihembe camps situated in the most productive regions of the country and also through imports from Uganda. In addition, the camps are served by markets that are located on or close to primary roads and therefore well integrated to commodity supply chains. There are also several markets close to the refugee camps that refugees can access easily and safely.

Recommendation #2: Market based interventions in Kiziba are partially suitable at this point. Limited implementation can be explored by either piloting on small level, hybrid cash/voucher and in kind transfers, targeting to reduced number of households or initiating establishment of a market in the vicinity to the camp.

Market conditions around Kiziba refugee camp make it partially suitable for market-based assistance. One key challenge relates to the capacity of the closest markets to assure adequate quantities of commodities consistently and at stable prices. The other key challenge relates to protection concerns in so far that without regular transport the stronger markets of Bishiyurwa and Kibirizi are fairly distant and of considerable difference in altitude to the camp. The appetite of traders and the required regulatory steps to establish a market next to the camp of bigger size than within would need to be explored. However, implications for the other markets especially in Mubuga need to be taken into account. This means, some

---

[20] WFP (2011) Food or Cash? *An assessment of the markets in the proximity of the refugee camps in Rwanda to test the feasibility of the possibility of cash/voucher based interventions.*

market-based food assistance could still be considered for implementation, but at a limited level. This could for instance entail a hybrid cash or vouchers and in kind ration to refugees to purchase selected commodities that have predictable availability; or by targeting cash/voucher transfer to a limited number of refugee households.

Recommendation #3: Considerations of the immediate establishment of market based intervention for Mugombwa camp are premature.

The market conditions around **Mugombwa camp are currently unsuitable for cash or voucher transfers** to refugees. This stems from a whole spectrum of factors that include limited supply of commodities on the local markets in relation to the number of refugees (due to poor local production, poor marketing chains given the remoteness); low trader capacity; and constrained access by refugees to more than one market.

Recommendation #4: The calculation of transfer values for respective camps need to take seasonal and spatial/regional differences between camps into account.

Although markets have been established to be integrated across the country, price levels, trends and volatility on the surveyed markets across the country raise some challenges that will need to be taken into consideration in implementing cash/voucher programming. Two key issues arise in this regards.

❖ Firstly, price levels vary widely between market cluster (refugee camp area), suggesting that setting of a pan-territorial value of cash/voucher transfer would almost certainly have differing food security outcomes. That is, the outcomes will expect to be good in the market clusters where prices are generally low (i.e. for Nyabiheke and Gihembe) in comparison to other camps.
❖ Secondly, price seasonality and volatility analyses reveal sharp inter-seasonal variations in all markets, with sharp peaks in October and November. This suggests that a constant cash/voucher transfer value would have different food and nutrition outcomes in different seasons – thus, the need to consider variations in line with seasonal price levels.

Recommendation #5: Consideration should be given to expand price monitoring, particularly in key markets refugees will access, and ideally in collaboration with the Government of Rwanda.

Due to the high volatility of prices across markets, consideration should be given to expand price monitoring, particularly in key markets refugees will access. This would enable regular monitoring of the food security outcomes and to guide appropriate decisions, including change transfer values, market support to improve functioning and competitiveness, among others.

Recommendation #6: Consider facilitating the establishment of additional market structures inside or nearby the camps to improve market access for vulnerable households.

Consideration should be given to establishing markets structures inside the refugee camps or in nearby locations to ease access to markets, especially by those refugee households unable to travel long distances to exchange their transfer for food. The experience of Nyabiheke with a markets structure inside the

camp is instructive in that regard. In Gihembe where there is a relatively small market and some grocery shops that are owned by refugees - these have proved to be very useful to those unable to travel long distances and the quantities of food sales have also increased.

> ***Recommendation #7:*** Establish a strategy for capacity building of traders at wholesale and retail level to improve storage conditions and practices to ultimately enhance food quality, particularly at markets targeted for market based interventions.

The characteristics of the largely informal sector imply that national standards of food safety are not sufficiently adhered to. Current storage practices may significantly contribute to the shortcomings and range from untimely treatment of infested staple commodities to joint storage with hazardous non-food items among others.

The implementation of market-based assistance will be subject to further satisfactory assessment of non-market factors by Cash & Vouchers Unit. Among others, this will include the cost-effectiveness of cash and voucher transfers vis-à-vis in-kind (food) assistance; availability of suitable and reliable delivery mechanisms; and protection issues, among others.

References

FEWS NET (2013), *Rwanda Food Security Outlook Update*, September 2013.

FSNWG (2012), *East Africa Informal Cross Border Trade Bulletin,* Food Security and Nutrition Working Group, October 2012.

FSNWG (2014), *East Africa Informal Cross Border Trade Bulletin: 2nd Quarter 2012:* Food Security and Nutrition Working Group, Nairobi July 2014.

Rwanda (2012), *Informal Bulletin on Crops.* Ministry of Agriculture and Animal Resources, October 2012.

Rwanda (2012), *Integrated Household Living Conditions Survey, EICV3 Thematic Report: Patterns of Consumption.* National Institute of Rwanda, August 2012.

Rwanda (2013), *Crop Assessment 2013A Season: 2013A Crop Growing Conditions, Harvested Areas, Crop Yield, Crop Production and Food Security*, Ministry of Agriculture and Animal Resources, March 2013.

Rwanda (2013), *Crop Assessment 2013B Season: 2013B Crop Growing Conditions, Harvested Areas, Crop Yield, Crop Production and Food Security.* Ministry of Agriculture and Animal Resources, 2013.

Rwanda (2014), *Informal Bulletin on Crops.* Ministry of Agriculture and Animal Resources, February 2014.

Rwanda Refugee Operation: A Joint Nutrition Survey Report Conducted in Kiziba, Nyabiheke and Gihembe Refugee Camps. MIDIMAR, UNHCR, WFP, AHA and ARC, May 2012.

WFP (2011), *Food or Cash? Market Assessment*, WFP Rwanda, August 2011

WFP (2012), *Comprehensive Food Security and Vulnerability and Nutrition Survey*, WFP Rwanda, December 2012.

World Bank (2012), *Development Indicators for 2012*. http://data.worldbank.org/country/rwanda

Annexes

Annex 1: Terms of Reference for Rwanda Market Assessment 2014 (WFP PRRO 200343)

1. Background

WFP Rwanda is currently implementing a four months cash transfers pilot in Gihembe refugee camp following recommendations from the market study conducted in August 2011, the Joint Assessment Mission (JAM) exercise carried out by WFP, UNHCR alongside their partners (2011) and the joint UNHCR-WFP Evaluation into Contribution of Food Assistance to Durable Solutions in Protracted Refugee Situations (November, 2012).

As of March 2014, 14,440 beneficiaries, (approximately 3,200 households) were targeted, with each individual receiving a fixed amount of RWF 6,300 ($9.3) per month. The cash is transferred electronically at the household level through a mobile banking technology named mVisa and is meant to meet the monthly household food needs. Under the pilot, a total of sixteen (16) traders were pre-selected by WFP based on specific criteria, to be the ones where beneficiaries should preferably buy their food.

Furthermore, preliminary findings and recommendations from the recently concluded 2014 JAM exercise point to the continuity and preference / introduction of market based interventions (cash and/or vouchers) in Gihembe camp and the other refugee camps respectively, most notably in Kiziba, Nyabiheke, Mugombwa and Kigeme.

However, before any continuity and expansion, and as part of WFP Corporate Policy, an in-depth markets assessment study is necessary to inform technical and programmatic decisions especially given that this is the very first time that WFP Rwanda is implementing cash transfers.

WFP Rwanda in collaboration with its partners is therefore planning to carry out a detailed market study to assess the feasibility and appropriateness of continuing/introducing market based interventions within the current context and if and when appropriate, assist in the programme design process.

2. Assessment Approach:

The in-depth market study will cover Rwanda in general but with particular focus on the refugee camp surroundings and environments to address the key issue whether cash and/or voucher transfer programmes would be feasible and appropriate. If market based interventions are recommended as appropriate, action plans providing technical advice on the key programming decisions and challenges will be developed.

3. Study and Geographical Coverage:

The assessment will need to cover the main markets in the districts that are key sources of food supply to markets in the vicinity of the refugee camps.

4. Objective:

The overall objective of the assessment is to assess and determine the appropriateness of using cash and/or vouchers as a means of food assistance to beneficiaries within the Rwanda refugee context.

More specifically, the study will:

  i.   Identify and roughly sketch the supply chain of key staple commodities that are critical to food security of vulnerable households.
 ii.   Analyse the historic and current availability of both staple and fresh food commodities on local markets including potential recent changes and patterns of seasonality.
iii.   Analyse the overall market environment in which food commodity trade takes place, including relevant government policies and regulations, the (current) socio-political situation, security, road and transport infrastructure; corruption etc.
 iv.   Describe the market structure in terms of actors and institutions of relevant supply chains, barriers and constraints to enter trade or maintain and increase levels of supply, as well as market catchment areas.
  v.   Analyse the market conduct, i.e. price setting behaviors, weights and standards including the transparency of transactions, competition and potential corruptive behavior.
 vi.   Identify key market outcomes such as seasonality and volatility patterns of prices, market integration with supply sources, including physical flow of commodities.
vii.   Analyse the market's potential for responding to demand increases, e.g. storage facilities, duration of stocks, stock replenishment lead-time, and expected price developments due to increased levels of demand.
viii. Provide/collect price data and develop price scenarios for different food commodity to be used in developing potential food baskets and transfers values, and to support cost efficiency/effectiveness analysis, that can facilitate decisions if and when to switch between different transfer modalities or food baskets depending on seasons.
 ix.   Analyse affected populations' demand conditions: their physical and economic access to local markets (including inflation patterns of food and non-food commodities, households' purchasing power, livelihood and market participation behaviors, self-sufficiency and resilience statuses, and preferences).
  x.   Formulate and - if possible - map food market related recommendations on i) suitable areas, ii) periods of the year and iii) scale conceivable to support either cash/voucher or in kind based interventions as well as iv) how to address identified bottlenecks for traders to meet increased demand and strengthen respective supply chains.

5. Methodology

Proceeding from the main and specific objectives, the primary focus would be to establish if the markets are functioning well, food commodities will be available and prices will remain stable to ensure stability of transfer values. The assessment team will develop a clear analysis plan to ensure the specific issues (1-10) are fully analysed using combinations of: secondary data review, key informant interviews; focus group discussions; and trader survey. The expectation is that trader survey will be a key tool.

The following sources will support the assessment team in its task.

i. Full trader surveys;
ii. Key informant interviews and focus group discussions with stakeholders including beneficiaries, MINAGRIC[21]. These will be both field and Kigali based. Kigali based interviews will involve policy makers in relevant government departments (MINAGRIC)
iii. Secondary data material including[22];
   - Market study of August 2011;
   - Market and price information from MINAGRIC
   - The CP monthly market reports on the impact of cash transfers on the markets in Gihembe.
   - Field reports including market and retailer capacity assessment reports
   - EFSA, CFSVA and JAM reports of 2011 & 2014
   - Joint UNHCR-WFP Evaluation into Contribution of Food Assistance to Durable Solutions in Protracted Refugee Situations (November 2012)

6. Deliverable(s):

A clear and detailed technical report highlighting whether or not large scale market based interventions (cash and/or vouchers) are appropriate and feasible in Rwanda's refugee context.

7. Post-Market Assessment Activities

Cash and Voucher Design

Where preliminary results of the market assessment indicate appropriateness and feasibility of continuing and scaling up cash and/or voucher transfers in Gihembe and other refugee camps respectively, another separate exercise aimed at C&V programme design will take place. The programme design exercise will be led by the RB C&V Specialist and will assess whether food assistance programmes to refugees using C&V can be delivered and implemented safely, efficiently, effectively and will have a positive impact on the refugees' food and nutrition security and livelihoods.

---

[21] Ministry of Agriculture
[22] The list will be longer to cover all key areas under specific objectives for which secondary data will be available.

Timetable[23] / Activities

Activity	Dates
Finalise and agree on TORs	31-March-14
Desk reviews, development of checklists prior to arrival	April/May
Identification of enumerators/Team Leaders	25-Apr-14
Arrival of Staff	5 & 6 -May respectively
Develop detailed work plan with Programme & Development of assessment tools	6-8 May
Consultations with key stakeholders including a stakeholders meeting/workshop involving all partners	On-going
Training for enumerators and team leaders	8-9 May
Inception report	9-May-14
Field Visit to all 5 refugee camps	12 - 27 May 2014
Analysis & report writing	28th May - 4th June 2014
Presentation of preliminary findings/submission of draft report/comments and reviews/incorporation of comments	4-Jun-14
C&V Programme assessment / Design[24]	Between 26th May - 6th June
Submission of Final market assessment report	6-Jun-14

---

[23] This is only indicative and activities are likely to overlap and will therefore be adjusted accordingly upon consultations and agreement between the CO & Market Specialists.
[24] This is planned for 7 days.

Annex 2:   Main Commodities and Percent of Responses

	Responses		Percent of Cases
	N	Percent	
Rice	187	18%	32%
Maize flour, white	140	14%	24%
Beans mixed	139	14%	24%
Irish potatoes	79	8%	14%
Maize grain	71	7%	12%
Tomatoes	68	7%	12%
Eggplant	58	6%	10%
Bananas	48	5%	8%
Sugar	34	3%	6%
Cassava flour	32	3%	6%
Cabbage	32	3%	6%
Sweet potatoes	28	3%	5%
Groundnuts	21	2%	4%
Cassava fresh	16	2%	3%
Oil (Uganda)	15	2%	3%
Fish dried	14	1%	2%
Salt	12	1%	2%
Dodo/Amaranth	11	1%	2%
Beans red	10	1%	2%
Wheat flour	4	0%	1%
Oil, Palm	4	0%	1%
Peas fresh	3	0%	1%
Maize flour, yellow	2	0%	0%
Beef	2	0%	0%
Total	1030	100%	177%

Annex 3:   Supply chain for maize

Source: WFP market assessment, 2011
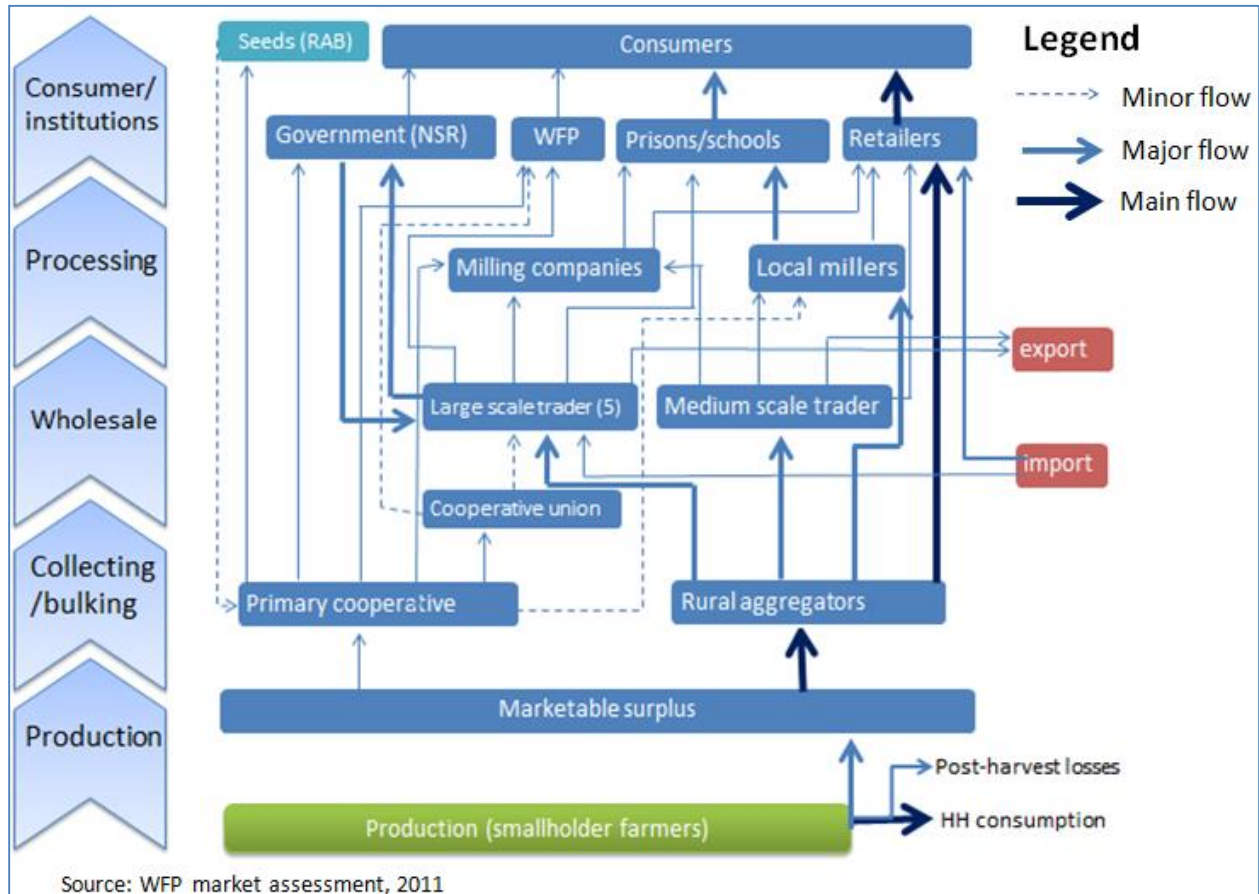
Annex 4: Production of Main Food Commodities by Livelihood Zones in Past Three Years (2011, 2013 & 2013) (MT)

| ZONES	BEANS			CASSAVA			IRISH POTATO			MAIZE		
	2011	2012	2013	2011	2012	2013	2011	2012	2013	2011	2012	2013
Lake Kivu Coffee	37,205	60,535	59,775	309,089	304,305	479,872	105,863	99,341	158,002	45,746	69,081	77,454
West Congo-Nile Crest Tea	23,334	35,015	38,177	2,769	3,111	8,739	374,805	489,472	360,518	35,146	34,081	47,177
Northwest Volcanic Irish Potato	32,053	41,357	39,303	28,095	42,960	75,116	797,692	921,832	796,663	71,153	65,307	61,730
East Congo-Nile Highland Subsistence Farming	67,901	113,225	113,350	537,052	561,216	664,645	267,078	247,209	287,135	73,132	101,739	107,173
Central Plateau Cassava and Coffee	37,541	40,162	42,020	882,246	814,256	836,956	73,662	80,821	74,026	40,418	56,066	43,816
Northern Highland Beans and Wheat	21,319	18,525	22,268	15,039	17,210	45,640	177,708	228,967	244,598	35,170	30,677	40,721
Central-Northern Highland Irish Potato, Beans and Vegetable	40,264	47,353	54,039	95,382	89,187	186,299	261,982	169,942	171,779	28,622	37,434	40,366
Bugesera Cassava	8,609	9,765	8,756	184,190	170,973	161,231	11,335	8,633	9,416	11,789	12,396	12,856
Eastern Plateau Mixed Agriculture	10,196	10,952	11,479	85,480	92,812	57,734	27,089	17,086	22,541	30,466	31,900	48,559
Southeastern Plateau Banana	18,537	20,587	19,136	196,064	201,511	170,423	37,171	23,965	50,579	31,535	35,463	80,520
Eastern Agropastoral	10,572	9,450	9,377	82,985	95,851	98,144	20,514	11,830	7,721	47,763	40,469	42,137
Eastern Semi-Arid Agropastoral	19,663	19,898	14,980	182,456	195,616	134,845	14,947	33,432	50,394	45,994	52,508	57,120
TOTAL	327,194	426,825	432,660	2,600,847	2,589,007	2,919,643	2,169,846	2,332,530	2,233,372	496,934	567,120	659,628
Annual Growth (%)		30.5%	1.4%		-0.5%	12.8%		7.5%	-4.3%		14.1%	16.3%

Annex 5: Market Integration Figures - Granger Causality Results for Cassava Flour and Local Rice

Cassava flour market integration

Local rice market integration
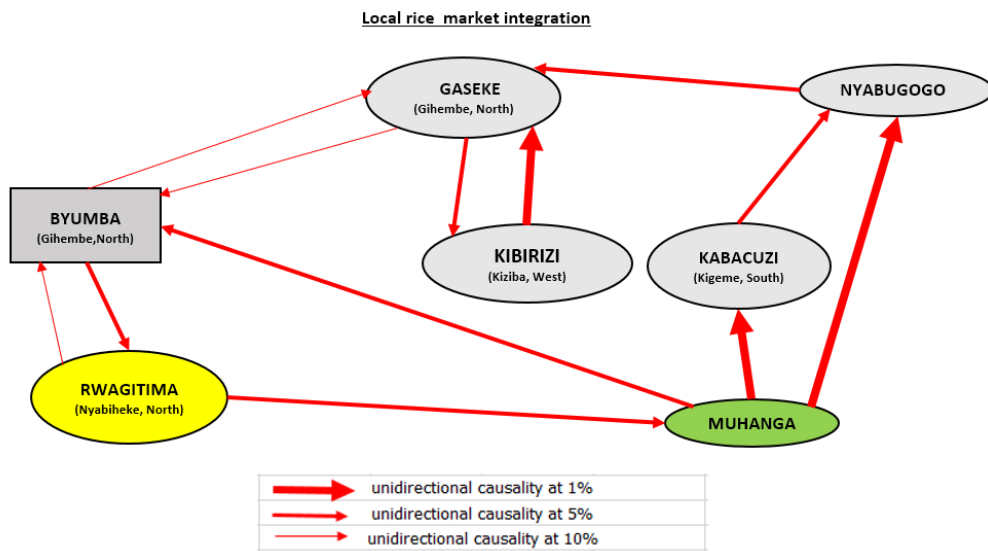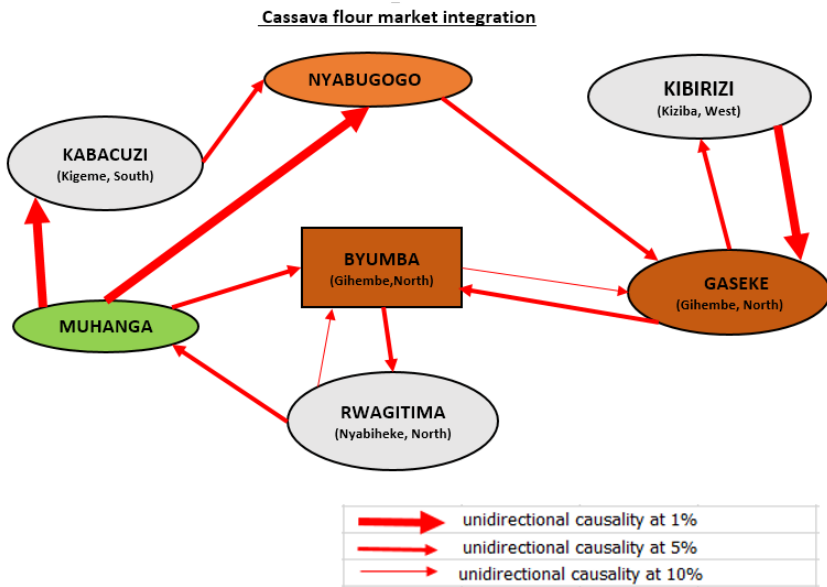
Annex 6: Price forecast for beans and maize flour

Beans - Byumba					Maize flour - Byumba			
t	Lower band	Forecast	Upper band		**t**	Lower band	Forecast	Upper band
2014m4	397	397	397		**2014m4**	416	416	416
2014m5	325	400	475		**2014m5**	307	400	494
2014m6	321	396	471		**2014m6**	319	412	506
2014m7	322	397	472		**2014m7**	323	416	510
2014m8	340	415	490		**2014m8**	316	410	503
2014m9	373	447	522		**2014m9**	307	400	494
2014m10	377	452	527		**2014m10**	367	461	554
2014m11	355	430	505		**2014m11**	382	475	569
2014m12	310	385	460		**2014m12**	305	398	492
Forecast method: Simple Exponential Smoothing								

Beans - Gaseke					Maize flour - Gaseke			
t	Lower band	Forecast	Upper band		**t**	Lower band	Forecast	Upper band
2014m4	380	380	380		**2014m4**	377	377	377
2014m5	289	386	483		**2014m5**	275	362	449
2014m6	264	361	458		**2014m6**	295	382	469
2014m7	298	395	492		**2014m7**	292	379	466
2014m8	309	406	503		**2014m8**	279	366	453
2014m9	350	447	544		**2014m9**	282	369	456
2014m10	367	464	561		**2014m10**	321	408	495
2014m11	316	413	510		**2014m11**	338	425	512
2014m12	265	362	459		**2014m12**	272	360	447
Forecast method: Simple Exponential Smoothing								

Bean - Rwagitima					Maize flour - Rwagitima			
t	Lower band	Forecast	Upper band		**t**	Lower band	Forecast	Upper band
2014m4	327	327	327		**2014m4**	300	300	300
2014m5	307	371	434		**2014m5**	220	318	417
2014m6	296	360	424		**2014m6**	248	347	445
2014m7	293	356	420		**2014m7**	237	336	434
2014m8	323	387	451		**2014m8**	273	371	470
2014m9	359	422	486		**2014m9**	257	356	454
2014m10	366	430	494		**2014m10**	310	408	507
2014m11	431	495	558		**2014m11**	348	447	545
2014m12	301	365	429		**2014m12**	280	379	477
Forecast method: Double Exponential Smoothing								

Beans - Kibirizi					Maize flour - Kibirizi			
t	Lower band	Forecast	Upper band		t	Lower band	Forecast	Upper band
2014m4	400	400	400		2014m4	250	250	250
2014m5	338	415	491		2014m5	163	255	347
2014m6	322	398	474		2014m6	167	259	351
2014m7	320	396	473		2014m7	162	254	345
2014m8	334	410	487		2014m8	159	251	343
2014m9	380	457	533		2014m9	183	275	367
2014m10	360	437	513		2014m10	222	313	405
2014m11	355	432	508		2014m11	236	327	419
2014m12	329	405	482		2014m12	190	282	373
Forecast method: Simple Exponential Smoothing					Forecast method: Double Exponential Smoothing			

Beans - Kabacuzi					Maize flour - Kabacuzi			
t	Lower band	Forecast	Upper band		t	Lower band	Forecast	Upper band
2014m4	411	411	411		2014m4	509	509	509
2014m5	344	421	498		2014m5	442	502	562
2014m6	321	398	474		2014m6	479	539	599
2014m7	334	411	488		2014m7	475	535	596
2014m8	353	430	507		2014m8	447	507	567
2014m9	387	464	541		2014m9	434	494	554
2014m10	397	474	551		2014m10	435	496	556
2014m11	368	445	522		2014m11	454	514	574
2014m12	332	409	486		2014m12	467	528	588
Forecast method: Simple Exponential Smoothing								