

Food or Cash?

Market Assessment

August 2011, Kigali



An assessment of the markets in the proximity of the refugee camps in Rwanda to test the feasibility of the possible introduction of cash/voucher based interventions

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Market assessment report

Abstract

In an effort to innovate and further increase cost efficiency, WFP is experimenting with market-based food assistance like cash/voucher systems in several countries in Africa. This report examines the potential impact of a transfer in input modality on the local markets surrounding the camps. In order to do this, the report analyses the interactions refugees have with their surrounding food markets, the dynamics of those markets, the capabilities of local traders to cope with increased demand and the availability of a financial delivery system. Quantitative analyses are used to show historical trends, commodity flows and price volatility complemented by qualitative data from focus groups with refugees.

The report concludes that while some of the markets might be able to cope with the spike in demand, rising from the use of cash vouchers, there are potential risks regarding price volatility and the refugees' negative attitude towards the introduction of vouchers. A transfer to cash as an input modality would almost double the total demand on the markets surrounding the camps. While hypothetically all three district markets are capable of furnishing such an increase in demand over time, it would inevitably alter local market dynamics. To allow markets to adjust to such a high increase in demand a gradual introduction of a cash based approach is advisable if such an intervention was to be piloted. From a market perspective, market-based food assistance could possibly be piloted in Nyabiheke camp, but it is inadvisable to start piloting it in Kiziba camp. Furthermore, more consideration should be given to effects it would have on dynamics within the camp. For while the market-based obstacles are not insurmountable, by the same token it should be taken into account that the market-based perspective is not the only prism through which the effects of change in input modality must be viewed. Social dynamics will inevitably play a role, as should the opinions of the refugees themselves.

Key words: market assessment, cash voucher system, Rwanda, refugee camps

Ch. 1 Introduction

Since 1996, Rwanda hosts around 54,000 Congolese refugees in three camps, where the World Food Programme (WFP) has been providing food assistance for over 15 years. In line with WFP's global efforts to innovate, increase cost efficiency and further improve its food delivery strategies, the humanitarian organisation is exploring the feasibility of cash based interventions. A cash voucher approach has already been tried and tested on the African continent in countries like Zambia, Zimbabwe, Kenya, Uganda, and the Democratic Republic of Congo. However, the cash and voucher approach has not yet been tested in a non-urban refugee setting (except for Congo where a cash voucher system was introduced to internally displaced persons [IDPs]). Therefore, as part of a larger feasibility study, this market assessment report analyses the potential impact of such a transfer in input modality on the local markets surrounding the camps. The main research question is: **'How will a transfer in input modality by WFP affect the interactions between the refugees and the local markets surrounding the camps?'** The five sub questions guiding the market assessment are:

- *How are refugees currently interacting with markets surrounding the camps?*
- *What will be the foreseeable change in market behaviour once refugees start receiving cash donations?*
- *Are the markets functioning and physically accessible by targeted households?*
- *How capable are the local traders to adequately respond to an increase in effective demand (based on their storage capacities, lead times of stock replenishment, required quality and preference of customers, and access to credit)?*
- *Are there reliable financial delivery systems in place in the proximity of the camps to distribute cash to refugees?*

This market assessment will identify opportunities and potential bottlenecks in changing from food to cash modalities. The study reviews the current impact and role of in-kind food aid in markets as well as the markets' potential to respond effectively to a shift away from food- to cash based interventions. The main objective is to examine the feasibility of cash and voucher programmes from a market perspective. In addition, this assessment will contribute to a better understanding of market linkages, food security and livelihoods in Rwanda.

Ch. 2 Methods

For this market assessment both primary and secondary data have been analysed. Secondary data from the Ministry of Agriculture, National Institute of Statistics Rwanda, E-Soko¹ market information system and internal field monitor reports were used to analyse historical prices and trends. In addition, the results from the pre-Joint Assessment Mission (JAM) in April, the actual JAM (July 2011) and the 2009 Comprehensive Food Security and Vulnerability Analysis and Nutrition Survey (FSNMS) are used to analyse expenditure patterns, food security status and preferences by refugees. As much as possible the market assessment makes use of data that is already available. Complementary primary data was collected through a market survey with traders and local banks. Per camp locality 7-9 traders were interviewed (see list in Annex 1), representing 54-69% of the local traders supplying the markets.

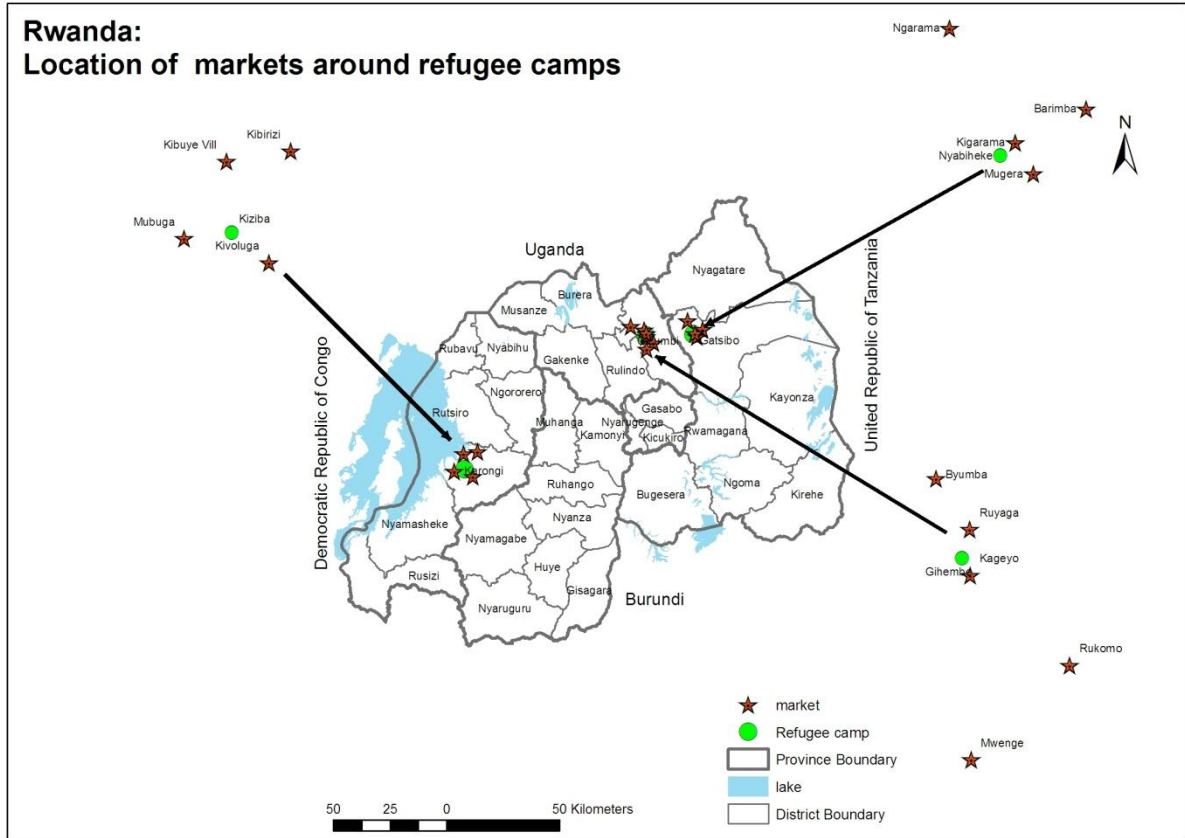
Figure 1: Traders interviewed

	No. of traders interviewed	Male/female	No. of markets surrounding the camp	% of traders interviewed
Kiziba camp	9	5/4	4	69%
Nyabiheke camp	7	7/0	5	54%
Gihembe camp	10	7/3	5	67%

To gain better insight in the current market behavior of refugees and their attitude towards the possible introduction of a cash voucher system, 18 focus group discussions (6 per camp) were held. Interviews were conducted during the Joint Assessment Mission (JAM) 2011. Participants in the focus group discussions were selected by the UNHCR representatives in the camps. The profile of the refugee groups who participated in the interviews in each refugee camp were as follows: 15 refugees (7 males and 8 females) between the age of 21-35 representing the refugee group; 15 male and female refugee leaders aged over 35 years; 15 youths (7 male and 7 female) aged 12 to 35 years; 15 male opinion community leaders aged above 35 years; 15 refugee women leaders; and lastly 15 food and firewood committee members, mixed gender. To ensure respondent validity, a mass meeting was held to validate findings as perceived by the refugee populace at the end of the assessment of each camp. Discussions were facilitated by WFP and UNHCR staff. The interpretation of qualitative data from interviews involves the analysis of both written interviews, notes taken during observations about generally held views concerning the source and use of cash, access to markets, food availability on local markets and possible implications of cash vouchers instead of food, as well as financial systems for cash voucher distributions. The focus group discussions were held in Kinyarwanda and the trader survey was conducted in both French and Kinyarwanda (via translator). All price calculations and resulting figures in this report are based on price data from 1997-2011 provided by the Ministry of Agriculture and Animal Resources. Global Positioning System (GPS) was used to estimate distances between camps and surrounding markets. The following map shows the markets under study in this assessment.

¹E-Soko is a market information system developed by the Ministry of Agriculture and Animal Resources and tracks commodity prices in local markets on a weekly basis.

Figure 2: GPS locations of markets under study



Ch. 3 Food Market Dynamics

3.1 Food market in Rwanda

The food market in Rwanda is rich in its diversity. It includes staples like beans, sweet potatoes, maize, cassava, sorghum, Irish potatoes and rice (in order of consumption rates) and non-staples like bananas, milk and groundnuts. In general, the Rwandan soil is fertile and the climate favourable as the country has two harvests a year. Food is generally available year-round except for some low production districts facing food insecurity like Nyabihu, Ngororero and Nyaruguru-Nyamagabe (see map below).

Figure 3: % of HHs with a poor FCS score



NB: The green dots indicate the approximate location of the three refugee camps

The three districts in which the camps are located are Karongi in the West, Gicumbi in the North and Gatsibo in the East (see green dots on the map). Whilst the latter two are situated in food secure surplus growing areas, Karongi is a food deficit district with 6% of households being rated with a poor Food Consumption Score (compared to 1.2% and 0.2% for other districts). Figure 4 and 5 below show trade flows to the markets surrounding the camps; food passes from the surplus to deficit districts, usually passing through the capital of Kigali.

Figure 4: Maize flows supplying the refugee camps in Rwanda

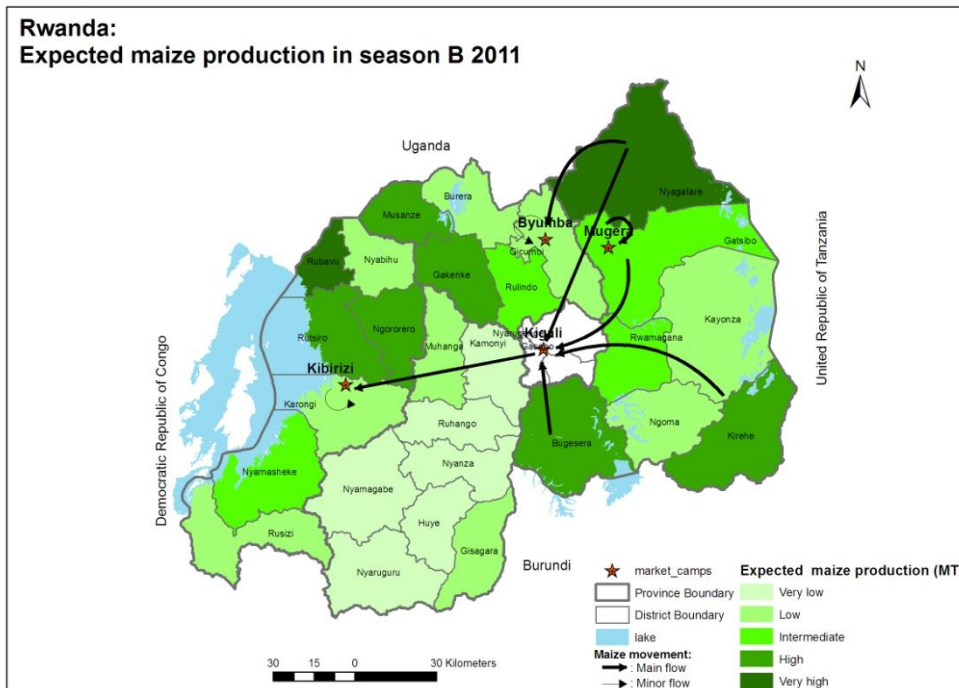
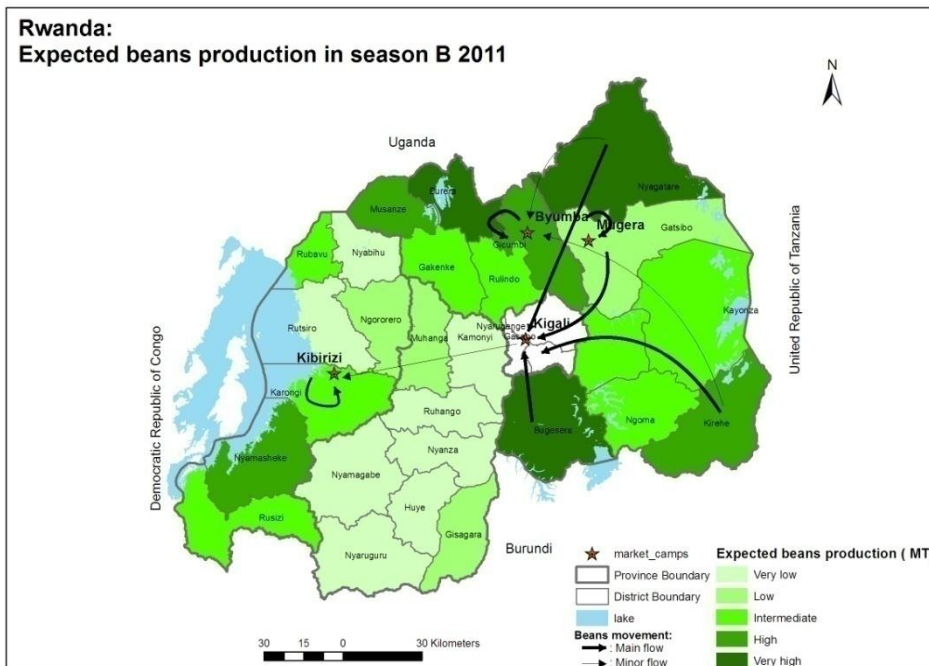


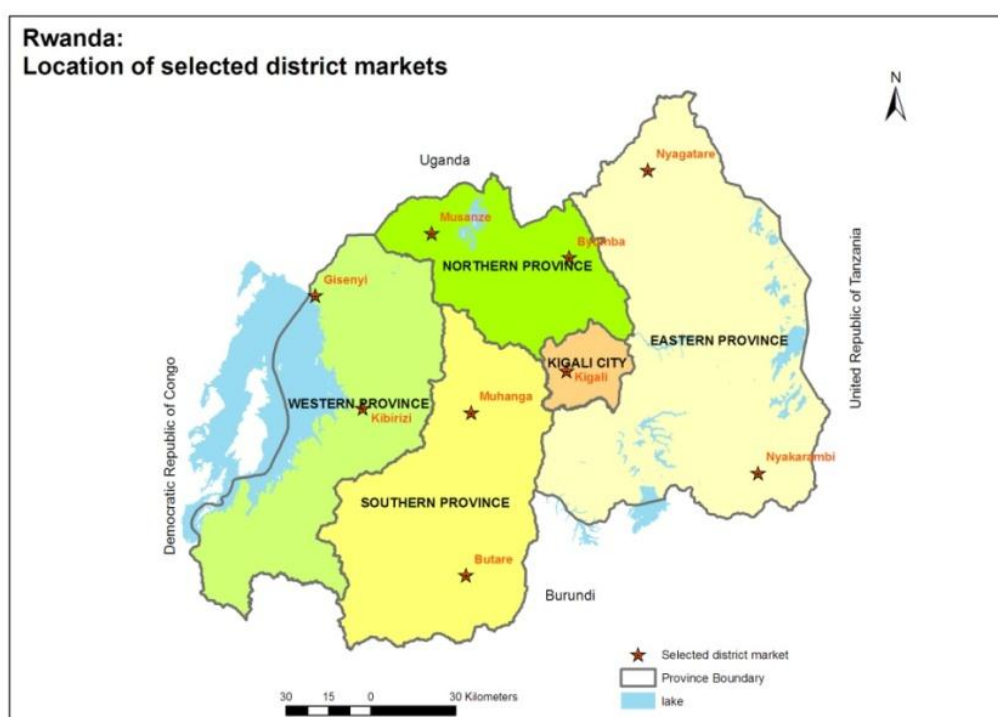
Figure 5: Bean flows supplying the refugee camps



3.1.1 Market integration

The markets in Rwanda are well integrated without major price differences between different parts of the country. To measure market integration this study analyses the prices between all major markets in Rwanda (two markets per province were selected). The following map shows the selected markets.

Figure 6: Location of selected district markets



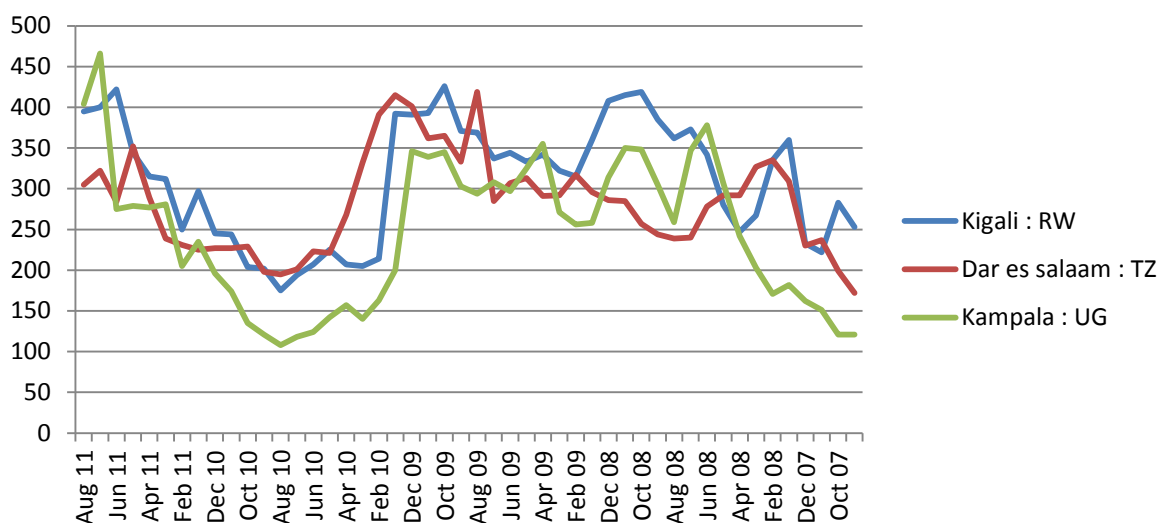
The table below shows the price correlation between the selected district markets from December 2007 to December 2010.

Figure 7: Integration between maize prices in district markets

	Kigali	Byumba (North)	Musanze (North)	Kibirizi (West)	Gisenyi (West)	Nyagatare (East)	Nyakarambi (East)	Muhanga (South)	Butare (South)	
Kigali	1.00	0.72	0.80	0.81	0.64	0.61	0.56	0.65	0.59	
Byumba	0.72	1.00	0.85	0.76	0.50	0.75	0.76	0.57	0.58	
Musanze	0.80	0.85	1.00	0.80	0.74	0.60	0.74	0.54	0.65	
Kibirizi	0.81	0.76	0.80	1.00	0.67	0.65	0.64	0.66	0.59	
Gisenyi	0.64	0.50	0.74	0.67	1.00	0.51	0.61	0.52	0.41	
Nyagatare	0.61	0.75	0.60	0.65	0.51	1.00	0.75	0.49	0.49	
Nyakarambi	0.56	0.76	0.74	0.64	0.61	0.75	1.00	0.58	0.60	High Integration >75%
Muhanga	0.65	0.57	0.54	0.66	0.52	0.49	0.58	1.00	0.52	Medium 50%-75%
Butare	0.59	0.58	0.65	0.59	0.41	0.49	0.60	0.52	1.00	Low- <50%

The results show that all markets are positively correlated, reflecting Rwanda's suburb road system, which connects all district markets by tarmac roads. The strength of the correlation differs between markets (for instance due to geographical proximity) but is generally strong, with 89% of the correlations between 0.5-1.

Apart from market integration within the country, Rwanda is equally integrated in the regional maize market as the co-movement in figure 8 shows. The Eastern African Customs Union established in 2005 abolished intra-community tariffs and adopted a Common External Tariff. Although there are still some non-tariff trade barriers that need to be eliminated like un-standardised weighbridges, several road blocks and un-harmonised quality standards, in general maize easily flows across borders.

Figure 8: Maize prices in regional markets between 2007-2011

The following table presents the price correlations between the three selected markets between September 2007 and August 2011.

Figure 9: Regional maize market integration

	Kigali : RW	Dar es salaam : TZ	Kampala : UG
Kigali : RW	1	0.512522152	0.819725708

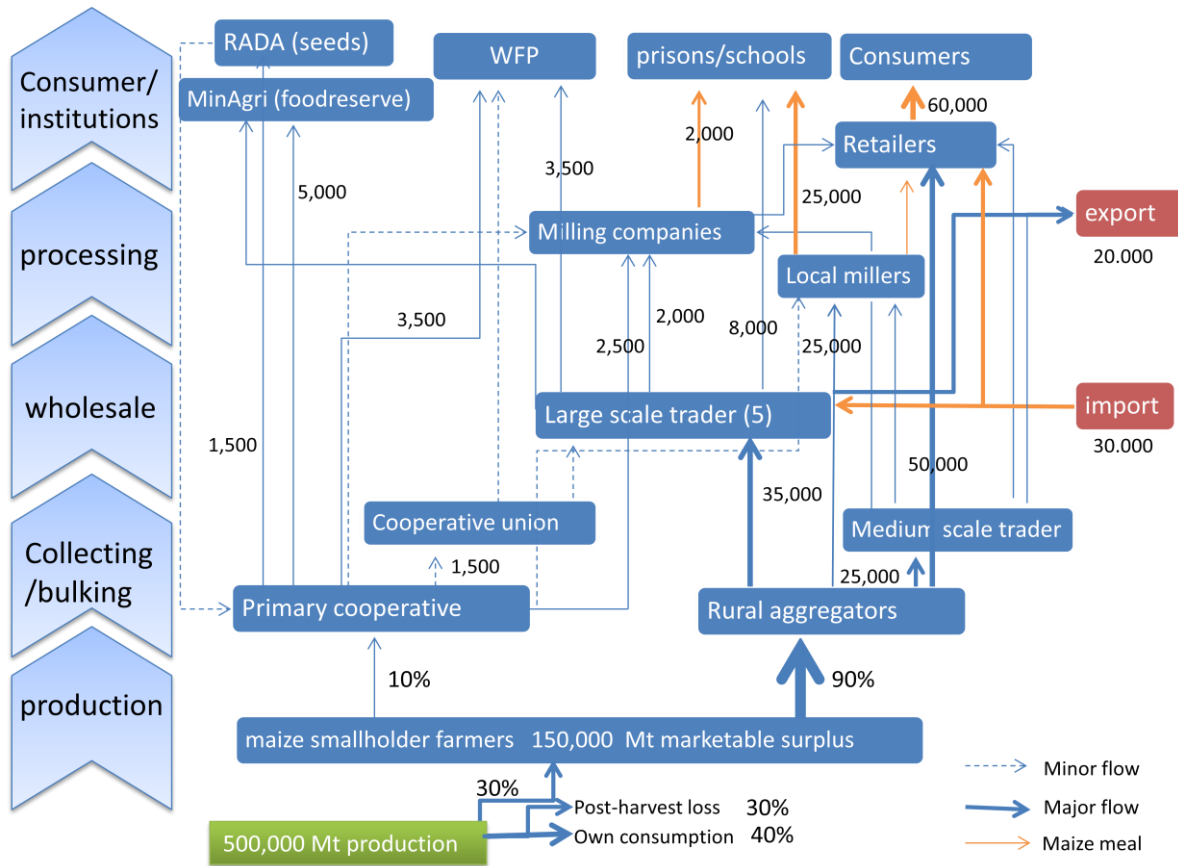
The results show a remarkably strong positive correlation (0.82) between maize prices of Kampala and Kigali market. In line with the regional dynamic that will be discussed in paragraph 3.1.4 the market integration between Rwanda and Tanzania for maize is not very strong. A similar market integration analysis for beans yields a less integrated picture (see Annex 2 for supporting figures). There are no significant price correlations between any of the markets, indicating a lack of regional integration of the beans market. Possibly, beans grown in the region are mostly consumed locally and do not cross borders as often as maize.

3.1.2 Market structure

The market in Rwanda is characterized by the absence of brokers and the presence of direct linkages between rural aggregators and the Kigali market. Likewise, it is informal in nature and betrays a low capacity of small and medium traders, with a clear dominance of five large traders residing in Kigali. While there are only a limited number of traders operating in the markets, due to the low volumes that pass through them, there do not appear to be any monopolies in place or price agreements between traders. Prices are generally determined by the dynamics of demand and supply. Due to the surprisingly good infrastructure, pockets of demand are easily filled with supply within days. Another observation is the lack of a large processing industry, exemplified by the majority of maize being sold as whole unprocessed grains in the markets visited. The majority of the milling capacity is made up by cottage industry hammer-mills. Finally, markets are easily identified as the government builds a concrete structure for each, giving them a more organised structure. While retailers sell on the designated market spots, traders usually own a shop surrounding the market from where they buy and sell directly, with the possibility to avoid government taxes. Figure 10 details the maize value

chain in Rwanda. As official data on maize trade flows in Rwanda is missing, figures are based on rough estimations made by the author.

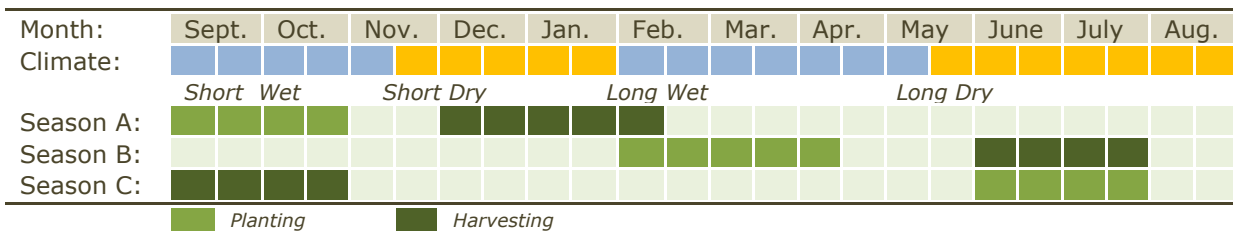
Figure 10: Maize value chain in Rwanda (figures are rough estimations in Mt)



3.1.3 Agricultural calendar

The bimodal distribution of rain allows for two main cropping seasons (season A and B). Season A is the short rainfall period starting in September-October and the long rainfall period of season B starts from January to April, with a short season C for the marshland areas starting in June-July.

Figure 11: Climate and cropping seasons calendar



Source: Comprehensive Food Security and Vulnerability Nutrition Survey 2009

3.1.4 Regional dynamic

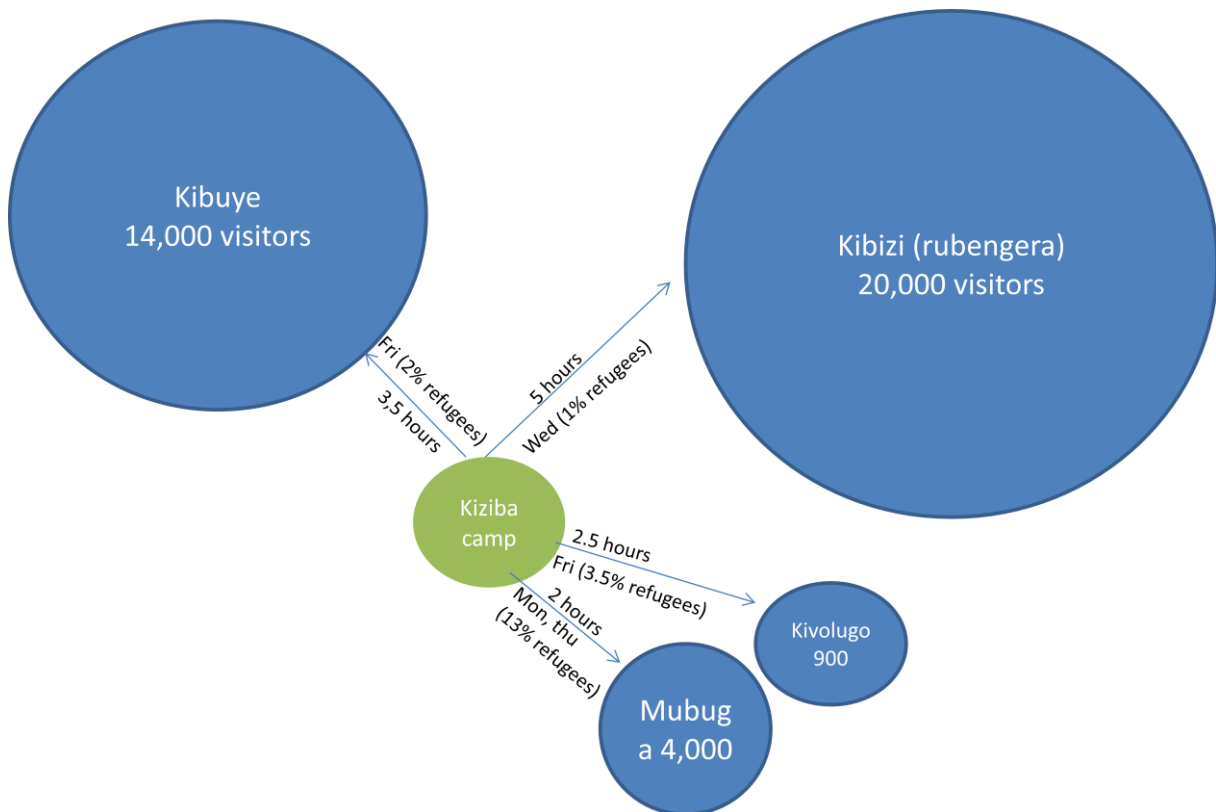
As part of the Eastern African Community, goods easily flow across Rwanda’s border, with the main trading partner being Uganda. Annex 3 shows the regional trade flows of maize and beans. The general trend is that maize is imported from Uganda during the peak of the lean season in May,

November and December. It is exported in January and July, just before Uganda’s harvest, but on balance Rwanda has a maize trade deficit with Uganda. Ugandan maize is more competitive than Rwandan maize as production costs tends to be lower. However, the previous two seasons have shown a reverse pattern of more maize being exported than imported from Uganda, due to the regional scarcity. The trade flow with Tanzanian maize is such that Tanzania supplies the region in times of crisis, but otherwise there is not much trade between Rwanda and Tanzania due to high transport costs. Equally, the Burundian border sees little maize traffic, except in times of food scarcity (Burundi is generally more food insecure) where it relies on Rwanda for food (but this is more pronounced in beans). There is also substantial trade between Congo and Rwanda but estimations are hard to make as almost all is being traded informally across the border. Compared to maize, beans are exported substantially more. Since it is a traditional crop and 88% of rural households grow it, Rwanda has a comparative advantage in bean exports. Like maize, most beans are traded with Uganda.

3.2 Food market in Kibuye

Due to its hilly landscape, Karongi district (in which Kiziba camp is located) is characterized by low levels of production with food imported from elsewhere (Irish potatoes from Gisenyi and Ruhangero districts and most other products from Kigali). Kiziba camp is located near the district capital Kibuye, which also functions as border crossing to Congo (across Lake Kivu). There are two large markets next to each other, one wholesale market that feeds the district (Kibirizi market in Rubengera) and one urban consumers market (Kibuye town). Figure 12 maps the markets surrounding the camp, including walking distances, market days and number of visitors a week. Again, these are only rough estimations based on triangulated estimations by the traders operating on these markets.

Figure 12: Interaction of refugees Kiziba camp with surrounding markets



3.2.1 Market Dynamics

There are good functioning markets surrounding Kiziba camp, mainly the two big district markets; Kibuye and Rubengera (Kibirizi) market. On a market day, 600 retailers operate on the Rubengera market, of which half sell food items. In all markets food commodities are available year-round, except for the small market of Kivoluga where supply is less reliable (e.g. maize-, sorghum- and cassava meal was not available during time of study). Like all other markets in Rwanda, the three larger markets are characterized by a cement market structure that the government builds to better organize the markets and give each individually registered retailer a designated spot at the market. Typically, women bring the food to the market and it is women selling the commodities (80% of retailers), though traders supplying the market are mostly men. The main commodities traded in Kibuye market are clothing, sorghum, beans, tomatoes, potatoes, maize, rice, bananas, onion, small fish, charcoal, oil, groundnuts, sugar and salt. Beans, sweet potatoes, fruits and vegetables are all supplied by local farmers; the rest mostly comes from Kigali.

Figure 13: Market prices July 2011

RwF/kg (/600*1000 to obtain USD/Mt)	Maize (Kigali)	Maize meal (camp)	Beans (local)	Oil (Uganda)	Sugar	Salt	Sweet potatoes (local)	Irish potatoes (Gisenyi)	Rice (Tanzania)	Sorghum (Kigali)
Rubengera	250	250 (camp)	300	1300			100	150		350
Kibuye	340		270		900	250	100	140	750	300
Mubuga	150 (camp)	250			900	240	70	150		280
Kivolugo	200		300	1400	900	200	40	110		240
Kiziba camp market	140		200	1300	800	250	90	150		
Average markets surrounding other camps	275	371	304	1334	950	217	116	146	712	400

Prices are generally in line with the rest of the country. The only depressed prices are for sweet potatoes because of the high local production and maize meal because of refugees selling milled maize (donated in grain) at Kibirizi (Rubengera) market (an estimated 1.5Mt sold per month). The prices of commodities in the camp market are substantially lower for donated food like maize (-45%) and beans (-30%), but market-conform for other commodities. The price differential for maize and beans is higher than in any other camps, giving the refugees a bad exchange rate for their commodities.

3.2.2 Market interaction with refugees

Compared to the two other camps, Kiziba camp has the least market access with the closest market at a 2 hours walking distance. There does run a bus service to Kibuye for 2/3 of the journey but the costs are prohibitive for refugees (500 Rwf [0.83USD] for a single way). In addition, the road which the refugees walk to the main market (Kibuye) is rough and isolated. This raised UNHCR's concern of safety issues if refugees would start carrying cash down that road. While most of the refugees stay in the camp because of its isolation, some women venture out once a week to sell maize meal at the market on Wednesdays. Interestingly, there is a designated spot at the market for the refugees to sell their food. They do not have a spot in the constructed market place but just outside of it as 'they came in too late, after the district had already given away all spots'. This is the only market where is observed a designated area for refugees to sell their commodities. There are approximately 30 refugees selling there on the Wednesday market day. Apart from the common commodities of maize, beans and oil, refugees were also selling their new bed sheets for 8000 Rwf (13.5 USD) (in the

Kivoluga market old used ones were sold for 1000 RwF). There are an estimated of 40 local retailers that go to the camp to sell sorghum, banana, sweet potatoes, cassava, groundnuts, meat and rice. While still small, the number of traders going to the camp to sell commodities (usually for a 50 RwF top-up), is higher than in the other two camps. Equally interesting is that refugees organized a small truck to come to the camp on Friday and load commodities to be sold at the market. Another observation is that after each food distribution a business man comes by with a Toyota Hilux pick-up, loads it full with maize and brings it to his farm where he has a milling plant. He charge 2,500 including transport to and from camp (2,000 without transport) per 50kg bag of maize. During the process 15 kg is lost as waste. The refugees are not compensated for this 30% loss in weight, while the business man uses it as animal feed for his cows. One informant estimates that half of the donated maize is processed this way. These are two examples of coping strategies employed by the refugees to deal with their isolation from market centres.

3.2.3 Market distortion

To get an idea of current market distortion, this assessment analysed the historical prices of Kibirizi market and two control markets (a comparable and nearby market without any interaction with refugees from Kibiza camp). An analysis of current market distortion of Kibirizi versus Birambo and Gitarama reference markets looking at maize flour, oil and sorghum prices yields the following table (see figure 14). In addition, the three price graphs can be found in Annex 4.

Figure 14: Comparing market prices between 1997-2010

	Maize			Oil			Sorghum		
	GITARAMA	KIBIRIZI	BIRAMBO	GITARAMA	KIBIRIZI	BIRAMBO	GITARAMA	KIBIRIZI	BIRAMBO
AVG	105.1659	101.7411	88.15344	398.5333	461.283	442.1875	104.18667	149.997	102.5436
STDEV	54.2542	41.37648	28.91261	106.6205	154.93	150.011	36.222906	66.0826	29.56248

Surprisingly, Kibirizi prices were *higher* (+13% on average) than those of the control markets, indicating the absence of market distortion by refugees. Prices are more volatile in Kibirizi market than in the control markets, with the exception of maize (significantly lower in 2005-2007). However, this could be the result of some outliers and incomplete data.

In line with above data analysis, market observations were that refugees do not flood the surrounding markets as their supply to the market is relatively marginal. In the four surrounding markets combined, there are approximately 90 Mt² passing through these markets per week, of which the refugees make up approximately 3.5 Mt. Shifting to a cash voucher system would drastically increase their purchasing power. At the moment there is 302Mt³ supplied to the camp each month, which translates to 76 Mt per week. If all that would be bought on the local market the volume going through these markets would almost double. The bigger markets like Rubengera and Kibuye could hypothetically furnish such a steep increase in demand as they are directly supplied by Kigali. The smaller markets, especially Kivoluga, would face more challenges to furnish the increase in demand. Equally, the camp market would need to be better structured and possibly re-located to allow for this.

²Take into account that these are really rough estimations and not based on any reliable data, as it was almost impossible to get an idea of how much moves through the market per week. In the other two settings traders were able to come up with some own estimations, but still answers varied widely. In that respect figures on quantities going through the markets in this study should be interpreted with precaution.

³August 2011 figure

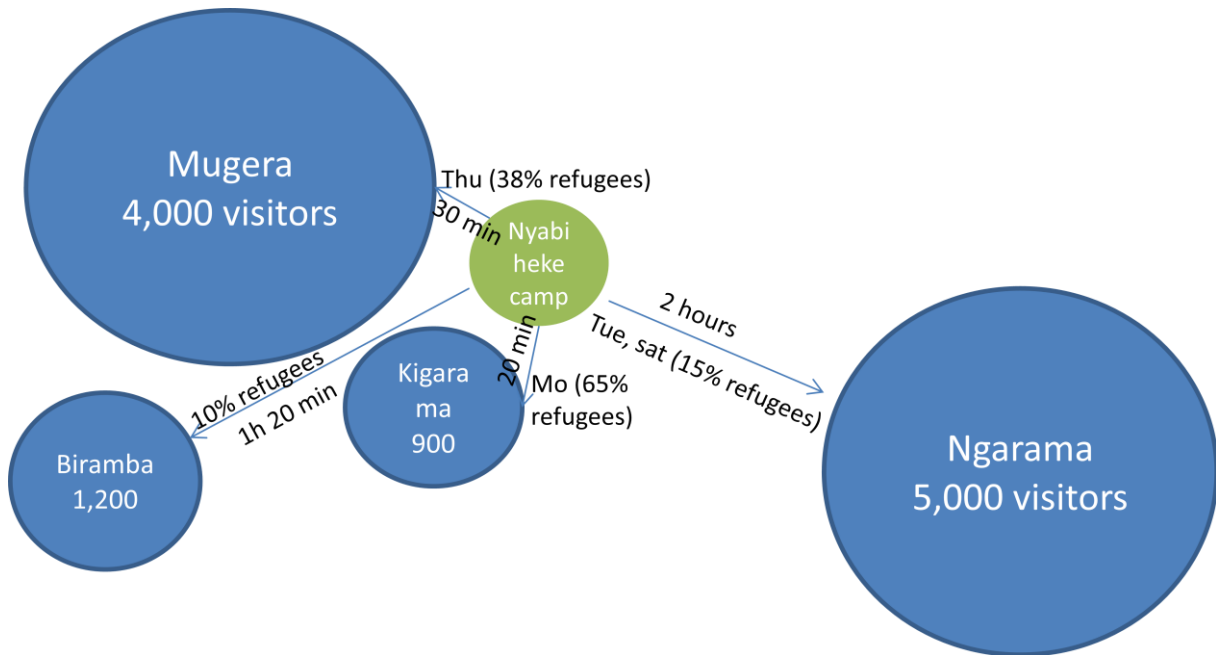
3.3 Food market in Gatsibo

Nyabiheke is a more recently set-up camp. It was started in 2006 to accommodate refugees from the other two camps. Moreover, Nyabiheke is a relatively smaller camp hosting 13,791 refugees. The camp has recently established a market which opened in July 2011. It is the only camp with a concrete market structure. Gatsibo district (Eastern Province), in which Nyabiheke camp is situated is right in the heart of Rwanda’s surplus production area. The camp is situated in a very rural setting with two large wholesale markets but with only a very small consumer base. Most of the commodities traded are transported to other markets, mainly Kigali. Refugees in Nyabiheke camp seem to hold good relations with surrounding villages and there is quite some interaction in terms of trade, education and labour. Refugees form a rather substantive part of the market and some traders make good business exchanging maize grain for cassava flour. The following figure maps the markets surrounding the camp, including walking distances, market days and number of visitors a week.



Opening ceremony Nyabiheke camp market

Figure 15: Interaction of refugees Nyabiheke camp with surrounding markets



3.3.1 Market function

The markets with which the refugees interact are all within a 2 hours walking distance. Ngarama and Mugera are both larger markets, the former being more of a consumer market and the latter more of a wholesale market. On a market day in Ngarama there are 250 retailers active, of which only 100 sell food items. Refugees constitute a large part (approximately 27%) of the people visiting the markets. Surprisingly enough, there are practically no refugees selling commodities in the surrounding markets. Most of their income seems to be derived from agricultural labour, construction and public works.

Figure 16: Market prices July 2011

RwF/kg (/600*1000 to obtain USD/Mt)	Maize (local)	Maize meal	Beans (local)	Oil (Uganda)	Sugar	Salt	Sweet potatoes (Ruhango)	Irish potatoes (Ruhango)	Rice (local)	Sorghum meal	Cassava meal
Ngarama	200	300	250		1000	250	200	160	650	400	300
Nyabiheke camp market	250	300	250	1300		200	200	200		400	350
Average markets surrounding other camps	266	353	307	1325	900	223	92	144	700	338	310

In general, prices in Gatsibo markets are lower due to its high production. Prices in the local Ngarama market are fairly similar to camp market prices, with some commodities (Irish potatoes, cassava meal) slightly more expensive in the camp market.

3.3.2 Market distortion

Unfortunately this assessment was not able to perform an analysis of current market distortion, due to the lack of available price data for surrounding markets (Mugera and Ngarama). Looking to the absorption capacity of the market for the possible implementation of cash based intervention in Nyabiheke camp the picture is split. On the one hand, an increase of purchasing power by the refugees would lead to an unevenly high demand relative to local consumers, possibly pushing up prices. On the other hand, most of the commodities do not stay at the market but are sold for onward sale to Kigali. The trade flow going out of the district could easily be curved by traders selling more to the local markets instead of trucking it out. In a week, roughly 120Mt goes through all the surrounding markets of which almost half is sold outside the district. Refugees make up 15Mt of current market demand. The weekly intake of donated food in the camp is 60Mt. This would entail almost a doubling of the market demand if cash or vouchers were implemented. If we look at the local production figures for Gatsibo for maize and beans combined: 25,000 Mt is grown in 2011 season B, of which approximately 5,000 Mt is grown in the proximity of the camp, resulting in a marketable surplus of 1,500-2,000 Mt per season. This could potentially feed the demand of refugees ($60 \times 4 \times 6 = 1,440$). In sum, refugees take up a proportionally big share of the market as consumer demand is low. However the low effective local demand is offset by high supply which could potentially feed into the local markets if demand would increase. In addition, being close to the source of Rwanda's food supply offers obvious cost saving potential as transport costs will be reduced to a minimum.

3.4 Food market in Gicumbi

Gihembe camp is situated at a hilltop watching over Byumba, the district's capital. Different from the other two more rural settings, Gihembe camp is well connected to Byumba city and even Kigali is within an hour's drive. Apart from the market within the camp, refugees have created 2 markets within a 10 minutes' walk from the camp out of what used to be simply a dirt road. The interaction of refugees with the surrounding markets is more visible in Byumba than in the other markets visited surrounding the



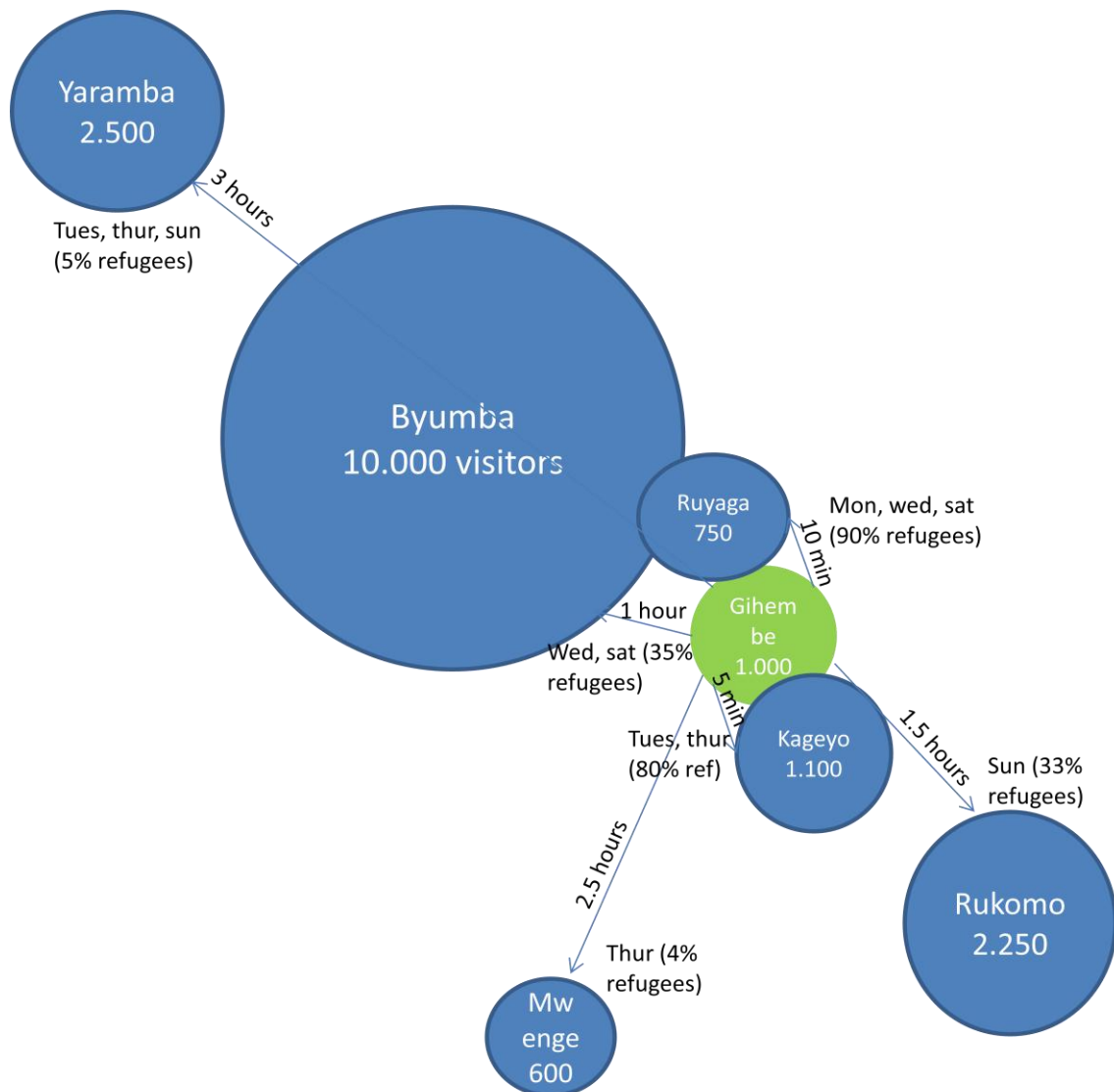
Kayego market created at the roadside outside camp

other two camps. Walking around the market one can find WFP bags, UNHCR sheets, unopened oil cans, yellow maize flour bags and even full Corn Soya Blend bags (only handed out as supplementary feeding to vulnerable groups).⁴ The refugee camp seems to be less strictly coordinated and refugees spent time outside of the camp and seemed to have more assimilated to an urban life style including their diet. The following figure maps the markets surrounding the camp, including walking distances, market days and number of visitors a week.



US donated maize meal being sold in Byumba market

Figure 17: Interaction of refugees Gihembe camp with surrounding markets



⁴ Equally, 2 USAID Corn Soya Blend and 8 yellow cornmeal bags were found in Musanze market, a district market 60 km West of Byumba.

3.4.1 Functioning market

The markets surrounding the camp give quite a diverse picture with many different markets with which the refugees interact, although by far the most important one is Byumba market. On a market day there are 400 retailers active of which approximately 180 sell food items. Compared to the other camps, the access to the market is best in Gihembe. This is due to the markets that were created within a convenient 10 minutes walking distance. Food availability is good in general. While maize production is low, cereals are imported from Eastern province which is relatively close. In fact, one of the traders in Byumba sourced from the Mugeru market next to the Nyabiheke camp. The smaller and far removed markets like Yaramba and Mwenge do have serious supply constraints due to the low production in the surrounding area and poor roads feeding the markets. Yaramba and Mwenge do not have year-round food supply, but follow a seasonal pattern of food availability.

Figure 18: Market prices July 2011

RwF/kg (/600*1000 to obtain USD/Mt)	Maize (East)	Maize meal	Beans (local)	Oil (Uganda)	Sugar	Salt	Sweet potatoes (local)	Irish potatoes (Gisenyi)	Rice (local)	Sorghum meal	Cassava meal
Byumba	400	500		1400	900	200			700	500	300
Kageyo	400	500	365				70	120			350
Ruyaga	300	450	350					150			
Yaramba		300		1200						250	300
Gihembe camp market	350	500	300	1500	1000	400	200	130		500	400
Average markets surrounding other camps	340	270	272	1300	934	247	117	150	650	375	300

Prices are in generally higher in Gicumbi district, with relatively large price differences between the different markets. Gihembe camp market has lower prices for distributed food items like maize and beans, and generally higher prices for the other food commodities.

3.4.2 Market distortion

To get an idea of current market distortion, this assessment analysed the historical prices of Byumba market compared to a control market (a comparable and nearby market though without any interaction with refugees from Gihembe camp). An analysis of current market distortion of Byumba versus Gaseke reference market looking at maize flour, oil and sorghum prices yields the following picture (the three price graphs can be found in Annex 5 and figure 20 below shows an average price and standard deviation comparison). For the most part, average prices between the two markets were close in terms of average value and volatility (ST DEV used as a proxy). However, during certain periods, there were heightened disparities between the market prices. This was particularly pronounced for Sorghum between 2009-2010. Prices during this period were markedly lower and less volatile in Byumba than Gaseke. The constant inflow of food aid could possibly cushion the market shocks, but most likely other factors account for this difference. Generally, prices in Byumba are 4.8% lower than in Gaseke market for the selected commodities over the past five years. This could be explained by the demand from the refugee camp, but is likely explained by other factors as there is no difference between donated products (oil and maize) and non-donated food items (sorghum). Likewise, price difference is not very significant when taking into account average price differences between markets in Rwanda (+/- 8%).

Figure 19: Comparing market prices for key commodities between 1997-2010

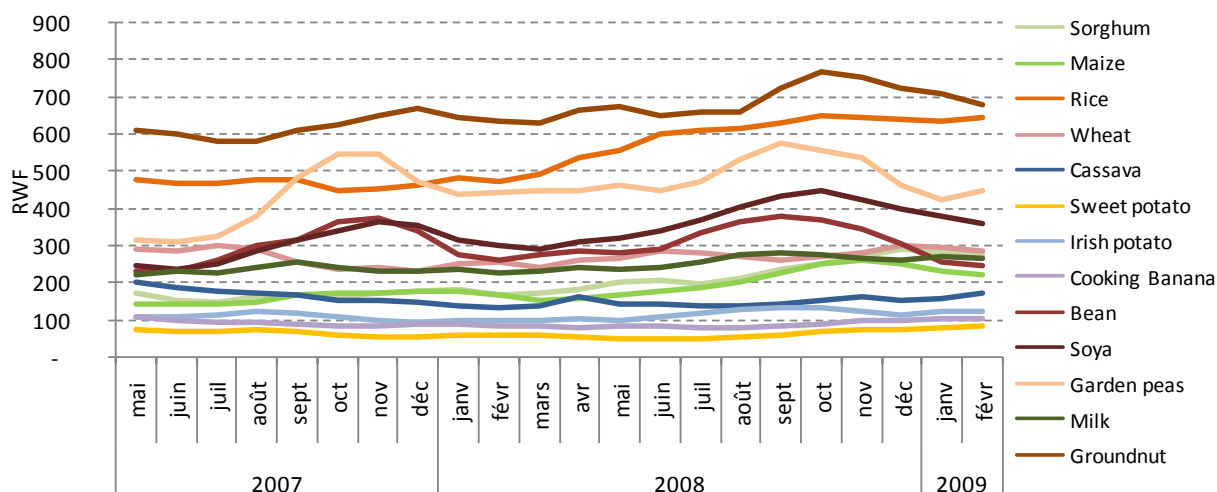
	Byumba		Gaseke		% Difference	
	AVG	STDEV	AVG	STDEV	AVG	STDEV
Maize flour	532.5404	3036.68	555.443	2978.84	-4.12%	1.94%
Oil	642.0139	148.7428	674.1935	139.6694	-4.77%	6.50%
Sorghum	374.5278	2231.982	396.2101	2143.487	-5.47%	4.13%

If we look at the potential introduction of a cash based intervention there will be possible market distortion. If we look to the absorption capacity of Byumba market, it is well located to supply the refugee population, but other surrounding markets are less organized and not well placed to expand considerably (for instance Byumba together with Yaramba market are the only ones with a permanently constructed market structure). In a week, 50Mt moves through the markets surrounding the camp, of which Byumba accounts for the lion's share (40Mt). The weekly supply of food rations by WFP is 80Mt, which would mean a very sharp increase in demand once refugees would start buying their food from local markets.

Ch. 4 Market Prices analysis

To gain a better understanding of market dynamics in Rwanda, this chapter analyses historical price data provided by the Ministry of Agriculture. The following graph shows food prices in Rwanda between May 2007 and February 2009.

Figure 20: Food prices in Rwanda over time (RwF/kg)



Source: Comprehensive Food Security and Vulnerability Analysis and Survey, 2009

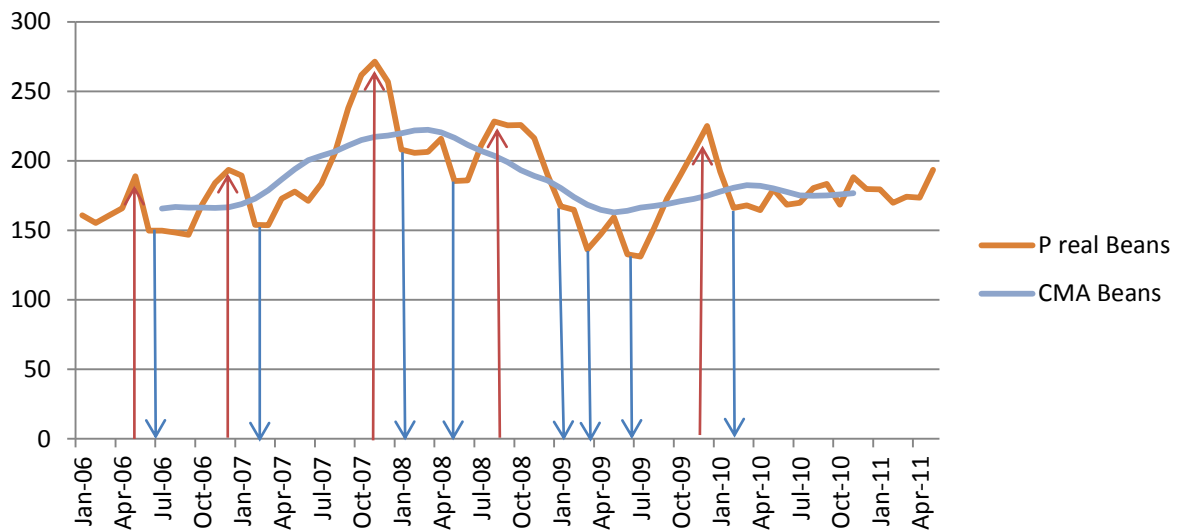
The trend in food prices shows an overall long term increase in food prices as well as seasonal peaks during the long lean season from September-December, namely for pulses. Household food security is directly linked to prices increases for pulses as 86% of the household depend on kidney beans for dietary intake. Figure 21 records price fluctuations of maize between July 2006 and April 2011. Real prices (nominal prices divided by the Consumer Price Index of the same month) are used to compare prices over time.

Figure 21: Real maize prices between July 2006-April 2011



The centred moving average shows that Rwanda’s maize market is more affected by cyclical fluctuations than seasonal fluctuations, showing an increase in food prices during the 2008-2009 global food crises. The real price trend does show a modest seasonal pattern with prices at their lowest right after harvest (January for season A and more notably August for season B) and at their highest during lean season just before the harvest comes in (November-December). In sum, maize prices do follow a seasonal pattern, though the pattern is not as clear as in a unimodal system and is also influenced by regional calendars. Therefore seasonality cannot be taken as a sole predictor of price increases in the market when designing a cash voucher system (e.g. changing to food distributions during the lean season).

Figure 22: Real beans prices between Jan 2006-May 2011



Analysing the 12 month moving average and the real prices, it is hard to determine any clear seasonality in the Rwandan bean market. Only after season A’s harvest in February does there appear to be a pattern of prices dropping. In the same vein, prices are high during lean season in November-December. Just like maize prices, there does not seem to be a very clear seasonality in prices. To have a closer look at seasonality figure 23 shows a seasonality index⁵ for Rwanda maize price, and figure 24 presents the price seasonality⁶ in Rwanda between 2007 and 2010.

Figure 23: Seasonal Index in Rwanda

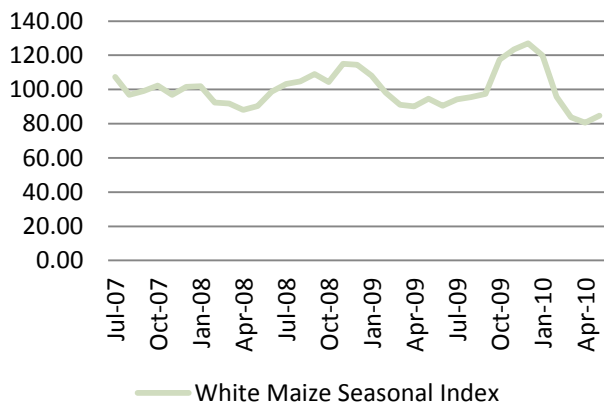
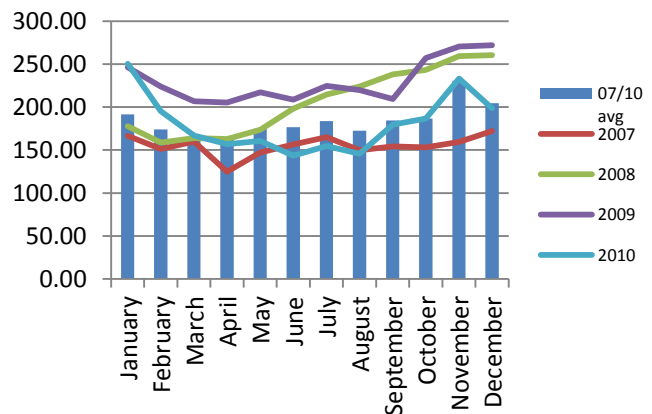


Figure 24: Price seasonality for maize in Rwanda



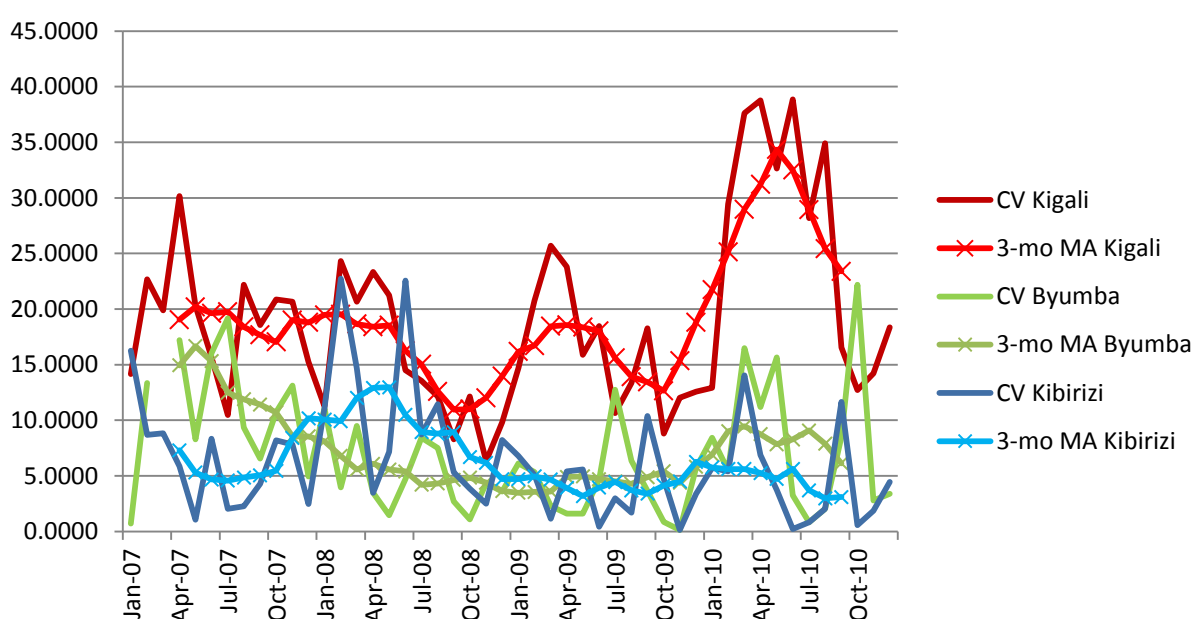
⁵The seasonal index is calculated by dividing the national average of all selected district markets price per month by the 12 month moving average.

⁶Calculations based upon the national average prices for maize between January 2007 and December 2010.

Both figures indicate a weak seasonal pattern with only a significant price increase at the peak of lean season in November-December.

Apart from seasonal price fluctuations, price volatility measures the amount of dispersion of prices over time and space, including excessive price changes that cannot be explained by seasonal or cyclical patterns. When prices are volatile, it is harder to anticipate the type of behaviour markets will exhibit. This poses a challenge for local procurement and price determination when implementing a cash voucher system. To measure price volatility, the coefficient of variance (the ratio between the standard deviation and the national average value showing relative variability) has been calculated over a period of time for three selected markets: Kibirizi, Byumba and Kigali as the reference market (see figure 25). Unfortunately no historical price data of markets surrounding Nyabiheke camp was available.

Figure 25: Price volatility in selected markets



In line with the extremely volatile prices in the region over the past couple of years, figure 26 shows a highly volatile picture for Rwanda. The most volatile market was Kibirizi market with monthly prices between January-September 2008 completely out of sync with their 3 months average. The general high price volatility in the three observed markets poses a challenge (as it already poses to P4P local purchases at the moment) to the introduction of a cash voucher system. Food prices at the beginning of the month might not be the same as prices by the end of the month. Comparing price volatility ($\text{stdev}/\text{average} \times 100$) between 2007-2011 in Rwanda to the East African region does show that maize, beans and sorghum prices in Kampala and Dar es Salaam are at least as volatile, with Kampala being the most volatile market (see figure 26).

Figure 26: Price volatility in the East African market between 2007-2011

	Maize	Beans	Sorghum
Kigali	24%	17%	12%
Kampala	37%	17%	28%
Dar es Salaam	21%	12%	22%
Average	27%	15%	21%

Source: RATIN price data September 2007-August 2011. Note that for sorghum only price data from May 2009 onward was available (excluding the 2007-2008 food crises) and therefore seems relatively less volatile.

Ch. 5 Refugee Profile

5.1 Purchasing power/demand

Except for the few people formally employed by aid organizations and some who are engaged in casual labour, the majority of refugees in the three camps entirely rely on assistance from aid organizations. Even for those who are engaged in jobs have weak purchasing power. Refugees hired by NGOs on a monthly basis for loading and offloading trucks earn an average 6000 RWF (10USD) per month, the NGO

workers of 12.000 (20USD) RWF per month while teachers are paid 13.000 RWF (23.60USD).



Refugee in Nyabiheke camp

As a result, selling food rations is a common coping mechanism among refugees to generate income. This generally happens in two ways:

1. Individuals sell food to cover daily needs
2. A rotating system within an association (or Tontine) collects oil for one person every month so that he/she can sell the oil and keep the profit. Every month, someone new in the association sells the collected oil until at the end everyone has had a turn selling.



Transaction in Gihembe camp market

It is mostly larger families who are able to put aside part of the WFP food rations and to sell them. They can usually sell for a lower price than the local market. Some anecdotic information from Nyabiheke camp shows that refugees were selling 1,5 kg maize for RWF 250 per kg while 1 kg was sold around 300 RwF at the nearest market, 1,5 kg beans sold for RWF 150 while 1 kg was sold for more than 200 outside the camp, and 1L oil for RWF 1000 while its price outside of the camp was 1500RwF.

The income made from selling food tends to pay for basic household needs. These include recurring costs like school fees, uniforms, clothes, mobile phone airtime, firewood, soap, medical expenses, vegetables and food not provided by WFP (e.g. cassava and sorghum meal).

5.2 Livelihood and market participation behavior/self-sufficiency and resilience

5.2.1 Income sources

The refugees pursue a number of livelihoods. Those not employed by NGOs often run small semi-formal or formal businesses such as restaurants, shops, hair salons, tailoring services or market stalls. The presence of voluntary savings and loans cooperatives facilitates this.

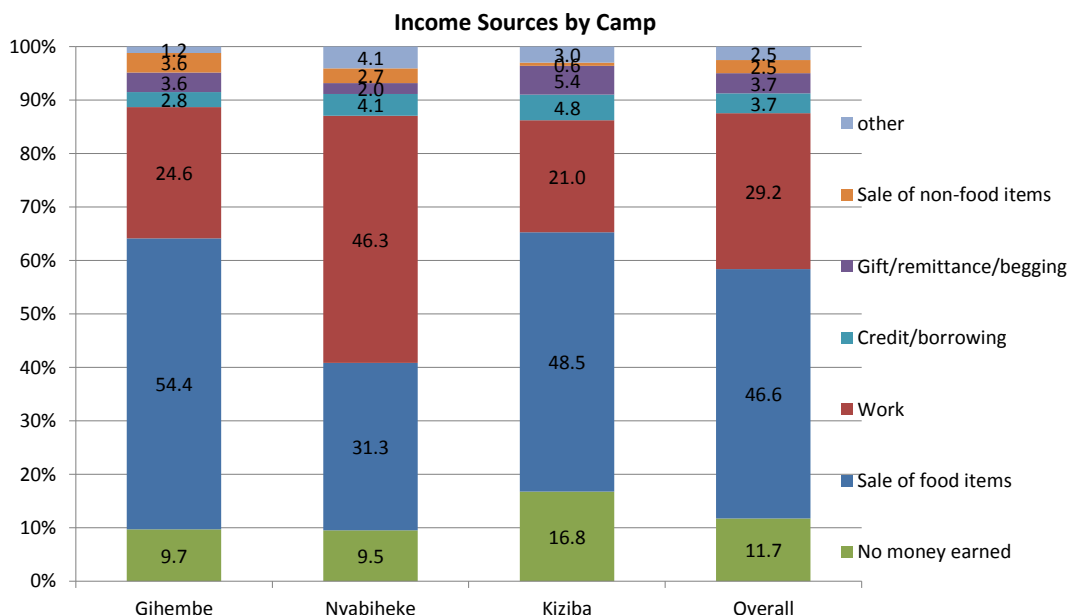
As a result, only 12% of the refugees report no source of



Small businesses in Nyabiheke camp

income. In total, 47% of the refugees reported that they rely on sales of food aid as an income source and 30% are engaged in some sort of paid work (see figure 27).

Figure 27: Income sources by camp



Source: Pre-JAM 2011 report



Kiziba refugee camp

Umurenge SACCO, a local microfinance agency through which their salary passes. Some refugees in Gihembe camp work in faraway districts in the eastern province to keep cattle. They typically earn of between 10,000 RWF and 20,000 RWF per month. In the same camp, refugees reported that very often girls drop out of school so as to work as domestics in Byumba or Kigali where they are paid 5,000 to 10,000 RWF per month.

Other refugees find short-term employment outside the camp. Most commonly, they are hired as casual labourers for land cultivation and are paid between 300-500 RWF per day. Since Nyabiheke and Kiziba are in rural areas, this may contribute to the high percentage of casual labour in the camps. While the percentage of petty trade is higher in Gihembe compared to other camps this is likely related to its location near Byumba. In Nyabiheke camp, around 1,000 refugees were hired as casual labourers in a land terracing project. They were paid RWF 850 per day after deducting RWF 150 for operational costs for

5.2.2 Savings and loans

While some refugees have bank accounts none seemed to have access to formal credit. In general, having a bank account is not considered useful. However, there are internal lending systems developed by refugees in the camp:

- Voluntary Saving and Lending Associations (VSLA): Monthly cash contributions by members which are then used for loans
- Rotating systems of food sale (mentioned above)
- Informal lending systems among refugees (Kirimbo)

Loan defaults remain a common problem among many of these systems. This had wide ramifications as an entire family's food ration cards were often confiscated as collateral until the loans were paid back. While this practice is forbidden by UNHCR, some families separate for an extended period of time in order to work in other areas to pay back the loans.

5.2.3 Agriculture

Refugees have very limited access to land and there is no cultivatable land inside the camps. In Kiziba camp, a few refugees rent small plots of land outside the camp for around 15,000-20,000 RWF per season. However they lack fertilizer and extension services. Furthermore, most refugees were unable to afford renting any land at all. In Nyabiheke, ARC rented land outside the camp for refugee associations to cultivate, but the contract is going to expire in September 2011. At the time of this report's writing, there was no information on how productive the land had been. Furthermore, in all camps, very few families practice kitchen gardening. Most of the kitchen gardens (300) are found in Nyabiheke camp.

5.2.4 Livestock

The refugees used to raise cows, goats, chicken, hens, turkeys, rabbits and sheep. The cows were mainly used to sell their milk and the small livestock was sold on the local market. As an example, a turkey keeper was mentioned whose turkey produced 20 kids which he/she was able to sell for RWF 5000 each. Since 15 July 2011, keeping livestock in the refugee camps is forbidden by the government for public health reasons. As a result a high number of livestock is being sold at a give-away-price.

Struggling for livelihood, some negative coping strategies are adopted by some refugees. The most frequent are the following:

- Vulnerable or sick people sometimes sell their rations to respond to critical needs such as medicine, scholastic materials and school fees.
- Young house maids working without a contract constitute a risk. Many get pregnant or sometimes come back with venereal diseases or HIV/AIDS.
- Prostitution/transactional sex is widespread. In Kiziba, one man estimated that 30 to 40% of young girls in the camp are engaged in prostitution. "You can only see it when the girls are pregnant: I have to wait after school for my daughter and cannot let her out of my sight until she reaches the house. Girls will do it because they want to buy body lotion, they have no money to pay the shop so they will pay with their flesh".
- Borrowing food at high interest rates : e.g. 1kg->1.5kg

5.3 Market participation

In all three refugee camps, refugees interact with a market inside each camp which is open every day and markets surrounding them. In camp markets, people resell food they buy in markets outside camps for higher prices. In markets outside camps, refugees sell livestock and WFP rations. According to the WFP estimate based on Post Distribution Monitoring (PDM), 40% oil, 20% of beans and 30% of maize distributed are sold. Figures mentioned by the refugees, as well as those from the pre-JAM

report estimate the following percentage of monthly food distributions that are sold on the market (see figure 28).

Figure 28: Rough estimations of percentages of donated food that refugees re-sell at local markets

	Maize	Beans	Oil	Salt
Kiziba	25%	<10%	75%	-
Gihembe	35%	<10%	55% ⁷	-
Nyabiheke	20%	<10%	65%	-

5.4 Preferences: Food distribution, Cash and Vouchers

The possible replacement of food distribution with cash or vouchers has been received very differently among the diverse stakeholder groups residing in the camp. In general, the refugees had problems understanding how the cash & voucher system would work. Many would not be able to support cash contributions unless they were told how much money exactly would be provided to each person so they could compare the amount with market prices and with the value of the food rations they currently receive. In the focus groups interviews conducted in the three camps, the following arguments were made:

Figure 29: Argument pro and con the introduction of a cash voucher system

Pro	Con
No delayed food delivery	Insufficient food supplies around the camp: could make prices hike/more volatile
Better quality food could be bought	Increase of theft
Dietary diversity could improve	Increase of alcoholism
Beneficiaries could learn to manage money	Beneficiaries could mismanage money: money would not last as long as rations
	Cash disbursements to women could create intra-household tensions and result in domestic violence
	Handicapped and elderly would not be able to reach the market alone
	Cash could be insufficient (transportation costs to market, price discrimination against refugees)

⁷ Refugees adopted more of an urban diet requiring relatively more oil.

Refugees were slightly more open to the idea of vouchers, provided that they would enable diversification of food received at the household level. Still many questions were raised regarding the value of the vouchers and the associated logistical issues. Many refugees do not trust the local suppliers in terms of price and quality. Figure 30 maps majority opinions that surfaced during focus group discussions with refugees in the three camps.

Figure 30: Majority opinions in refugee camps

	Gihembe	Kiziba
Reaction towards Implementing Cash/Vouchers	Cash :Potentially positive, provided that the amount is determined by living costs and gauged against food prices Voucher: Against	Cash :Against Voucher: Unenthusiastic

Nyabiheke camp: Disaggregated by group

	Women's group	Community Leaders	Youth Group	Food Distribution Committee
Reaction towards Implementing Cash/Vouchers	Cash :Against Voucher: Against	Cash: Positive Voucher: Positive	Cash: Unknown Voucher: Positive	Both: Even split

To gauge the impact of market prices on a potential voucher system, refugees were asked how they would react to a 20% increase or decrease in the price of food. In the case of a decrease, refugees said they would diversify their food ration or save money. With an increase, they would decrease the quantity of food or reduce meals.

Ch. 6 Profile local trader and financial sector

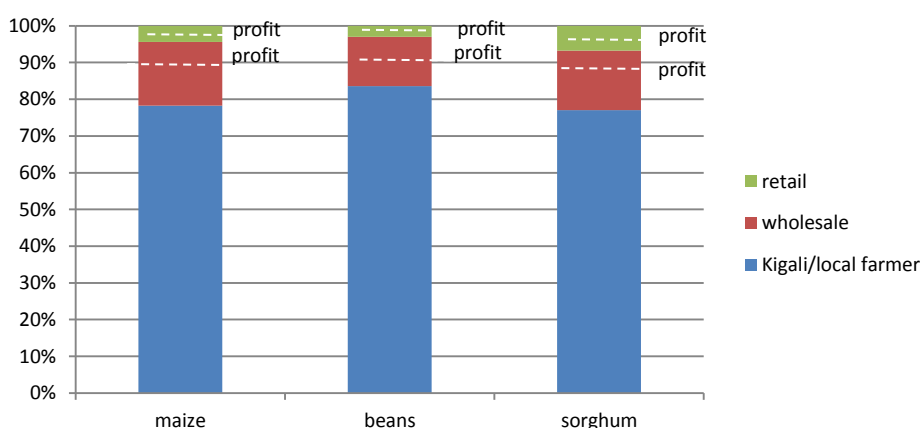
6.1 Trader Profile

In the markets studied, there are only a very small number of active wholesalers (3-4) and an important share of the retailers is directly supplied by farmers (or farmers sell themselves). Traders typically buy from smaller markets in rural areas or source from Nyabogogo market in Kigali and then rent a vehicle to transport it to one of the district markets where they have a small shop at the side of the market supplying on average 30 retailers. Figure 31 shows the share for the wholesale traders and retailers. On average traders make an 8% profit of the end market value of a product. Transport costs from Kigali are usually 18 RwF/kg. Other costs are 2 RwF for offloading and 1 RwF/kg for taxes.



Retailer interviewed in Byumba market

Figure 31: Average profit margins and cost for traders



Most of the wholesale trade is done from small shops instead of the official market structure because of storage capacity and that it is easier to avoid taxes by staying outside of the demarcated market place. Most of the traders are registered at district level and the bigger ones at the national level (25%). 18%⁸ of the traders supplying the market are not registered at all. Likewise, trader associations or unions almost seem to be non-existent in the areas under study. The only collective system existing among traders in Kibuye was a tontine, whereby each person chipped in 1,000 RwF each week and every 20 weeks received 20,000RwF when it was his turn.

In general, traders operate in a very informal manner using their mobile phone as their desk and their head as their administration. In all three markets, bookkeeping was lacking and only some traders cared to write down figures. But most of the time, they only recorded who still owed them

⁸This figure is likely to be higher as in Kibuye district I was introduced to traders by the local government, excluding the non-registered ones.

money. Only the big trader in Byumba (Fabienne) practiced good bookkeeping. 85% of the traders interviewed only operate on the market they are located next to and their trading business does not expand beyond that primary market. Only Gatsibo district's traders were able to run large operations. With individual storage capacities over 50Mt and liquidity to pay rural assemblers in advance, they could service several markets at the same time. In these districts, people generally practice subsistence farming and their purchasing power is generally low. Only in the surplus growing area in Gatsibo are traders able to put more quantities through because of the trade with Kigali and even across the border with Uganda. Also in Byumba, there is one bigger trader operating who owns a 30Mt truck and has his own milling plant who supplies consumers in both Byumba and Kigali market. The relatively small size of the traders operations' is largely due to the small quantities moving through the markets. On average traders have 64Mt storage capacity with great difference between the district (110Mt and 90Mt in Gatsibo and Gicumbi respectively compared to 20Mt in Kibuye). Utilisation rates are around 40%, with most of the space staying idle for long periods of time. The lead time for complete stock replenishment is reasonably low, averaging around four to five days. In fact, due to the small distances, all markets can easily reach Kigali by truck within a day.

Traders have low credit but reasonably good access to credit. All traders interviewed have a bank account, and 60% of the traders have already obtained credit from the bank in the past. Credit is obtained from the local banks and of them, Banque Populaire is the most commonly used one. Loans are on average over a 2 year period against a 15% annual interest rate.

When discussing a cash voucher system, surprisingly most traders did not seem to be really interested (the two large traders in Gatsibo district both were positive though). The primary concern articulated by all traders was the reliability of timely payment. Quick payment is a key concern for traders. Other concerns raised included the market-level constraints to increasing the volume of food trafficked, food price fluctuations and the additional administrative burden of managing vouchers. In sum, figure 32 compares the traders' capacity in the three districts.

Figure 32: Comparison of traders' capacity in the three districts

	Kibuye	Gatsibo	Gicumbi
Access to credit	Yes (4,000,000)	Yes (11,800,000)	Yes (15,000,000)
Bookkeeping	poor	poor	poor
Mt supplied to market in one agri. season	700	1500	750
Total storage capacity all traders	150Mt	650Mt	700Mt
Average profit one agricultural season	700,000	8,075,000	2,267,000
Capacity of traders	low	medium-high	medium

6.2 Financial delivery system

Crucial for the successful implementation of any voucher system is the good financial delivery system. At all three sites, a local bank is within 3 hours walk from the refugee camp. The best facilities are in Byumba, within an hour's walk from the camp. The banking sector is least developed

in the surrounding of Nyabiheke camp. While the banking sector is functioning in Rwanda, interest rates are high, transactions are costly and slow (it takes an average of 4 days to transfer to an account of a different bank) and withdrawing at the bank usually tests the patience of the client. Banque Populaire is the preferred bank as most traders already have a bank account at this bank and it is located in the proximity of all three camps. While banks have been examined as a possible delivery system, in the case of food vouchers they are not as only a few refugees who currently own a bank account (<1%). In contrast, each household owns a mobile phone. Especially when it comes to introducing cash vouchers this assessment advises to explore the possibility of mobile banking. The mobile operator MTN introducing this system in Rwanda and has the highest consumer base (close to half a million customers). MTN is the biggest mobile operator in Rwanda and has approximately 5 million users⁹. For small transactions, the fees for mobile banking are quite high but for bigger transactions the cost of transaction costs goes down to 1%. Most important of all, money can be transferred in seconds. As soon as the client sends money, the receiver is sent an SMS and can go to any mobile banking agent to withdraw cash. Upon showing his or her account number and ID the person can withdraw any amount of money that is on the account. A non-registered MTN mobile money user can equally withdraw money by giving his token number received and secret code given by the sender. Even users without a mobile can receive money, as long as they have a sim card. The system is fairly quick and easy. Surrounding all three camps there are already MTN mobile agents operating (in Kibuye (3hours walk), Byumba (1 hours walk) and Ngarama (2 hours walk). Ideally, MTN would position an MTN agent in the camp itself or at the closest market to prevent refugees having to walk to the market carrying cash. The table in Annex 6 shows MTN mobile banking rates. Alternatively, Banque Populaire Rwanda (BPR) offers mobile banking to 88,000 users at very competitive rates. Major drawback is that the money can only be withdrawn at a BPR branch and transactions can only take place between two BPR accounts.

⁹Surprisingly, only 2 traders use mobile banking in their business as all transactions are normally done in on the spot cash payments.

Ch. 7 Conclusion

This assessment report looked at the potential impact of a transfer in input modality on the local markets surrounding the camps. It is evident that refugees already regularly interact with markets surrounding the camps. Of the camps, Gihembe has the highest level of interaction and Kiziba the lowest. On average a quarter of donated food is sold, especially cooking oil as exemplified by the great quantities of cooking oil that can be found in shops in the country's capital, Kigali.¹⁰ While refugees form on average 19% of the visitors to the local markets, they do not significantly push up market prices. Interestingly, all camps have set-up their own internal marketplace, where prices are sometimes slightly lower for donated food items but generally on par with surrounding market prices. The exception here is Kiziba camp, where refugees receive substantially lower prices for their donated commodities.

The current market interaction, together with the income generating activities refugees are already involved in would make a shift to market-based food assistance less difficult. Figure 33 presents the cost implications of current side-selling of food in the camp. By adopting a market based food assistance approach, substantial cost savings could potentially be made through reducing the miles food needs to travel before reaching the mouth of the beneficiary.

Figure 33: Estimation of cost implications of side-selling in camps

USD/Mt	Maize (local)	Beans (local)	Oil (US)	CSB (Europe) ¹¹	Salt (Kenya)
Purchasing price in July 2007	390	524	1954 (Can) ¹²	655	
All costs involved (FOB, handling storage, shipping and overland transport) in July 2011 ¹³	105	105	574	444	209
Total costs per Mt	495	629	2528	1099	
Refugee selling price in July 2011	317	375	1667	833	333
Difference	36%	40%	34%	24%	
Percentage of commodity sold	25-30%	5-10%	70%	?	-
Mt distributed per month	610	193	48	-	8
Value lost per month (USD)	29,860	3,677	28,930		-

¹⁰ One small shop owner in the Kigali city market stated he had 6 unopened carton boxes of US oil in stock at the moment and he could easily supply me with up to 120 litres of US oil.

¹¹ Because of the lack of information on FOB rates for the United States (normal source of in-kind CSB), European prices are used as the last purchase of CSB came from there.

¹² For the lack of information for the United States, the Canadian FOB price for sunflower oil was used as an approximate.

¹³ Transport rates including handling and storage for the first half year of 2011 were used. With the revised figures for the second half of 2011 overland transport costs are likely to increase by approximately 20%.

Looking at the food market in Rwanda at large, it is well functioning. Although the food market is largely informal and only small quantities pass through it, there is a relatively high level of integration between the different district markets due to good infrastructure. The food security situation in district where the camps are located is reasonably good, except for Karongi district (Kiziba camp) which is food deficit and food from the capital is imported to supply its markets.

Comparing the three food market settings shows that each has its own characteristics. Kibuye district hosts two major markets in the proximity of the camps with the largest consumer base relative to the two other settings. However, market interaction with refugees is lowest because of the relative isolation of the camp. The nearest by market is at a 2 hours' walking distance. Adding to the low market access of refugees is the bad exchange rate they receive for commodities sold (selling donated food commodities at low prices and buying back other commodities at high prices). Furthermore, the capacity of traders in this district is low.

Markets in Gatsibo district are characterised by high production levels, a low consumer base, big traders and reasonable purchasing power from refugees due to other income generating activities in and around the camp. The relative high percentage of market demand being made up by refugees is offset by the high availability of food in the district. The maize going through the market for onward sale to Byumba and Kigali, could easily feed into the local markets if demand would increase.

Lastly, Gicumbi district is characterised by high market interaction from the refugees leading to the creation of artificial market centres around the camp. The following table compares the potential of the three market settings to run a pilot.

Figure 34: Potential to run a pilot testing a cash based approach

	Current market distortion	Potential to furnish increased demand	Market access	Year-round food availability	Local production	Price volatility	Attitude refugee towards cash/voucher	Capacity traders	Financial delivery system	Overall conditions
Kibiza	Low	Medium	Bad	Medium	Low	High	Opposed	Low	Least potential	Unfavourable
Nyabiheke	Low-Medium	Good	Good	Good	High	No data	Mixed, but largely against	Medium-high	Some potential	Reasonably favourable
Gihembe	Low-Medium	Medium	Good	Medium	Medium	Medium	Mixed, but largely against	Medium	Most potential	A bit favourable

Rwanda's two agricultural seasons, combined with a high level of integration with regional markets, accounts for the lack of a clear seasonal price pattern. This makes the change from a cash based intervention to a food based intervention during lean season unnecessary, except for the months of November and December. During this period of the year, prices should be closely monitored and the possibility of providing food should remain open in case local markets run dry. In a normal year, food is available in all district markets year-round as only the smaller rural markets around Kiziba and Gihembe camp have only seasonal food availability. Concerning the quantities going through the markets, a transfer to cash as an input modality would almost quadruple the demand by refugees and almost double total demand on the markets surrounding the camps. While hypothetically all three district markets are capable of furnishing such an increase in demand over time, it would inevitably alter local market dynamics and initially push up prices. To allow markets to adjust to such a high increase in demand a gradual introduction of a cash based approach is advisable when piloting. Another consideration is the high price volatility that the food market in Rwanda exhibited

over the past 5 years. While price volatility is in line with the regional picture, the high volatility of prices poses a serious challenge for the introduction of a cash based approach as it could place the burden of price risks on the refugees themselves.

The capacity of traders operating on the local markets surrounding the camp is generally low. The Rwandan food market is characterised by 5 big traders based in Kigali taking up a considerable market share, with only little room for smaller district traders. The lack of book keeping and administration skills would also pose a challenge to the introduction of a (cash) voucher system. Most traders did not appear to be too keen on the idea of a voucher system as one of their major concerns would be timely payments. While traders themselves have low liquidity, they do have good access to credit or bank loans. A last concern is the lack of organisation amongst traders; most of them are not part of any association or union. As a result, a centralised approach through a traders union is not feasible in Rwanda.

A financial delivery system for a cash/voucher system could easily be implemented in Rwanda. While banks are available in the proximity of the camp and present an option as financial delivery system, the downside is that refugees would all need to open bank accounts. A more interesting option would be mobile banking whereby refugees are transferred cash directly which they could withdraw from a mobile agent at a market close to the camp to purchase food and other items.

Lastly, consideration should be given to the benefits of a food vouchers compared to cash vouchers. On a positive side, cash vouchers have the most cost-saving potential and there is a good financial delivery system in place which good distribute cash to the refugees. However, major concerns have been raised with the management of cash by refugees and the violence and alcoholism it could result it. Although food vouchers would address a lot of the concerns raised, refugees were only marginally more positive about food vouchers. Food vouchers would imply higher costs and will likely place a high burden on WFP CO (in conjunction with UNHCR) managing it. In addition, the traders' capacity to redeem food vouchers is largely lacking and would require a good deal of capacity building (notably in bookkeeping). However, the percentage spent on food will likely be higher compared to cash vouchers.

In sum, the market-based food assistance offers obvious benefits such as freedom of choice to refugees, dietary diversity, a positive incentive for local farmers and major transport saving costs, but is not without potential risks. From a market perspective, market-based food assistance could possibly be piloted in Nyabiheke camp, but it is inadvisable to start piloting it in Kiziba camp. Nonetheless, more consideration should be given to effects it would have on dynamics within the camp, as all focus group discussions revealed major concerns with the introduction of a cash based approach. For while the market-based obstacles are not insurmountable, by the same token we must take into account that the market-based perspective is not the only prism through which the effects of this pilot must be viewed. Social dynamics will inevitably play a role, as should the opinions of the refugees themselves.

For more information:



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Annex 1: Traders interviewed

	gender	markets operating	type of trader	contact
Fidel	m	Kibizi	Collection	
Evaliste	m	Kibizi		
Karimba (wife: Donatile Bisura)	f	Kibuye	Wholesale	
Daniel	m	Kibuye	Wholesale	0783344490
Claudine Mukabideri	f	Kibizi	Wholesale	0788662091
Jeanette	f	Mubuga	Wholesale	
Jemine	f	Mubuga		
Elier	m	Mubuga	Wholesale	
Boniface	m	Kivolugu	Wholesale	
Rusagara Laurent	m	Ngarama	Collection	
Nsengiyumua	m	Ngarama, Mimuri	Collection	0788573483
Rugogoza	m	Mugera (shop wife), Ngarama, Marimba, Karebungo	Wholesale	0788490249
Bagarasa	m	Mugera, Marimba, Ngarama, Karungo	Wholesale	0788778260
Niyongira Fredouard	m	Marimba	collection	0788449870
Emmanuel Naayaramate	m	Kigarama	Wholesale	
Sayid Sibomana	m	Ngarama, Nyagahita, Mugera, Marimba, Kaubongo, Gikonda	Wholesale	0788536483
Muzehe	m	Byumba	retail	
Nizeye	f	Byumba	Retail	
Jean Baptiste Nkulikujimara	m	Byumba, Yiramba, Myove	Wholesale	0788400437
Fabienne Ayimana (wife: Clausilde)	m+f	Byumba	Wholesale	0788534935/ 0788777413
Ancille Mukabeza	f	Byumba	Wholesale	0788228636
Jean Bosco Rukeramihico (daughter: Odile)	m	Byumba	Wholesale	0788646577
	m	Rukomo	Wholesale	
	m	Yaramba	Wholesale	
	m	Mwange	Collection	
Kazungu	m	Byumba	Wholesale	

Annex 2: Market integration in selected East African markets for maize, beans and sorghum

Correlations of maize prices between September 2007 and August 2011

4 year av	Kigali : RW	Ruhengeri: RW	Dar es salaam : TZ	Arusha : TZ	Kampala : UG
Kigali : RW	1	0.781907788	0.512522152	0.640798022	0.819725708
Ruhengeri: RW	0.781907788	1	0.583991409	0.668909597	0.610257271
Dar es salaam : TZ	0.512522152	0.583991409	1	0.804027316	0.447915341
Arusha: TZ	0.640798022	0.668909597	0.804027316	1	0.556711648
Kampala : UG	0.819725708	0.610257271	0.447915341	0.556711648	1

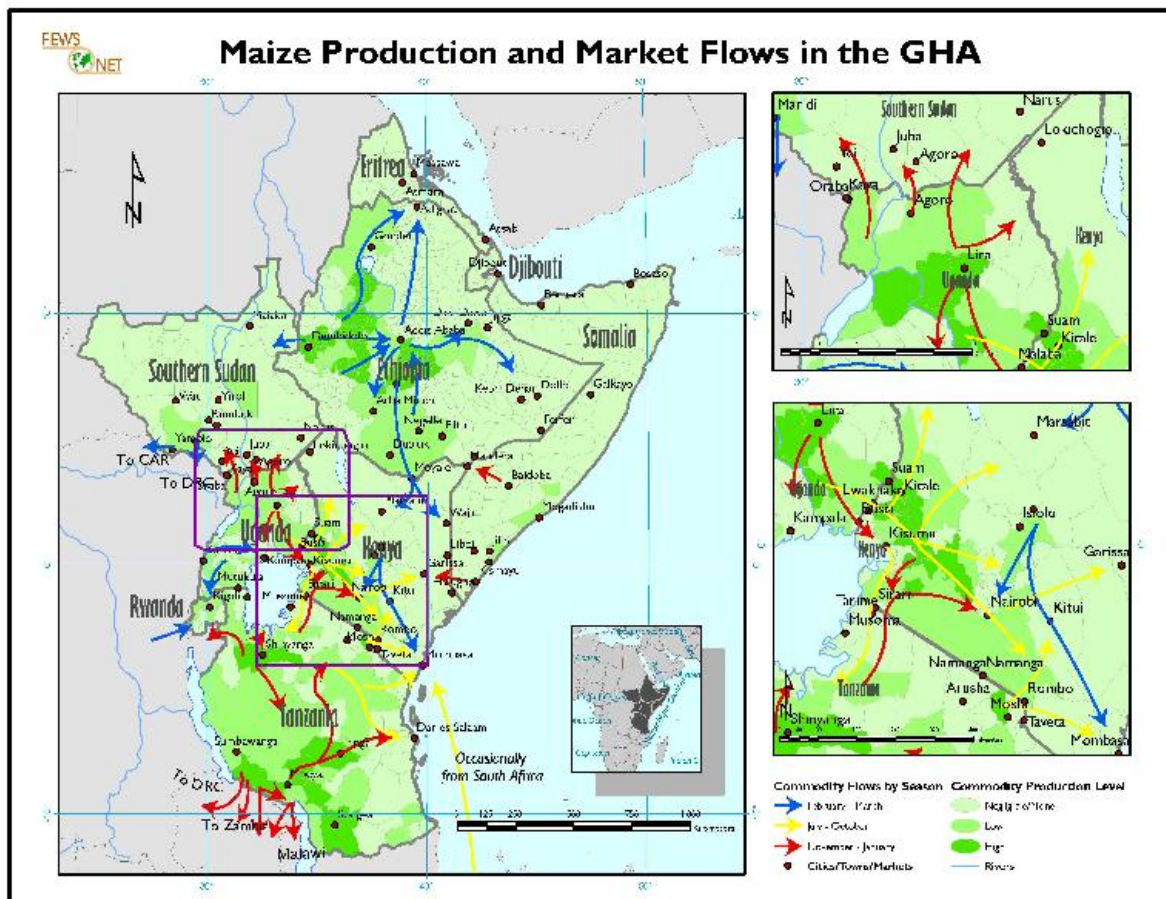
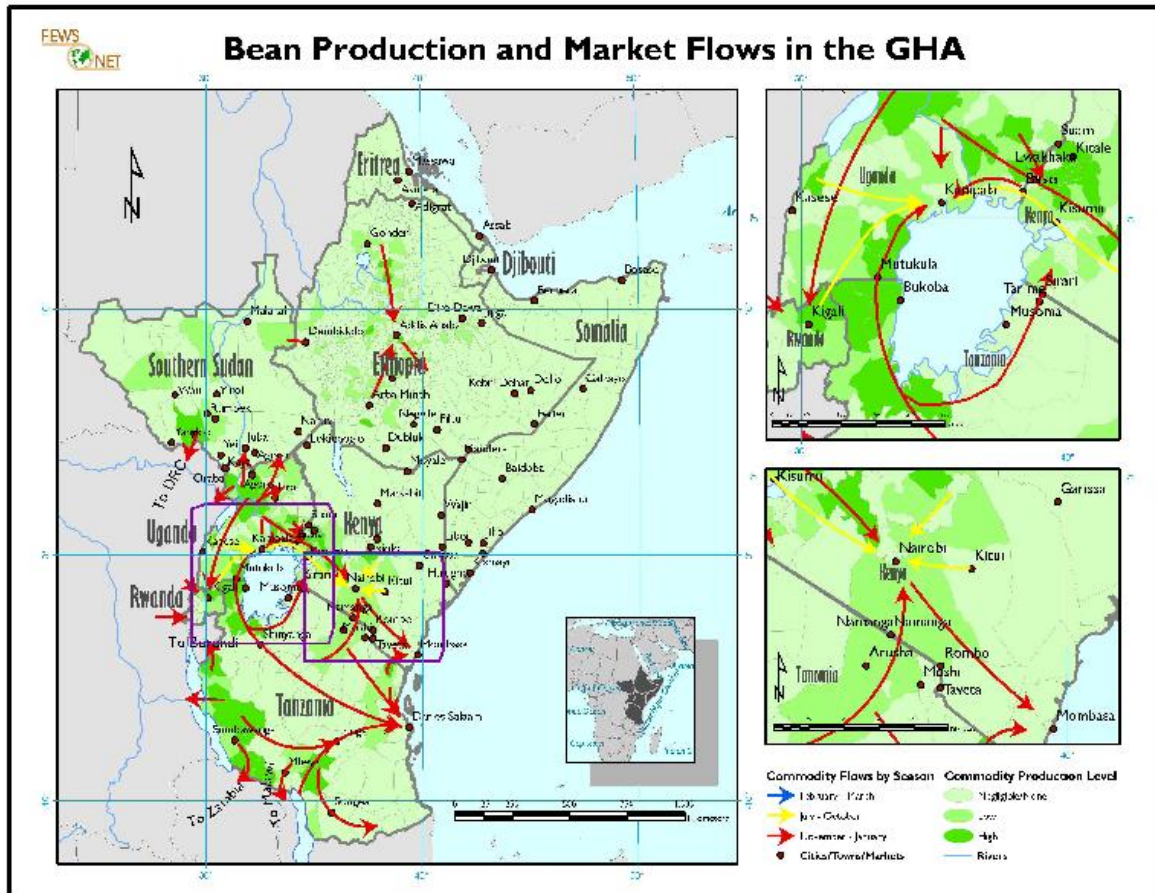
Correlations of bean prices between September 2007 and August 2011

4 year av	Ruhengeri : RW	Kigali : RW	Dar es salaam : TZ	Arusha : TZ	Kampala : UG
Ruhengeri : RW	1	0.80459	-0.11187	-0.05032	0.525683
Kigali : RW	0.80459	1	-0.24693	0.298365	0.32553
Dar es salaam : TZ	-0.11187	-0.24693	1	0.743515	0.218906
Arusha : TZ	-0.05032	0.298365	0.743515	1	0.093736
Kampala : UG	0.525683	0.32553	0.218906	0.093736	1

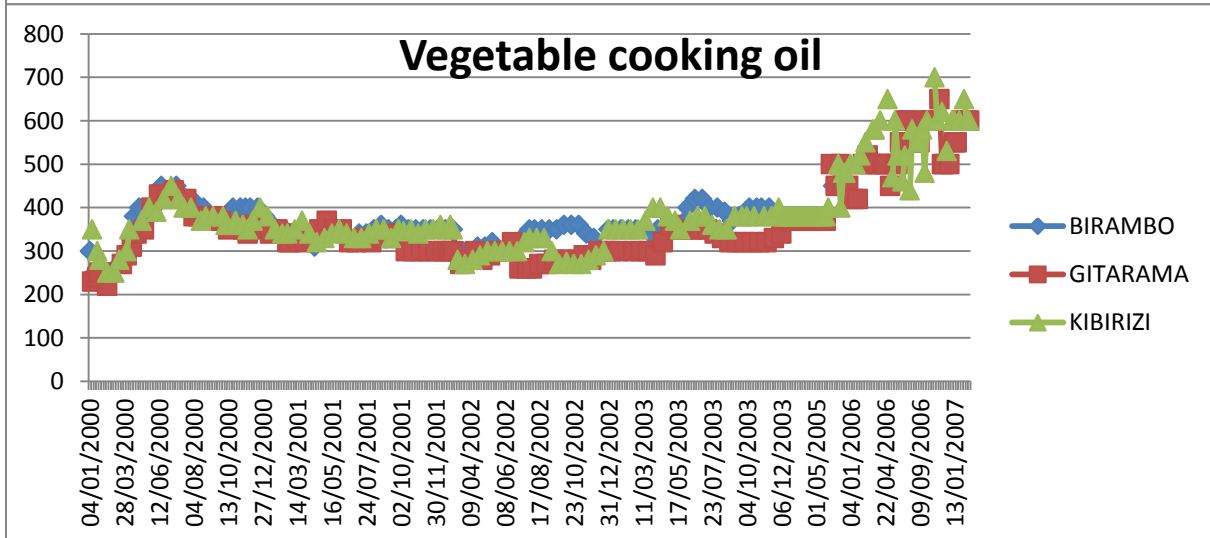
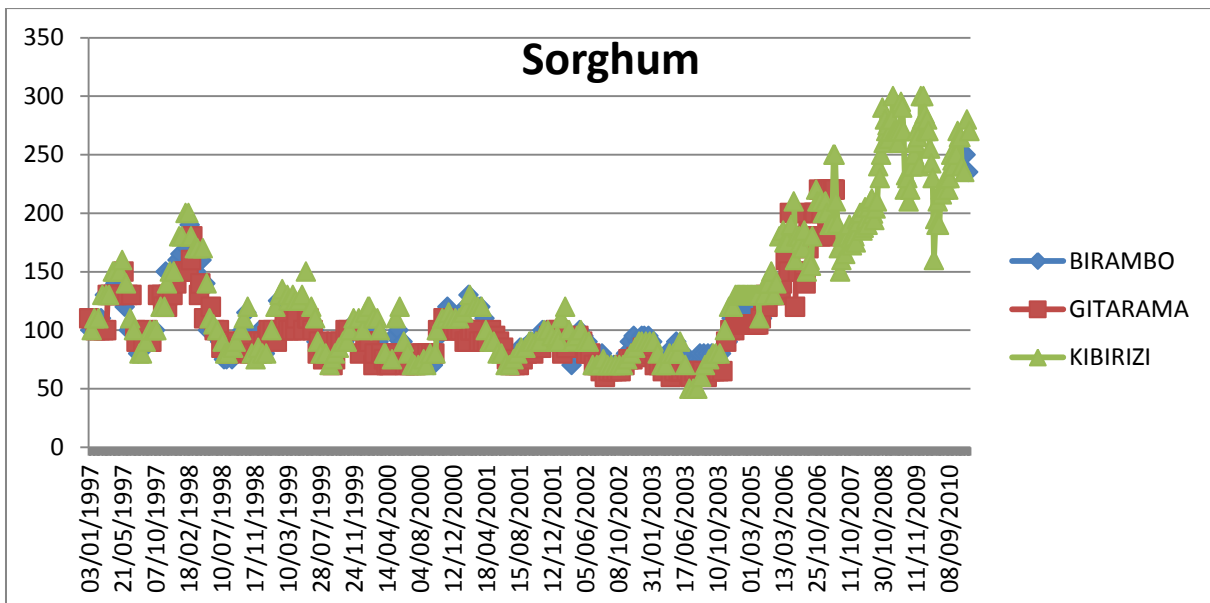
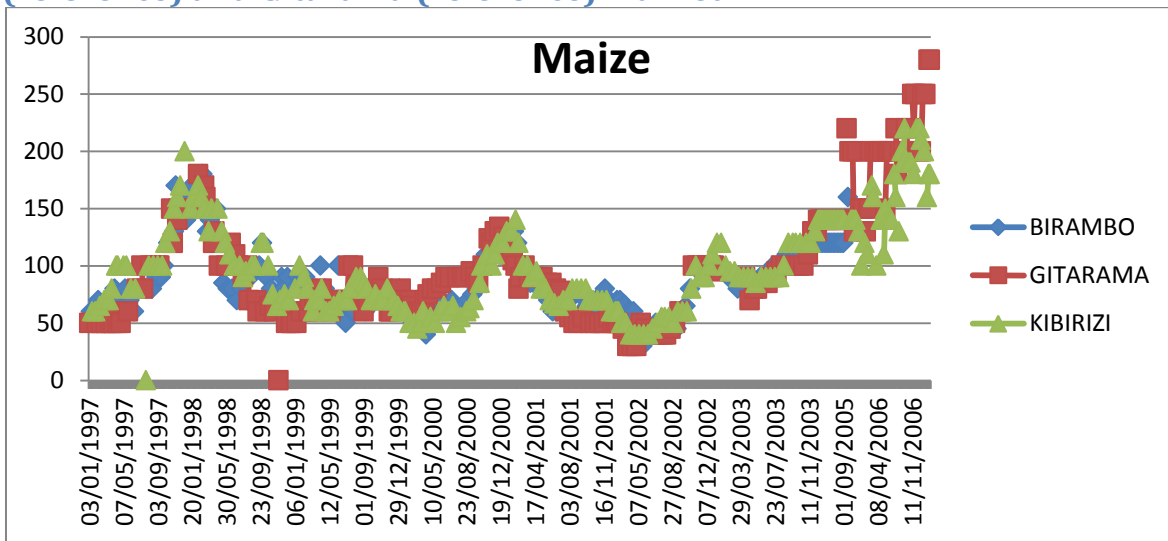
Correlations of sorghum prices between May 2009 and August 2011

2 year av	Ruhengeri : RW	Kigali : RW	Dar es salaam : TZ	Arusha : TZ	Kampala : UG
Ruhengeri : RW	1	0.240556	0.198232	0.249925	0.098262
Kigali : RW	0.240556	1	-0.3579	-0.1307	-0.30227
Dar es salaam : TZ	0.198232	-0.3579	1	0.510245	0.645807
Arusha : TZ	0.249925	-0.1307	0.510245	1	0.636574
Kampala : UG	0.098262	-0.30227	0.645807	0.636574	1

Annex 3: Regional beans and maize trade flows in the Greater Horn of Africa

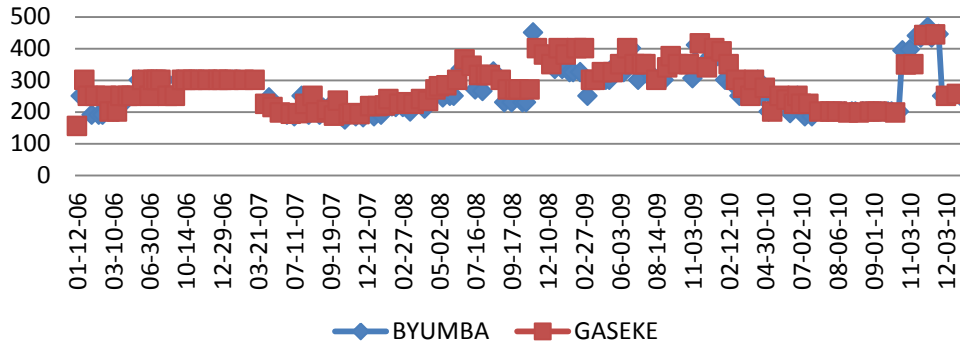


Annex 4: Price comparison for maize, sorghum and oil of Kibirizi, Birambo (reference) and Gitarama (reference) market

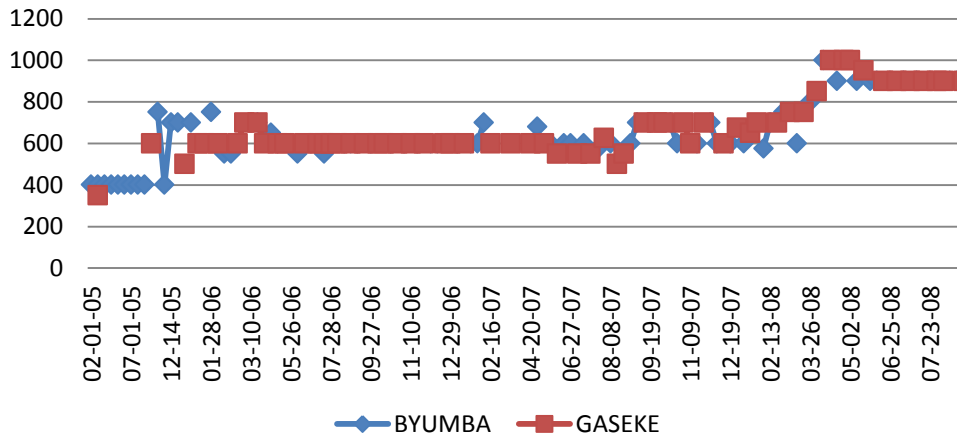


Annex 5: Price comparison for maize flour, sorghum and oil of Byumba and Gaseke (reference) market

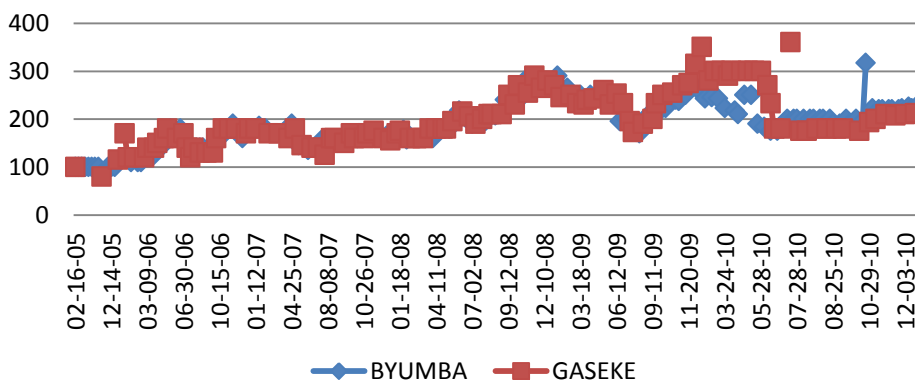
F-Mai



Oil



Sorghum



Annex 6:MTN mobile banking rates

Money Transfer Transactions	Transaction Range (Rwf)		Customer Charge (Rwf)
	MIN	MAX	
Deposit Cash	1,500	500,000	0
Send money to registered MTN Mobile Money user	1,500	500,000	250
Send money to non MTN Mobile	1,500	5,000	600
	5,001	10,000	700
	10,001	20,000	750
	20,001	40,000	1,000
	40,001	75,000	2,000
	75,001	150,000	3,000
	150,001	300,000	4,000
Withdraw cash by registered MTN Mobile Money user	300,001	500,000	6,000
	1,500	10,000	250
	5,001	10,000	275
	10,001	20,000	300
	20,001	40,000	600
	40,001	75,000	1,000
	75,001	150,000	2,000
Withdraw cash by non MTN Mobile Money user	150,001	300,000	3,000
	300,001	500,000	5,000
	1,500	500,000	0