

Banana Marketing in Rwanda, Burundi and South Kivu CIALCA Project Survey Report



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Acronyms

CGIAR	Consultative Group on International Agricultural Research
CIALCA	Consortium for Improving Agriculture-based Livelihoods in Central Africa
CIAT	International Centre for Tropical Agriculture
DGDC	Belgian Directorate General Development Co-operation
DRC	The Democratic Republic of Congo
FRW	Rwanda Francs
GDP	Gross Domestic Product
IITA	International Institute of Tropical Agriculture
IRAZ	Institut de Recherche Agronomiques et Zootechnique
INERA	National Agricultural Research Institute of Congo
ISABU	Institut du Sciences et Agronomie du Burundi
ISAR	Institut du Sciences et Agronomie du Rwanda
T	Metric tonnes
PPP	Purchasing Power Parity

Table of Contents

ACRONYMS	2
TABLE OF CONTENTS	3
LIST OF TABLES	4
LIST OF FIGURES	4
ACKNOWLEDGEMENTS	5
SUMMARY	6
1. INTRODUCTION	7
1.1 BACKGROUND AND REGIONAL REVIEW	7
1.2 IMPORTANCE OF THE BANANA ENTERPRISE TO THE LIVELIHOODS OF THE POPULATION IN THE REGION	8
1.3 REGIONAL BANANA PRODUCTION ZONES	10
1.4 FORMS AND SOURCES OF CONSUMPTION AND CONSUMPTION ZONES	10
1.5 METHODOLOGY	12
1.5.1 <i>CIALCA project background</i>	12
1.5.2 <i>Data collection and analysis</i>	13
2. DEMAND ANALYSIS	14
2.1 SIZE AND GROWTH OF NATIONAL MARKETS	14
2.2 AN OVERVIEW OF CROSS BORDER TRADE.....	14
2.2.1 <i>Rwanda</i>	15
2.2.2 <i>Burundi</i>	16
2.2.3 <i>South Kivu province of the Democratic Republic of Congo</i>	16
3. SUPPLY ANALYSIS	18
3.1 BANANA MARKETING CHANNEL AND CHAIN ACTORS	18
3.1.1 <i>The producers</i>	18
3.1.2 <i>Sale points for cooking bananas</i>	20
3.1.3 <i>Other chain actors in the banana marketing channel</i>	22
3.2 VOLUMES TRADED	24
3.3 PRICING	26
3.4 MARGINS ALONG THE CHANNEL.....	28
3.5 MARKETING COSTS	30
3.6 MAJOR CONSTRAINTS FACED	33
3.6.1 <i>Purchase constraints</i>	33
3.6.2 <i>Constraints in selling</i>	33
3.6.3 <i>Constraints faced by transporters</i>	35
4. MAJOR FINDINGS	35
5. SUGGESTED AREAS OF INTERVENTION	36
REFERENCES:	38
APPENDICES:	39
APPENDIX 1: PRODUCTION QUANTITIES OF BANANA AND PLANTAIN FROM LEADING PRODUCERS.....	39

List of Tables

Table 1: Proportion (percentage) of households consuming plantains and bananas	11
Table 2: A summary of cross border banana trade for Rwanda	15
Table 3: A summary of cross border banana trade for Burundi	16
Table 4: A summary of cross border banana trade for the South Kivu area	17
Table 5: Average producer and market prices for cooking bananas per bunch.....	27

List of Figures

Figure 1: Study area	7
Figure 2: World's leading banana producers (2004-2006)	9
Figure 3: The main sources of cooking bananas.....	11
Figure 4: The main sources of beer bananas.....	12
Figure 5: Average quantity of cooking bananas harvested per household from Jan to Dec 2006 for Rwanda, Burundi and South Kivu	18
Figure 6: Average cooking banana producer prices from Jan to Dec 2006 for Rwanda, Burundi and South Kivu	19
Figure 7: Points of sale of cooking bananas in South Kivu.....	20
Figure 8: Points of sale of cooking bananas in Burundi.....	21
Figure 9: Points of sale of cooking bananas in Rwanda.....	21
Figure 10: The marketing channels of bananas (all types except beer) in South Kivu, Rwanda and Burundi.	22
Figure 11: The beer banana marketing channel.....	23
Figure 12: Average daily sales of rural assemblers	24
Figure 13: Average daily sales of rural retailers	25
Figure 14: Average daily sales of urban wholesalers.....	25
Figure 15: Average daily sales of urban retailers	26
Figure 16: Average price of a medium-sized bunch of cooking bananas across provinces in Burundi	26
Figure 17: Average price of a medium-sized bunch of cooking bananas across provinces in Rwanda	27
Figure 18: Gross margins obtained by traders for each type of banana traded in Rwanda	28
Figure 19: Gross margins obtained by traders for each type of banana traded in Burundi	29
Figure 20: Gross margins obtained by traders for each type of banana traded in South Kivu	29
Figure 21: Costs incurred by traders by province in Rwanda.....	30
Figure 22: Costs incurred by traders by province in Burundi.....	31
Figure 23: Costs incurred by traders in banana marketing in South Kivu.	32
Figure 24: Constraints faced by traders in purchasing bananas in the entire study area...	33
Figure 25: Constraints faced by trader while selling the commodity	34
Figure 26: Constraints faced by transporters	35

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Summary

This report contains findings based on descriptive analyses from a market survey conducted on banana trade in Rwanda, Burundi and South Kivu province of the Democratic Republic of Congo. These areas are characterized by high and increasing population pressure where bananas play a key role in providing food and revenue to farmers, traders, and consumers. Vibrant cross border trade exists amongst the three countries and the cooking banana types feature prominently in it. Rwanda and Burundi are net importers of bananas mostly from South Kivu, Uganda and Tanzania. Most of this trade is via road transport, although water transport via Lake Kivu also plays a facilitating role to this trade between the DRC and Rwanda.

This study shows the importance of the beer banana types as a key source of revenue mostly in the rural areas whereas the cooking types play a crucial food security role for both rural and urban populations. The dessert and plantain types are mainly traded in the urban areas.

The margins obtained by the traders vary along the chain according to the importance of the type of banana traded in a particular area. For instance, in Rwanda and in the South Kivu province, higher margins are obtained from the cooking types by the rural traders as compared to the urban traders. However, in Burundi there is no clear pattern of the margins obtained from the cooking types but the margins for the beer types are averagely constant along the chain whereas the margins for the dessert types tend to be higher towards the urban retail end of the chain. Likewise, the margins for the dessert bananas in South Kivu are also higher for the urban traders as compared to the margins of the rural traders.

Insufficient finances, inadequate transport facilities, difficulty in assembling the produce, inadequate storage, unfair taxation and inconsistent price signals are among the challenges faced by the banana traders in the area. Suggested potential interventions include increasing access to finance, increasing public investment in road infrastructure to lower transaction costs associated with transportation and improving the efficacy of local tax administration. Further interventions include promotion of desired banana varieties in target areas and development of formal banana beer processing technologies for increased job creation and revenue generation.

This report is divided into 5 sections. The first section provides a brief overview of the study area highlighting the importance of bananas to the livelihoods of the population. It also discusses the key production and consumption zones as well as the methodology applied. The second section assesses the banana demand patterns, highlighting the present size and potential growth of the national markets and cross border trade. The third section contains the supply analysis. It describes the marketing channels, the actors, the volumes handled, the margins, the costs incurred and the constraints faced. The major findings and suggested areas of intervention are discussed in the fourth and final section of the report.

1. INTRODUCTION

1.1 Background and regional review

The region covered in this report comprises of Rwanda, Burundi and South Kivu, one of the 26 provinces in the eastern part of the Democratic Republic of Congo (Figure 1). This region has a recent history of political instability which has disrupted much of the economic activities. However, as stability returns to the area, policies targeting poverty eradication and economic growth are being put in place. Agriculture is the main economic activity, contributing more than 30% of the national income in each of the three countries. The majority of the population in the region practices small scale agriculture, with bananas (including plantains) being a predominant crop. Uganda and Tanzania neighbor this highly mountainous region to the north and east, whereas the Eastern DRC border is largely running across Lake Kivu (DRC-Rwanda) and Lake Tanganyika (DRC-Burundi).

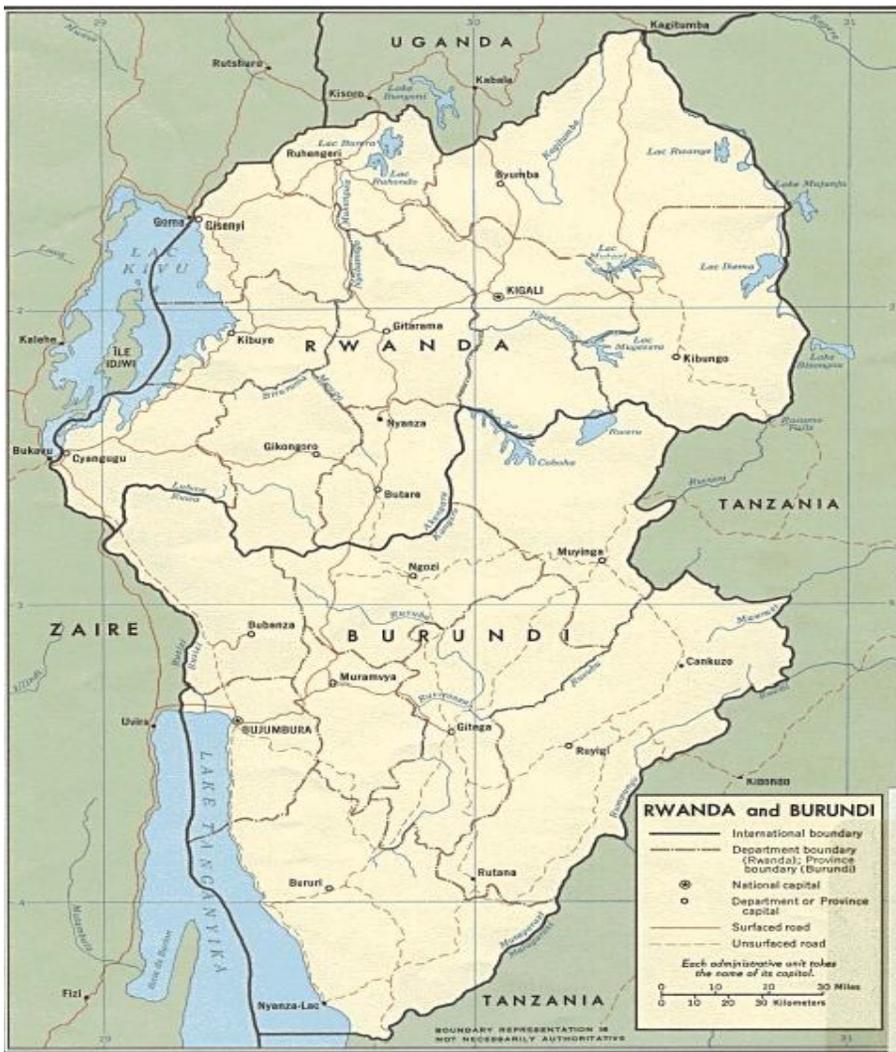


Figure 1: Study area

Rwanda has a population of 10.2 million with a population growth rate of 2.8% (CIA, 2008). It is considered the most densely populated country in Africa. About 90% of the population in Rwanda is engaged in agriculture which is predominantly subsistence oriented. Rwanda's GDP (at PPP) is valued at USD 8.6 billion and the GDP (at official exchange rate) is valued at 2.8 billion with a real growth rate estimated at 6% per annum (2007 est.)². The agricultural sector contributes 38.2% of the GDP while industry and services contribute 20.1% and 41.7% respectively (*ibid.*). GDP per capita (at PPP) is estimated at US\$ 1,000 (CIA, 2008).

Burundi, which borders Rwanda to the south, has a population of 8.7 million with a population growth rate of 3.4% (CIA, 2008). Burundi's GDP (at PPP) has been estimated at US\$ 6.39 billion in 2007 while GDP (at official exchange rate) has been estimated at USD 989 million (CIA, 2008). The real growth rate of GDP is estimated at 5.5% and GDP per capita (at PPP) is estimated at US\$ 800 (CIA, 2008). The agricultural sector contributes 34% of the GDP while industry contributes 21% and the service sector 45% (*ibid.*).

The Democratic Republic of Congo, which is the 2nd largest country in Africa, has a population estimated at 66.5 million and an annual population growth rate of 3.2% (CIA, 2008). The Democratic Republic of Congo's GDP (at PPP) is estimated at US\$ 18.8 billion in 2007 and US\$ 10.1 billion (at official exchange rate) with a real growth rate of 7% (CIA, 2008). The GDP per capita (at PPP) is estimated at US\$ 300 (2007 est.). The sectoral GDP contributions include; agriculture at 55%, industry at 11% and services at 34% (*ibid.*).

1.2 Importance of the banana enterprise to the livelihoods of the population in the region

Banana production in the region is mainly subsistence oriented with low input application. In Rwanda, bananas are grown on 213,000 ha of land, occupying 23% of total arable land (Mpyisi et al., 2003) and contributing more than 50% of the annual crop production in terms of fresh weight (RADA, 2007). Current national banana production is estimated by the FAO statistics division at about 2.65 million MT per annum as indicated in Figure 2 and Appendix 1. The consumption of bananas in Rwanda is one of the highest in the Great Lakes region. In the year 2000, annual per capita consumption was estimated at 258 kg (*ibid.*). About 80% of Rwandan households practice banana production mainly for household food security and income generation. A typical household's agricultural enterprise regime comprises 50% tubers, 30% bananas and 20% legumes, cereals and vegetables (RADA, 2007).

² GDP at official exchange rate compares the income of a country relative to another by converting it into the same currency units while GDP at Purchasing Power Parity (PPP) converts the incomes into a common measure by using the price of a common basket of goods. For example, one can construct a typical basket of consumer goods. If that basket costs \$100 in the US and 50000 FRW in Rwanda, then the PPP exchange rate is 500 FRW to the US\$.

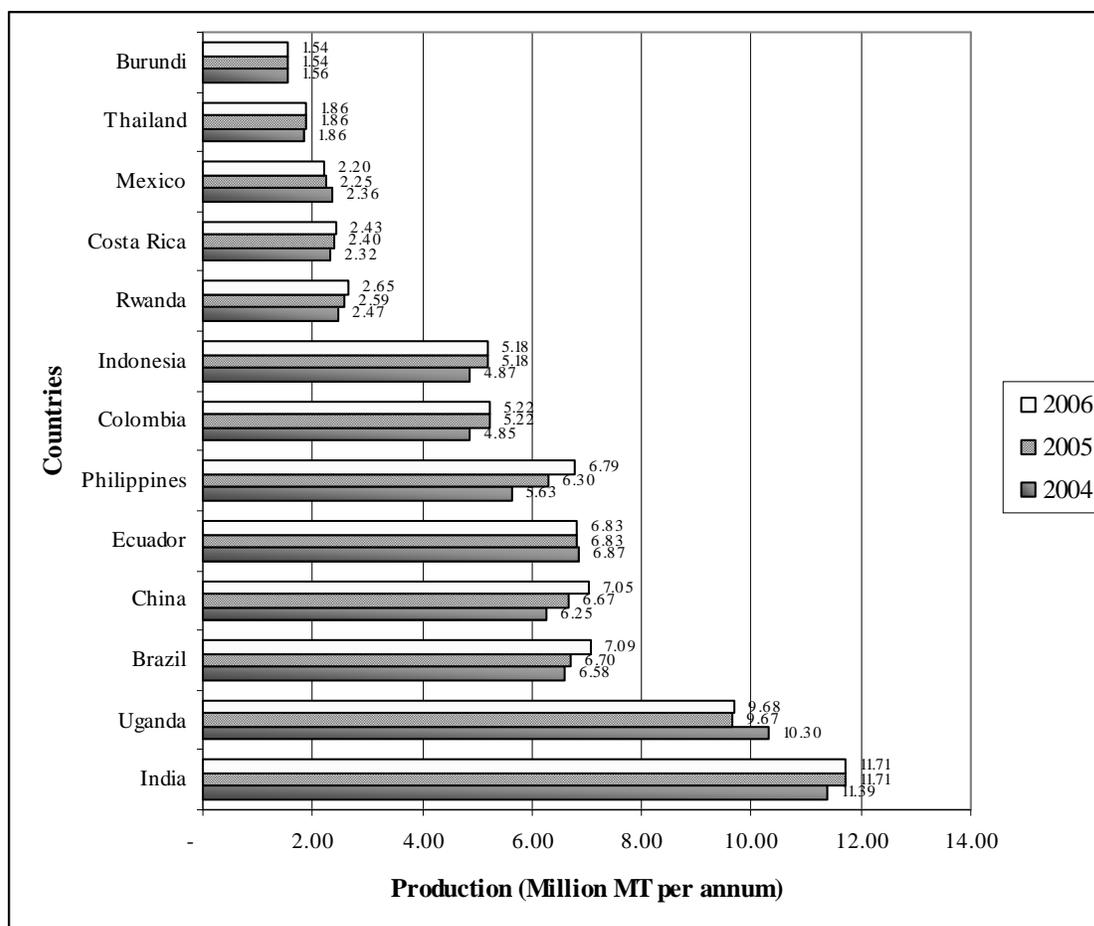


Figure 2: World's leading banana producers (2004-2006)³

Source: FAOSTAT | © FAO Statistics Division 2008

Globally, Rwanda and Burundi rank among the top 20 largest producers of bananas and plantains (FAOSTAT, 2008), and among the largest banana producers in Sub-Saharan Africa. Despite being a major producer, Rwanda is also a major importer of bananas mostly from Uganda, the Democratic Republic of Congo and Tanzania (Ferris *et al.*, 2002). This is partly due to falling productivity as a result of banana diseases and demographic pressure which has led to land fragmentation and deterioration of the natural resource base⁴ (Ministry of Agriculture and Animal Resources, 2007).

Likewise, in Burundi, bananas are ranked highest among the major agricultural commodities produced, with production estimated at 1.54 million MT per annum and valued at about US\$ 230 million (FAOSTAT, 2008). Similarly, the Democratic Republic of Congo is also a major producer of bananas with an estimated production of about 1.53 million MT. Bananas rank second after cassava as an important agricultural commodity produced in terms of quantity and value (BAA, 2008). The South Kivu province, particularly the Walungu and Kabare Territoires, is quite prominent in banana production

³ Plantain inclusive

⁴ Some of the populations returning from exile have been settled in water catchment areas where they practice uncontrolled cultivation.

and has significant trade activities with the neighboring countries such as Tanzania, Rwanda and Burundi where Kiswahili language is widely spoken. The common language facilitates information exchange and trade. Bukavu, the largest city and capital of the province, is instrumental in the cross border trade of bananas and other agricultural commodities in the region due to its strategic geographical location near the Rwanda border and on the shores of Lake Kivu.

1.3 Regional banana production zones

In Rwanda, the commonly produced banana types include the beer and cooking varieties. Generally, the beer banana types comprise 64% of the total banana production in Rwanda while the cooking types comprise 30% and the dessert types about 6% (Ministry of Agriculture and Animal Resources, 2007; Gaidashova et al., 2005). It is worth noting however, that the distribution of the different banana types varies across regions. For instance, in the Lake Kivu region, beer banana types comprise 85 to 90% of total banana production compared to 60 – 80% in Cyangugu while in Umutara and Kibungo, cooking bananas predominate with beer bananas accounting for only about 20 to 30% (Gaidashova et al., 2005). The beer bananas are processed into beer mainly at the farm level and sold to local consumers or intermediaries. Other prominent beer banana growing areas in Rwanda are in Ruhango and Bugesera districts (CIALCA, 2007). Apple bananas are found in Ruhengeri, Gisenyi and Kigali Rural. In Burundi, the beer banana types are largely produced in Cibitoke as well as Kirundo provinces while the cooking and dessert types are mainly produced in Gitega province (CIALCA, 2007). In the South Kivu province of the Democratic Republic of Congo, the cooking and dessert types are mainly produced in Luhihi and Irhambi/Katana groupements of Kabare Territoire. The beer banana types are largely produced in Burhale and Luhihi groupements of Walungu and Kabare territories respectively. There is also plantain production in Irhambi/Katana groupement (*ibid.*). Surplus production is exported to Rwanda using water transport along Lake Kivu. Some of the exports from this region go through Bukavu and then cross to Cyangugu in Rwanda.

1.4 Forms and sources of consumption and consumption zones

Bananas are consumed in various forms; mostly as cooked, roasted, dessert, brew, and juice. The demand for the cooking types is increasing rapidly in the urban areas due to rural-urban migration and changing consumer preferences. In Kigali city, the demand for cooking banana types has recorded a 50% increase over the past 10 years (Spilsbury *et. al.* 2004). Likewise, demand in the other urban centers in the study region is increasing rapidly.

The beer banana types are mostly processed into a brew consumed within the household or in restaurants. This processing is mainly done informally by individual households or traders, although there are a few initiatives of formal brewing such as the Covibar SARL, a modern banana beer factory in Rwanda with a capacity of over 2 million liters per annum.

The dessert types are mostly consumed fresh whereas the plantains are mostly roasted and consumed in households or sold in urban centers and roadside markets. Since

production levels of the dessert and plantain types are not as high as the beer and cooking types, their consumption zones are quite indefinite with a fair spread across most communities.

Table 1, which is based on CIALCA project baseline survey data covering about 2800 households, indicates the proportion of households consuming the various banana types and plantains. Almost 80% of all the households consume cooking bananas in the three countries. There is none or very little consumption of plantains in Rwanda and Burundi compared to South Kivu where 36% of the households consume plantains. Beer bananas are utilized by 44% of the households in Rwanda compared to 69 and 59% in Burundi and South Kivu respectively.

Table 1: Proportion (percentage) of households consuming plantains and bananas

	Rwanda (n = 910)	Burundi (n = 400)	South Kivu (n = 465)
Cooking bananas	92.3	80.6	78.6
Beer bananas	43.6	69.3	58.8
Plantains	2.5	0.8	35.5

Source: CIALCA farmer baseline survey, 2006-2007

The main source of cooking bananas for the households is from own production in all the 3 countries as indicated in Figure 3. More than 70% of the households rely on own production. In Rwanda, about 18% of the households rely only on purchases of cooking bananas for consumption compared to about 13% for Burundi and 10% for South Kivu.

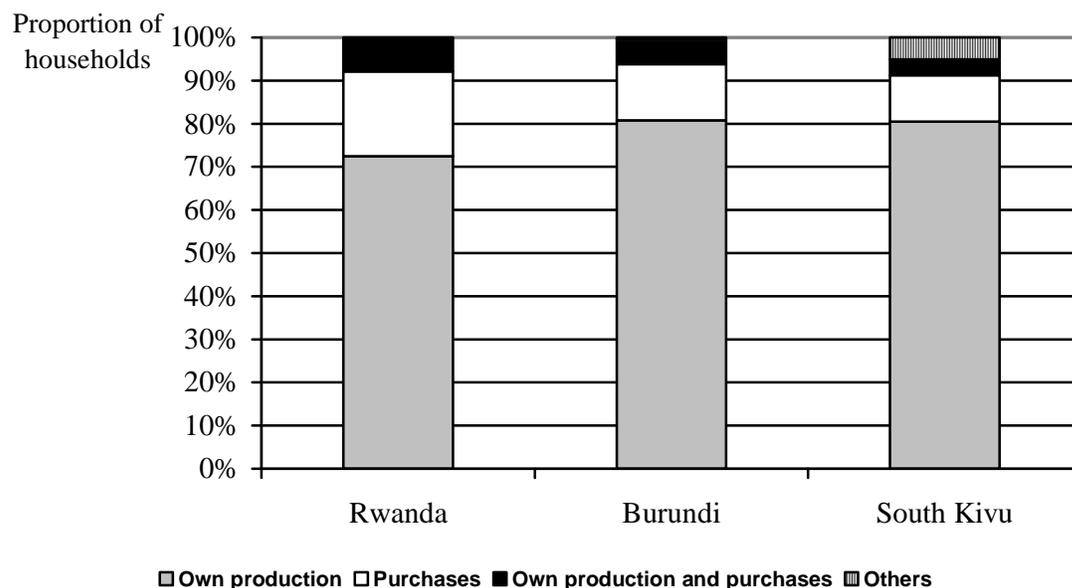


Figure 3: The main sources of cooking bananas
 Source: CIALCA farmer baseline survey, 2006-2007
 NB; Others may include donations from friends.

In South Kivu, where there is consumption of plantains, the main source is from own production (64% of the households) and a number of households, 24% rely on purchases. For beer bananas, a number of households rely either on purchases alone or both own production and purchases as shown in Figure 4. In Rwanda, 35% of the households rely on purchases alone while another 20% rely on both purchases and own production. In Burundi and South Kivu, 55 and 45 % of the households respectively, rely on own production alone while the rest rely on either purchases alone or both purchases and own production.

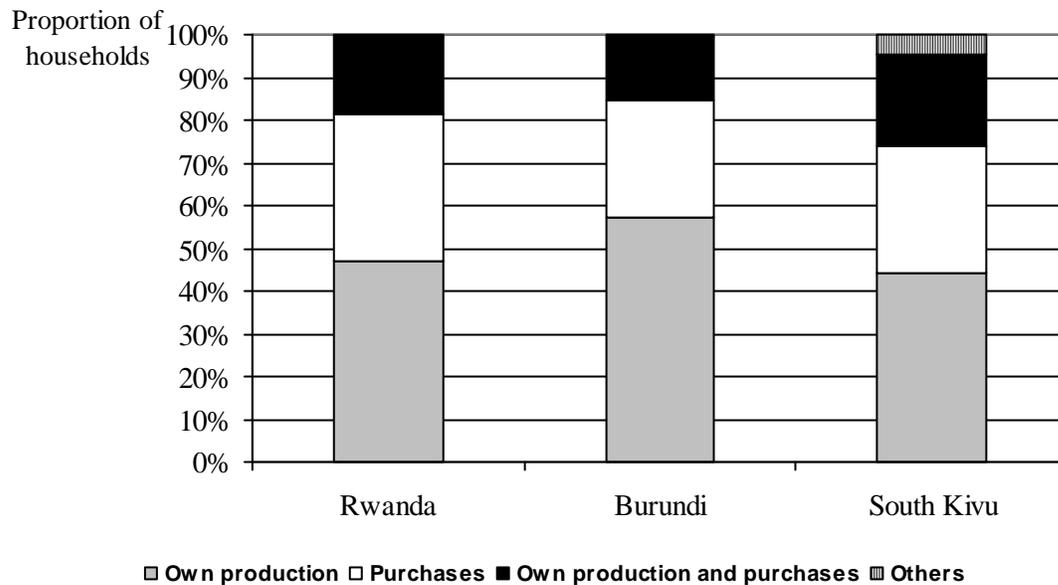


Figure 4: The main sources of beer bananas
 Source: CIALCA farmer baseline survey, 2006-2007
 NB; Others may include donations from friends

1.5 Methodology

1.5.1 CIALCA project background

This report is a regional synthesis of the findings from a baseline, farm diagnostic and banana market surveys that were conducted in South Kivu, Rwanda and Burundi by the International Institute of Tropical Agriculture (IITA) in collaboration with national agricultural research partners. IITA is part of the Consortium for the Improvement of Agriculture-based Livelihoods in Central Africa (CIALCA) which brings together three Belgium funded projects led by three CGIAR centers; IITA, Bioversity International and TSBF-CIAT. CIALCA collaborates with the national agricultural research institutions in the project region, including INERA of the Democratic Republic of Congo, ISAR of Rwanda and ISABU/IRAZ of Burundi. The surveys were implemented with funding support from the Belgium government through the DGDC project. A more detailed exposition on the focus of the three CGIAR centers can be found at the end of the report.

1.5.2 Data collection and analysis

A farm level baseline cross sectional survey was conducted in Rwanda, Burundi and the Democratic Republic of Congo covering about 2,800 households between June 2006 and February 2007 using questionnaire interviews. The objective was to collect data to enable the establishment of farmer typologies based on the presence of specific production units or access to resources (CIALCA 2008). A follow up in-depth survey, hereinafter referred to as farm level diagnostic survey was carried out in the same sites using a sub-sample of the baseline survey households stratified according to local wealth classes in the three countries. The objective was to identify and quantify the biophysical and economic parameters driving the banana cropping systems (*ibid.*). A total of 540 households, being a sub-sample of the baseline survey households, were interviewed. Between February and March 2007, market surveys were also conducted in the baseline and farm diagnostic survey sites in collaboration with the national partners to identify opportunities and constraints in the banana value chains. A total of 610 respondents who included transporters, rural and urban traders were interviewed from all the three countries during the period of December 2006 to March 2007. The market survey questionnaires can be found in Appendices 2 and 3 while the farm level diagnostic survey questionnaire is in Appendix 5. The market survey questionnaires were administered to traders found at their duty locations within the study areas. The respondents were randomly selected comprising a random sample of traders operating in areas of relatively high banana trade activity. This report contains the descriptive statistics obtained from the market and farm level diagnostic surveys from the 3 countries.

2. DEMAND ANALYSIS

2.1 Size and growth of national markets

A steady growth in the production of bananas in Rwanda from about 2.2 million t in 1996 to a current estimate of 2.6 million t (FAOSTAT, 2008) as shown in Figure 2 is an indication of growth in size of the national market. Despite this indication, Rwanda is still a net importer of bananas from neighboring countries. Ferris et al. (2002) estimate annual banana imports at 20,000 t from both Uganda and the Democratic Republic of Congo. Imports from Uganda mainly comprise the cooking banana types while those from the Democratic Republic of Congo comprise both beer and cooking types. The growth in the Rwandese market is mainly attributed to population increase, increasing urbanization and change in consumption habits. Since the 1994 crisis, many refugees returning from exile have acquired skills in banana production while in exile. This effect has thereby enhanced both the production and consumption of the crop.

For Burundi, banana production has remained more or less constant at 1.54 million t for the past 3 years. Nevertheless, Burundi is also a net importer of bananas from the neighboring countries. The cooking types mostly come from Rwanda and Tanzania while the beer banana types are mostly imported from the Democratic Republic of Congo and Tanzania. Altogether, the imports are estimated at about 20,000 t (Spilsbury *et al.*, 2004).

The South Kivu province of the Democratic Republic of Congo is also an important banana producing region. About 20 - 30% of the national production of bananas estimated at 1.5 million t could be emanating from this province (Spilsbury *et al.* 2004). However, not all of what is produced is consumed by the local population. South Kivu province is an exporter of bananas. The bananas mostly cross into Rwanda across Lake Kivu. All types of bananas are exported although the cooking and the beer types dominate the trade.

2.2 An overview of cross border trade

Formal questionnaire interviews of traders and other market participants were used to capture the border crossing points (See Appendix 4), the means of transport used, quantities and composition by banana type averagely handled by traders and the periods of highest and lowest activity. This data was collected between May and June 2007 for Rwanda and Burundi and in December 2007 for South Kivu. A total of 20 respondents were interviewed from 15 border points in Burundi, while 22 respondents were captured from 3 border points in South Kivu and 23 respondents from 7 border points into Rwanda. Nonetheless, this instrument falls short of estimating the total volumes traded between the countries since it only captures a sample of the traders operating at the border posts. The team in Burundi spent more time at the border posts and obtained some useful estimates of volumes crossing after interviewing some key informants.

2.2.1 Rwanda

Results from the market survey show that Rwanda is a net importer of bananas. The cooking types are mostly imported from Uganda through Gatuna and Kagitumba border posts which lie in the north and north east boundaries of Rwanda. Some cooking bananas also cross from the Democratic Republic of Congo via Lake Kivu into Rubavu district which is in the western province of Rwanda. The dessert types are also mostly imported from Uganda through Gatuna and Kagitumba border posts. The beer types are mostly imported from the Democratic Republic of Congo through Bralirwa, Kibuye and Cyangugu via Lake Kivu into the western parts of Rwanda. Plantain is mainly imported from the Democratic Republic of Congo through Rubavu. Table 2 summarizes the cross border findings for Rwanda.

Table 2: A summary of cross border banana trade for Rwanda

Border post	Origin / destination	Means of transport	Dominant Banana types	Month of highest activity	Month of lowest activity
Imports:					
1. Gatuna	Uganda	Truck, Pick up, Bicycle	Cooking, Dessert,	June, July	October
2. Bralirwa	D.R.Congo	Boat	Beer	July, August	Dec, Jan, Feb
3. Rubavu	D.R.Congo	Manual, Push cart,	Plantain, Cooking,	June, July	Dec, Jan, Feb
4. Lake Kivu (Kibuye)	D.R.Congo	Boat	Beer	June, July	Oct, Nov,
5. Kagitumba	Uganda	Truck, Bicycle	Cooking, Dessert,	July, Dec,	May,
6. Lake Kivu (Cyangugu)	D.R.Congo	Boat	Beer,	July	Oct, Dec
Exports:					
7. Kanombe airport	EU	Air	Dessert	January	August

Source: Survey data, 2007

Rwanda generally experiences good banana harvests in the period of June to August which also coincide with harvest periods in the neighboring countries. Highest cross border activities are evident during these periods. The festive season in December also influences high banana imports.

Exports are dominated by the dessert types departing Rwanda through the Kanombe airport and mostly to the European Union markets. The exports are usually highest in January and lowest in August. No other exports were captured by the survey from the other border crossings and hence one can conclude that Rwanda is generally a net importer of bananas in the region. There are also initiatives by the business sector in Rwanda to open markets in the Middle East. One such initiative is for Rwanda to export 35 t of organic produce weekly to the Gulf state of Oman. Dessert and cooking bananas

are to comprise 2 t of the consignment (EABW, 2008). The Government of Rwanda has also indicated their support of such initiatives and has recently constructed a cold room facility at Kanombe Airport, Kigali, which is expected to boost Rwanda's horticulture exports. The refrigerated room which was completed in May 2007 has a storage capacity of 30 t of perishable products (allafrica.com, 2008).

2.2.2 Burundi

Results from the survey reveal that Burundi is a net importer of bananas. The cooking types are mostly imported from Rwanda and Tanzania whereas the beer types are mostly imported from Tanzania and the Democratic Republic of Congo. Bicycle and manual carriage are the most dominant means of transport used and the highest activity level is in the period of June to October. The highest volume of imports is recorded at the Mugina border post with Tanzania with the bulk mainly comprising of beer banana types. Table 3 summarizes the banana cross border activity for Burundi.

Table 3: A summary of cross border banana trade for Burundi

Border site	Origin	Quantity (MT per Week)	Means of transport	Banana types	Month of highest activity	Month of lowest activity
Imports:						
1. Kanyaru	Rwanda	0.4	Bicycle 70% Manual 30%	Cooking	June – Sept	Nov – Feb
2. Ruhwa	Rwanda	0.4	Bicycle 100%	Cooking	Apr – Aug	Sept – Feb
3. Kabonga	Tanzania	1.0	Boat 100%	Beer	June – Oct	Nov – May
4. Mugina	Tanzania	50.0	Bicycle 100%	Beer 90% Cooking 10%	June – Oct	Nov – May
5. Kobera	Tanzania	0.4	Bicycle 80% Manual 20%	Cooking	Aug – Oct	Nov – July
6. Giteranyi	Tanzania	4.0	Pickup 80% Bicycle 10% Manual 10%	Cooking	Aug – Oct	Nov – July
7. Gatumba	D.R.Congo	5.0	Bicycle 100%	Beer	Mar - Aug	Sept – Feb
Exports: No observations						

Source: Survey data, 2007

The months of highest activity at the border posts also coincide with the harvest months in the neighboring countries. For instance, the harvest period in Tanzania between June and October raises imports into Burundi and this effect tapers off in November as the harvest season in Tanzania ends.

2.2.3 South Kivu province of the Democratic Republic of Congo

The South Kivu area is generally a net exporter of bananas to the surrounding areas. Surplus production is assembled by the rural traders and transported to Luhihi and Birava towns prior to being exported into Rwanda across Lake Kivu. These banana exports

mostly comprise of the cooking, beer, dessert types and plantains. The highest activity is mostly recorded in May. Some beer types also cross into Rwanda mostly by bicycle through the Kamanyola border post. Occasionally, the dessert banana types are imported into South Kivu by pickup and manual carrying through the Ruzizi post and this is mostly in the months of June and October. Table 4 summarizes the banana cross border activity for the South Kivu area.

Table 4: A summary of cross border banana trade for the South Kivu area

Border post	Origin / destination	Means of transport	Banana types	Month of highest activity	Month of lowest activity
Imports:					
1. Ruzizi	Rwanda	Manual, Pick up,	Dessert,	June, October,	September, December,
Exports:					
2. Birava	Rwanda	Boat	Cooking, Beer, Dessert, Plantain,	May	February
3. Kamanyola	Rwanda	Bicycle	Beer	May	September
4. Luhihi	Rwanda	Boat	Cooking, Beer, Dessert,	May	Dec – Feb

Source: Survey data, 2007

Banana harvest in South Kivu is relatively good from May to August and hence the surplus production is often exported through Birava, Kamanyola and Luhihi into Rwanda. The exports comprise of all the types of bananas. However during the festive season of December right through to February, exports drop and even some imports especially of the dessert types from Rwanda occur.

3. SUPPLY ANALYSIS

3.1 Banana marketing channel and chain actors

3.1.1 The producers

The major suppliers of the different types of bananas in the three countries are the small-scale farmers with a land holding ranging from 1.1 ha in Burundi and South Kivu to 1.5 ha in Rwanda (CIALCA, 2008). Land size holdings are however heterogeneous within the countries. For instance in Burundi, farmers from Gitega province have the lowest land sizes of 0.5 ha compared to 2 ha in Cibitoke province. In Rwanda, the same scenario exists with farmers from the Sud province having larger land holdings of 1.9 ha compared to 1 ha in the Ouest (*ibid.*). Banana production is seasonal in nature, varying overtime during a typical year. Figure 5, which is based on farmer recall data from the farm diagnostic survey covering 540 households shows the average quantity of cooking bananas harvested per household per month in kilos during a typical year. In Rwanda, production rises from June and peaks around August and September at an average of 125 kg per month. In Burundi, production peaks in September at around 80 kg per month then starts to decline. These peak yields are obtained 4-5 months after the peak rainfall in April. In South Kivu production seems to be relatively time invariant according to Figure 5, although highest production is recorded in the month of August. Generally, cooking banana production is higher for Rwanda, at an average of 90 kg per household per month compared to 55 kg per month for Burundi and 33 kg for South Kivu.

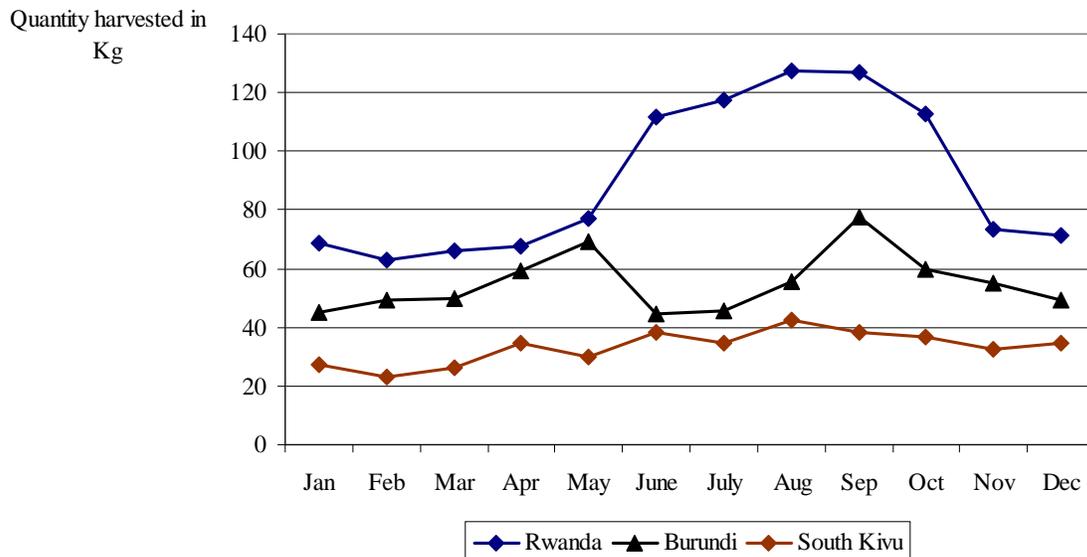


Figure 5: Average quantity of cooking bananas harvested per household from Jan to Dec 2006 for Rwanda, Burundi and South Kivu
Source: Survey data, 2007

The seasonal fluctuations in banana production as indicated in Figure 5 have significant implications for the producer prices. The prices also tend to fluctuate with production and have significant peaks and troughs as illustrated in Figure 6. High production months are

associated with depressed prices while low production months are associated with higher prices. For instance in Rwanda, the peak production months from July to September record the lowest price particularly in August at about one US\$ per bunch. For Burundi, the lowest producer price is recorded for the months of July to October at about US\$ 0.8 per bunch⁵. In South Kivu, the lowest price recorded is US\$ 1.4 per bunch in the months of March, April and August.

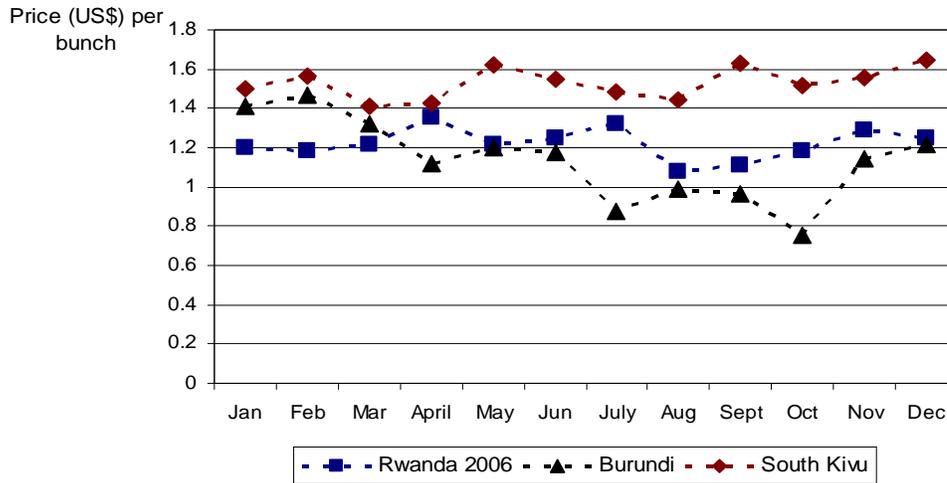


Figure 6: Average cooking banana producer prices from Jan to Dec 2006 for Rwanda, Burundi and South Kivu

Source: CIALCA farm level diagnostic survey results (2007) and Ferris et al. (2002)

Generally, producer prices for cooking bananas are highest in South Kivu, with an average of US\$ 1.5 per bunch and lowest for Burundi at an average of US\$ 1.1. In Rwanda, the average price per bunch is US\$ 1.2. The price variation across the three countries correlates positively with bunch weight. The bunch weight for cooking bananas is highest for South Kivu, at an average of 16 kg while for Rwanda and Burundi it is 11.9 and 8.4 kg respectively. It is however useful to note that there are wide variations in both production quantities and prices for the different provinces of Rwanda and Burundi. This is captured in Section 3.3 on pricing.

⁵ Price figures for Burundi and South Kivu are based on nominal prices reported by the farmers during the survey while for Rwanda, the figures are based on real price figures for 2006 using the CPI for 2001 as base.

3.1.2 Sale points for cooking bananas

The common sale points for cooking bananas in South Kivu and Rwanda is the farm gate which is mainly associated with lower producer prices compared to the local and regional markets. In Burundi, the dominant sale point is the local markets. Although the local and regional markets offer higher prices, they are associated with higher transactions costs for the producers compared to the farm gate sales. Figure 7 shows the dominant point of sale of cooking bananas for the households in South Kivu to be the farm gate (73%), while 19% and 8% sell to the regional and local markets respectively.

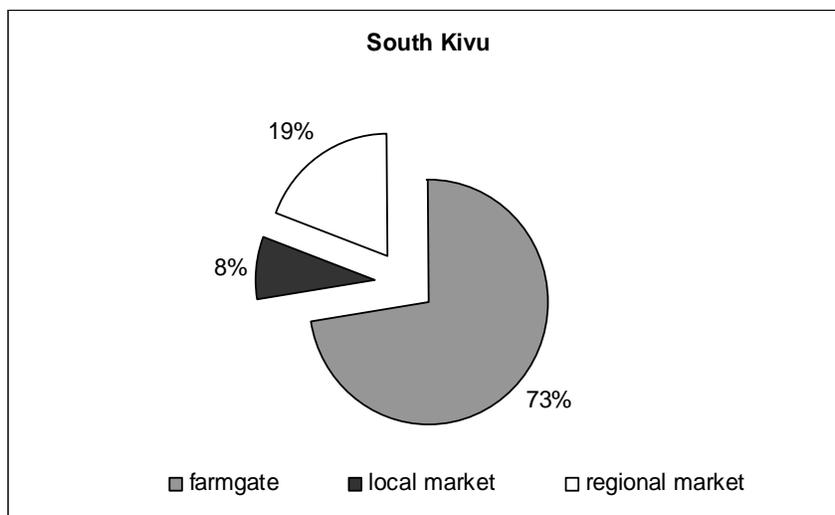


Figure 7: Points of sale of cooking bananas in South Kivu
Source: Survey data, 2007

These market outlets are associated with significant price differentials, with the regional markets offering the highest price; the average price per bunch/ regime in South Kivu is US\$ 1.5(S.D. 0.1) at the farm gate compared to US\$ 1.9 (S.D. 0.1) at the local markets and US\$ 2.0 (S.D. 0.4) at the regional market. On the other hand, in Burundi, dominant sale points for cooking bananas include local market (57%) and farm gate (36%) with only 7% of the households selling to regional markets as shown in Figure 8. The average price per bunch of cooking bananas is US\$ 1.8 (S.D. 0.3) at the farm gate, 1.9 (S.D. 0.2) at the local market and 2.1 (S.D. 0.6) at the regional market. Although the regional markets offer higher prices, most households still sell at the local markets, possibly indicating potential difficulties in accessing the regional markets.

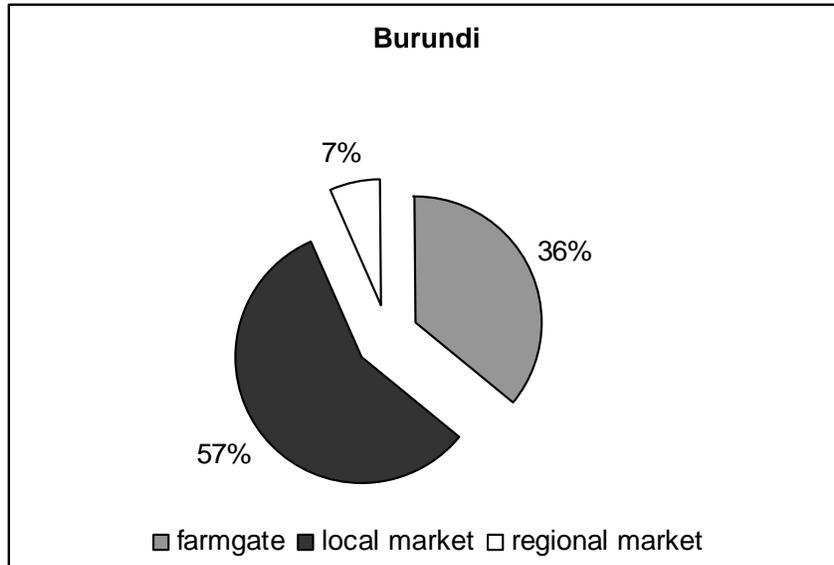


Figure 8: Points of sale of cooking bananas in Burundi
 Source: Survey data, 2007

In Rwanda, the common sale points for cooking bananas are both at the farm gate (41%) and local markets (59%) as illustrated in Figure 9.

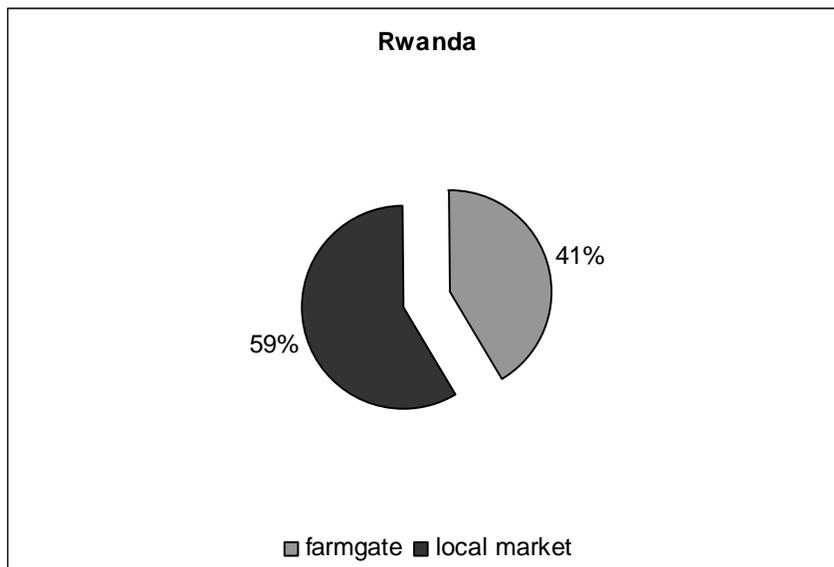


Figure 9: Points of sale of cooking bananas in Rwanda
 Source: Survey data, 2007

Higher prices are associated with local markets at an average of US\$ 1.9 (S.D. 0.1) per bunch compared to farm gate at US\$ 1.5 (S.D. 0.1) per bunch.

3.1.3. Other chain actors in the banana marketing channel

The marketing channel of all types of bananas traded in the region can be depicted as shown in Figure 10. There is limited coordination of activities between the supply chain participants and activities as well as any contractual arrangements are informal. The channel is relatively long. The small holder farmers mostly sell their produce to the rural assemblers at the farm gate and they occasionally travel to local markets to sell directly to consumers.

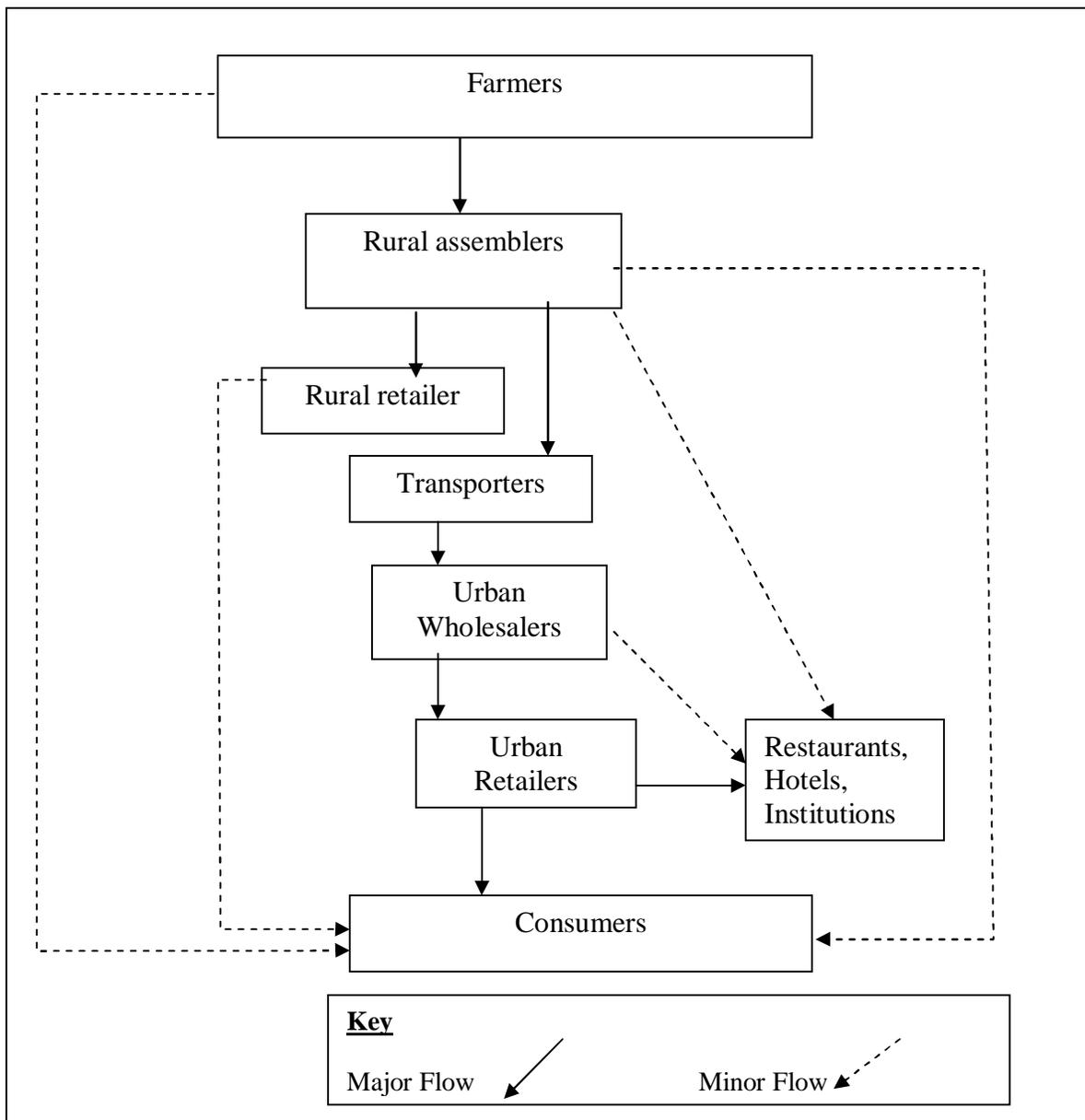


Figure 10: The marketing channels of bananas (all types except beer) in South Kivu, Rwanda and Burundi.

Source: Survey data, 2007

The rural assemblers subsequently sell the produce to either transporters or to rural retailers. The transporters are often hired by urban wholesalers and their task is simply to deliver the produce to the wholesalers in the urban markets where it is dispersed to urban retailers, institutions, restaurants and hotels. The urban retailers mostly sell their produce to the consumers. The bananas are commonly sold in bunches or as heaps of fingers. It should be noted here that the wholesalers seem to wield the greatest influence in the supply chain. They have the highest operating capital, they hire the transport and also handle the largest volumes of the produce. They sometime offer storage for the produce and may also extend some credit facilities to the other traders in the chain.

Although the cooking types mainly follow the channel represented in Figure 10, the beer banana channel differ quite a bit and is relatively short. Figure 11 shows the marketing channel for the beer bananas. From the farmer, they are either sold directly to processors or to traveling traders who subsequently sell them to processors. Once the beverage has been made, it is either sold to retailers who sell to consumers or it is sold directly to the consumers.

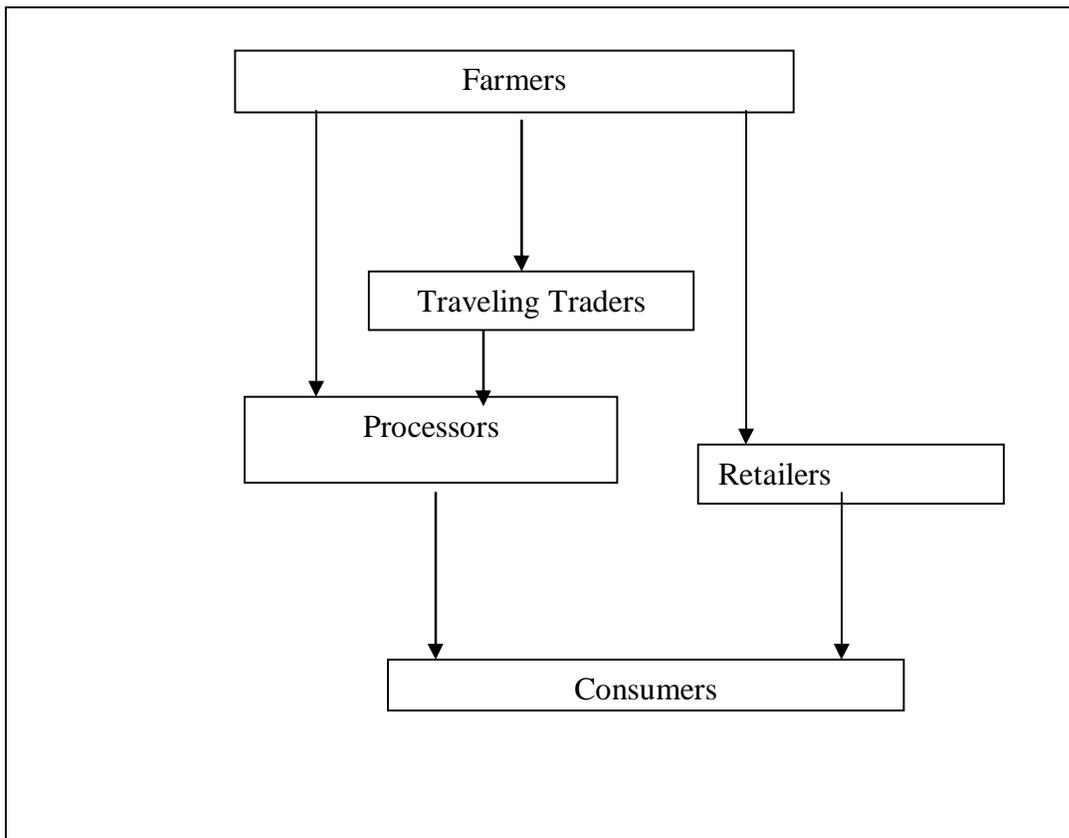


Figure 11: The beer banana marketing channel
Source: Survey data, 2007

3.2 Volumes traded

The market survey results indicate a high volume of beer bananas traded by the rural assemblers in Burundi at an average of 24 bunches per trader compared to 6 bunches in South Kivu and none in Rwanda. This is depicted in Figure 12. The cooking and dessert types also feature prominently in Rwanda and South Kivu. The trading of plantains is quite erratic and was not captured at this level.

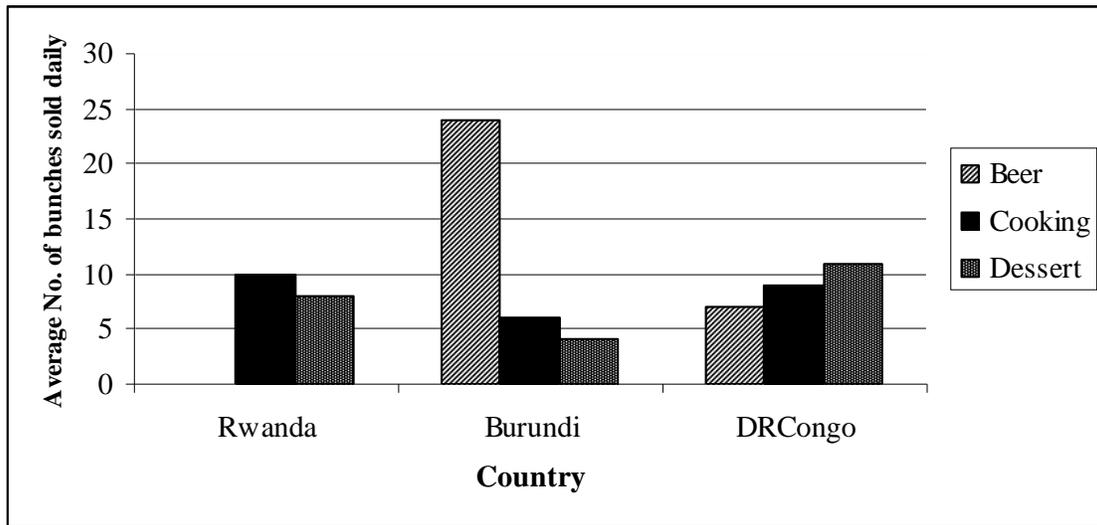


Figure 12: Average daily sales of rural assemblers
Source: Survey data, 2007

At the level of rural retailers, the beer types in Burundi record the highest volumes traded, as indicated in Figure 13. Beer banana trade is very prominent in the rural areas of Burundi where beer banana production tends to be high. Beer bananas are mostly processed informally at the household and villages levels and incidentally much of the consumption also take place there. The cooking types and the dessert are also traded but in much less quantities.

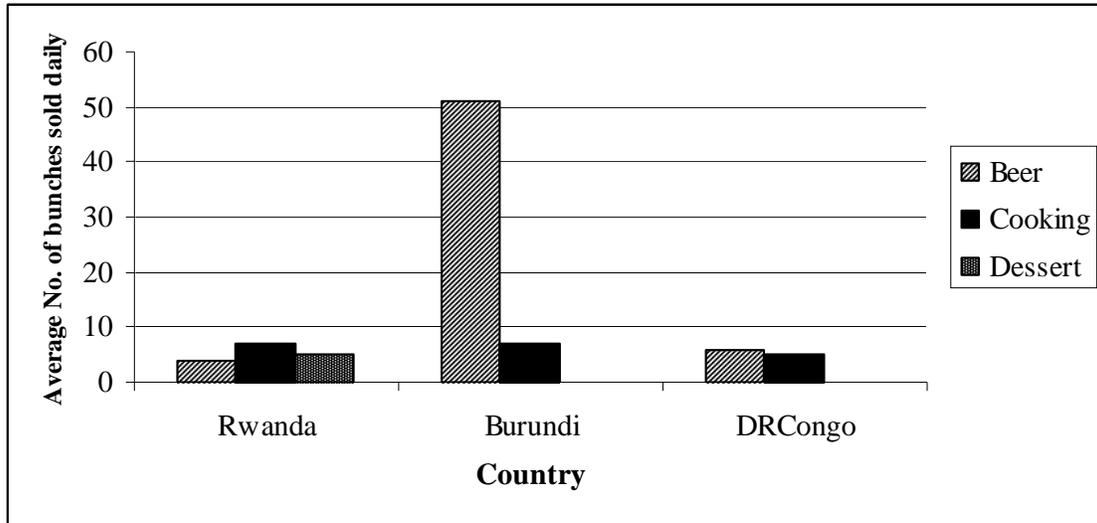


Figure 13: Average daily sales of rural retailers

Source: Survey data, 2007

NB: The trading of banana types not shown in the diagram was quite erratic and could not be captured

At the higher end of the supply chain, the urban wholesalers in Rwanda and Burundi mostly trade in cooking types at an average of 45 and 35 bunches per trader respectively as shown in Figure 14. The beer banana types are also traded in relatively modest amounts in the two countries. On the contrary, in South Kivu of the Democratic Republic of Congo plantains are the main types traded by the urban wholesalers.

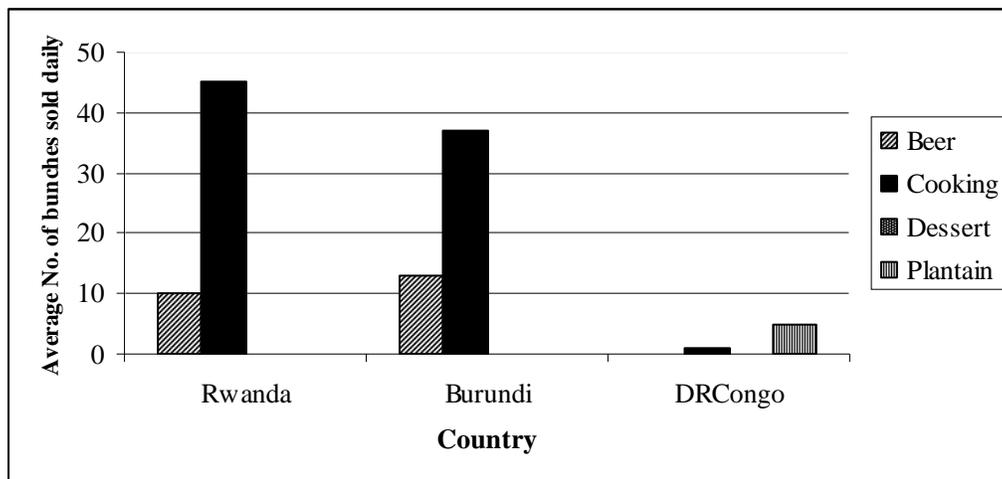


Figure 14: Average daily sales of urban wholesalers

Source: Survey data, 2007

The trend is almost the same at the urban retail level where higher volumes of plantains are traded in South Kivu as indicated in Figure 15. The cooking types are also dominant at this level in Rwanda and Burundi followed closely by plantains in Rwanda and beer types in Burundi. The dessert types also feature at this level in Burundi but are not prominent in South Kivu and Rwanda.

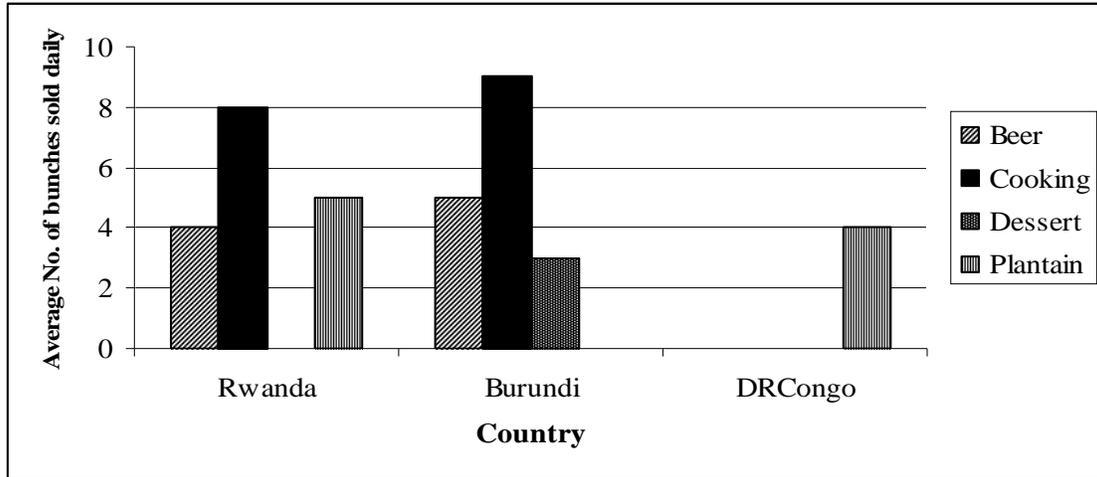


Figure 15: Average daily sales of urban retailers

Source: Survey data, 2007

NB: The trading of banana types not shown in the diagram was quite erratic and could not be captured

3.3 Pricing

Figure 16 presents the average market price of a medium sized bunch of cooking bananas for four provinces in Burundi⁶. The price is highest in Bujumbura followed by Cibitoke province. Bujumbura forms a large demand centre, being the urban capital city of Burundi. Market prices tend to be high in areas where supply is low and demand high but low in areas with high supply. Cooking banana production in Gitega and Kirundo is relatively high at an average of 4.1 and 4.5 medium-sized bunches per month per household respectively compared to an average of 3.3 bunches in Cibitoke province. Production of cooking bananas was however not captured for Bujumbura province in the survey.

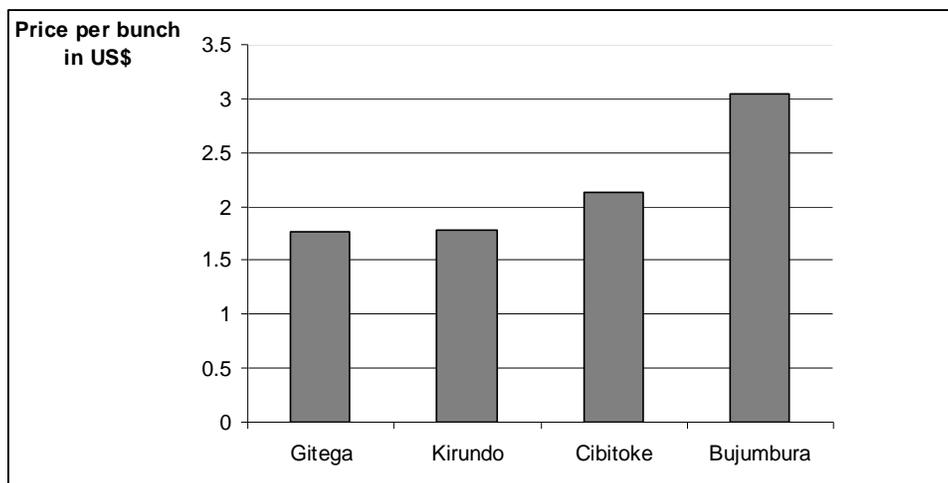


Figure 16: Average price of a medium-sized bunch of cooking bananas across provinces in Burundi

Source: Survey data, 2007

⁶ From the market survey, the medium sized cooking bunches were classified as those weighing 10-15 Kg. Small bunches were those weighing < than 10Kg while the large bunches were those weighing >10Kg.

In Rwanda, the market prices are highest in the Western province followed by the South and lowest for the Eastern as shown in Figure 17.

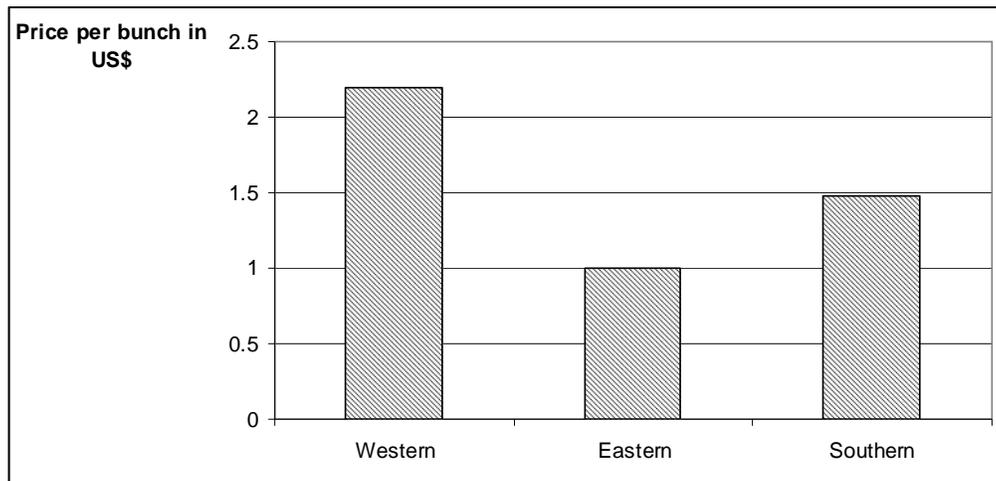


Figure 17: Average price of a medium-sized bunch of cooking bananas across provinces in Rwanda
Source: Survey data, 2007

The low price in the eastern province is due to the high production levels in this province relative to the other provinces. Available literature indicates the major producing areas in the year 2000 for Rwanda to be mainly in districts in the Eastern province. The major producing districts include Kibungo, Kigali rural, Byumba and Gitarama. Kibungo accounts for about 22% of banana production and it is the major producer and seller of cooking banana into Kigali market (Ferris *et al.*, 2002). In Western province the high market prices may be due to limited production as well as the high transaction costs associated with marketing bananas in the province.

Although the market prices tend to vary across the provinces in the countries of survey, these prices tend to be much higher than the producer prices. In Burundi for instance the market price is more than double the producer price while in South Kivu it is 60% higher and in Rwanda it is 31% higher as shown in Table 5. The high market prices relative to the producer prices reflect high transaction costs along the marketing channel, which is detrimental and reflect welfare losses to both consumers in terms of high consumer prices and to producers in terms of low producer prices. The market channel is also relatively long and since the middlemen insist on higher returns, the final price to the consumer tends to be high and producer prices low.

Table 5: Average producer and market prices for cooking bananas per bunch

	Average producer price (US \$)	Average market price (US\$)	Producer price proportion of market price
Rwanda	1.6 (0.1)	2.1 (0.8)	76%
Burundi	1.1 (0.2)	2.3 (0.9)	47%
South Kivu (DRC)	1.5 (0.1)	2.4 (1.4)	57%

Source: Survey data, 2007

NB: Standard deviation in parentheses

3.4 Margins along the channel

Survey results indicate that all categories of traders in Rwanda obtain the highest margins from the cooking types as shown in Figure 18. However, the margins tend to decline as the cooking bananas move from the rural areas to the urban centers, possibly indicating an increase in transactions costs. The dessert types give the second highest margins mostly to the rural retailers and the transporters. The beer types are mostly handled by the rural assemblers whereas the plantain is mostly handled by the rural retailers.

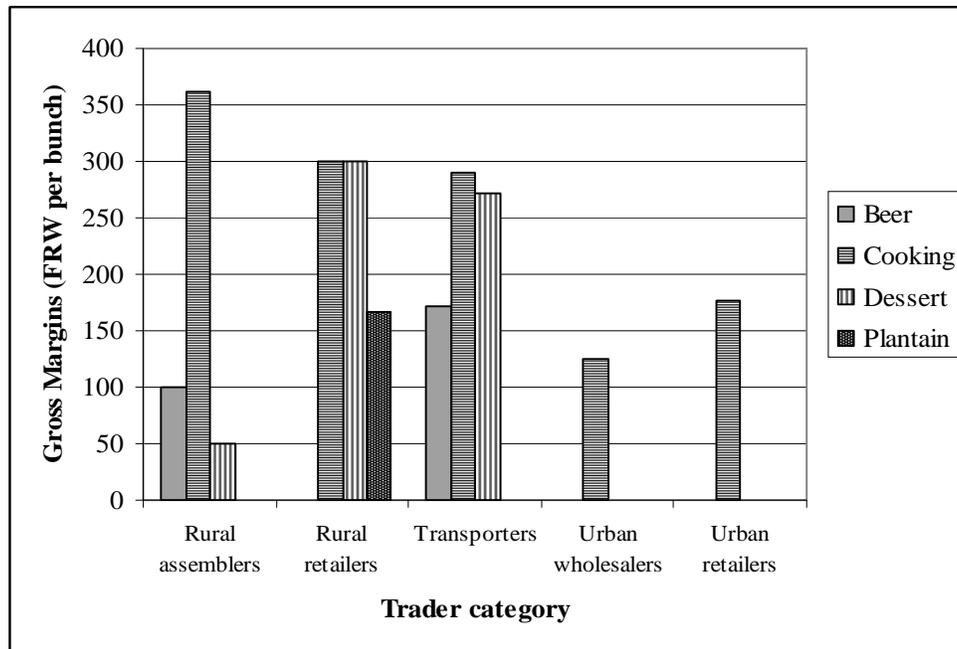


Figure 18: Gross margins obtained by traders for each type of banana traded in Rwanda
Source: Survey data, 2007

Figure 19 shows the gross margins for the different categories of traders in Burundi. The results show that the highest gross margins are mostly earned by urban retailers dealing in dessert bananas. However, in general the cooking types have the highest margins for all categories of traders in Burundi. The beer types mostly traded by rural assemblers and rural retailers render the third highest margins to the traders.

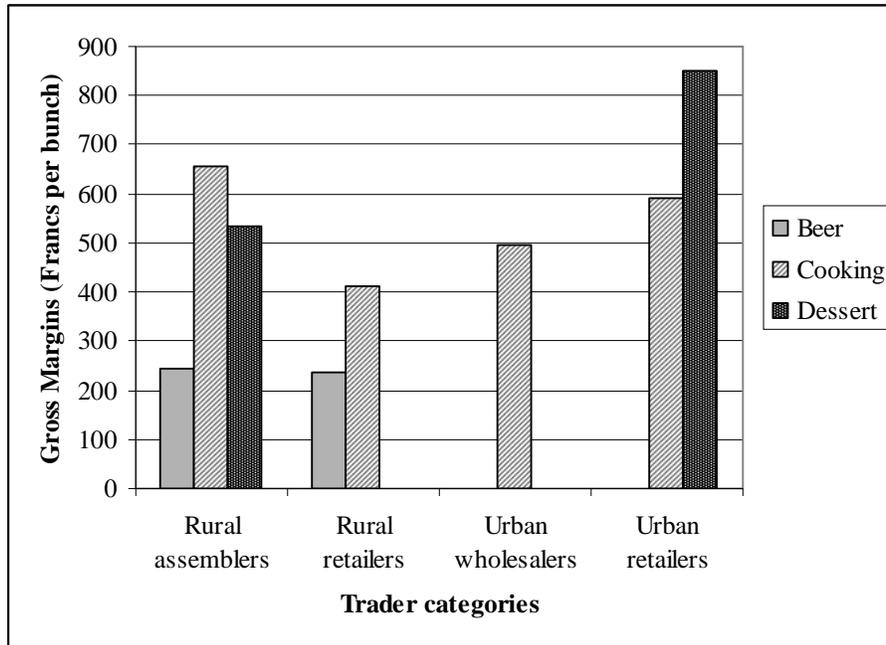


Figure 19: Gross margins obtained by traders for each type of banana traded in Burundi
Source: Survey data, 2007

Survey results from South Kivu shown in Figure 20 reveal that the rural assemblers and the rural retailers obtain the highest gross margins from trading in plantain types whereas the urban wholesalers and urban retailers obtain the highest gross margins by trading in the dessert types.

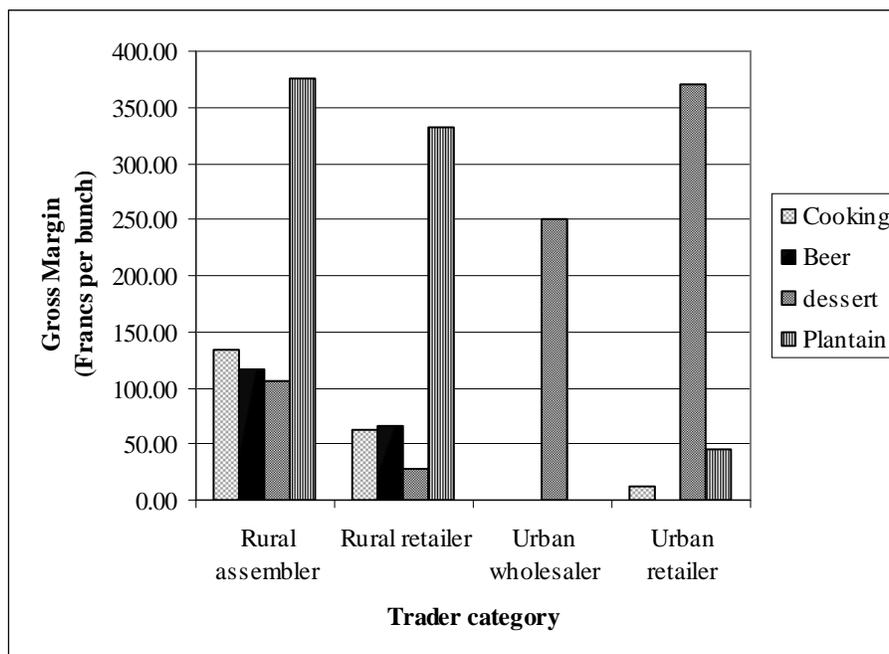


Figure 20: Gross margins obtained by traders for each type of banana traded in South Kivu
Source: Survey data, 2007

3.5 Marketing Costs

Marketing costs in Rwanda as shown in Figure 21 vary from the rural to urban locations. In the western province, transport costs comprise the highest proportion of costs incurred by traders followed by storage costs then handling costs and the least are the taxes. However, in the Eastern province, the storage costs are highest followed by taxes then handling costs while the transport cost comprise the least cost component. In the Southern province, storage and handling costs are quite high followed by transport costs and then taxes. However in the urban Kigali town, the storage costs are very high followed by the storage costs and taxes. The transport costs incurred are the least since the commodity is quite close to the final consumers.

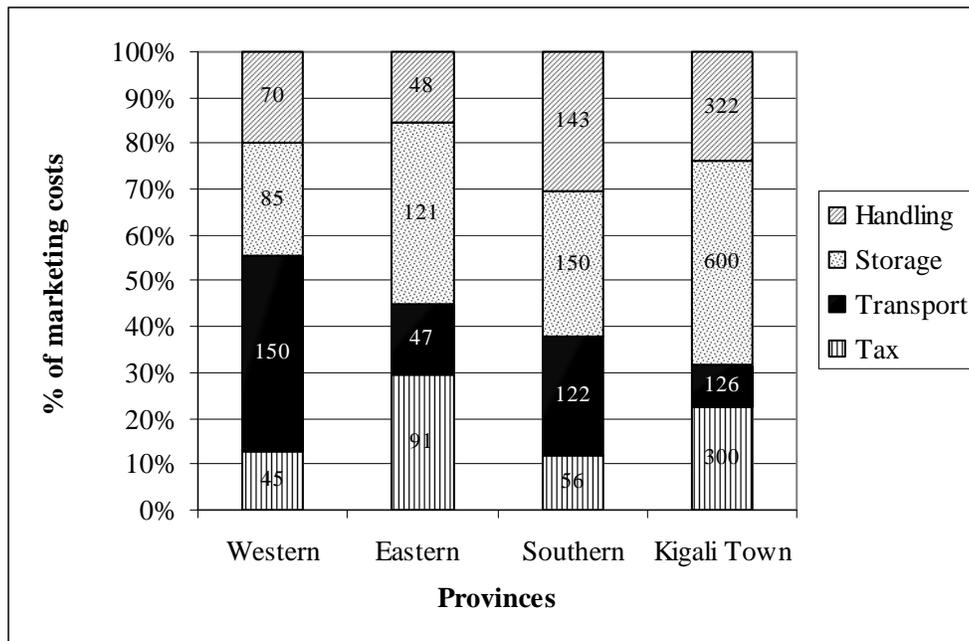


Figure 21: Costs incurred by traders by province in Rwanda

Source: Survey data, 2007

Storage and transportation account for the greatest proportion of costs incurred by traders in Burundi during the marketing of banana as shown in Figure 22.

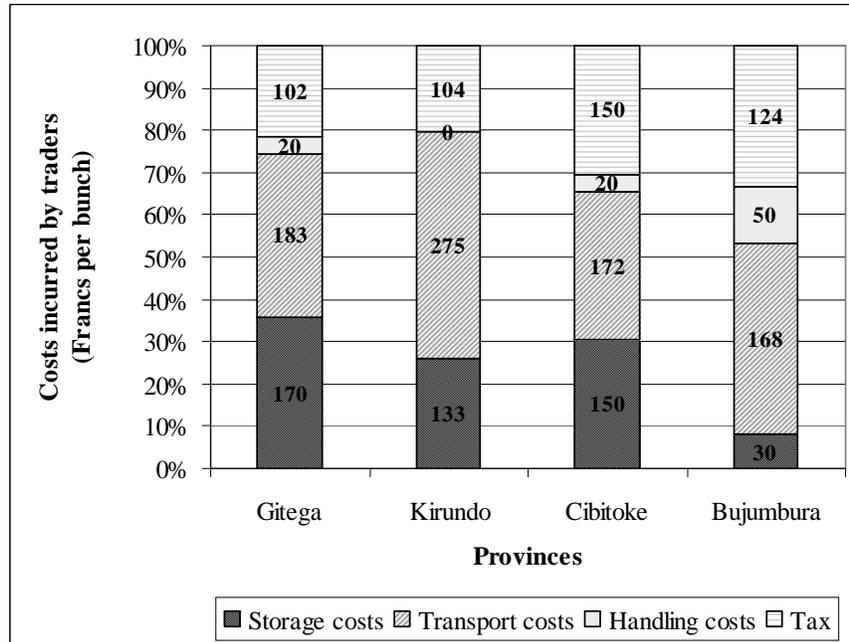


Figure 22: Costs incurred by traders by province in Burundi
 Source: Survey data, 2007.

Traders in Kirundo province incur the highest transport costs while traders in Gitega province incur the highest storage costs. Kirundo represents an area with poor market access. The distance between Kirundo and Bujumbura (which is a large demand centre offering lucrative prices) is large and the road is not in good condition. So the transport costs are bound to be high. Although the condition of the road from Gitega to Bujumbura is good, the long distance is one of the main contributors of the high transport costs. Most of the traders in Cibitoke incur high taxation costs. The Cibitoke traders particularly those sourcing their bananas from Mugina commune trade in beer banana which is then transformed into wine and then sold mainly in Bujumbura. There are several tax revenue collection points between Cibitoke and Bujumbura. This is not the case for Gitega and Kirundo where some of the produce is actually sold in the local markets.

Figure 23 shows the costs incurred by the different categories of traders engaged in banana marketing in South Kivu province. The handling costs⁷ comprise the highest proportion of costs incurred by all types of traders. Taxes paid by the rural assembler exceed the storage costs whereas for the urban wholesalers and urban retailers, the storage costs exceed the taxes.

⁷ This refers to costs incurred for activities such as loading, unloading, bagging, defingering

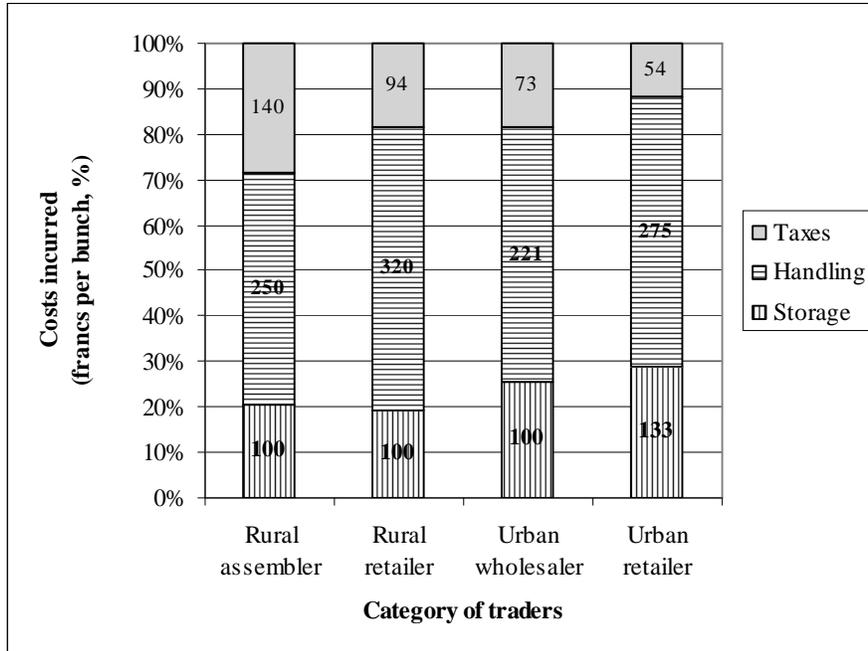


Figure 23: Costs incurred by traders in banana marketing in South Kivu.
 Source: Survey data, 2007

3.6 Major constraints faced

3.6.1. Purchase constraints

The major constraints faced in purchasing bananas in the study area are shown in Figure 24. Problems associated with transportation and distances covered are the most reported followed by inadequate supply and insufficient finances. Other problems mentioned include unclear administering of taxation, pricing and collusion, inconsistent quality and scarcity of buyers.

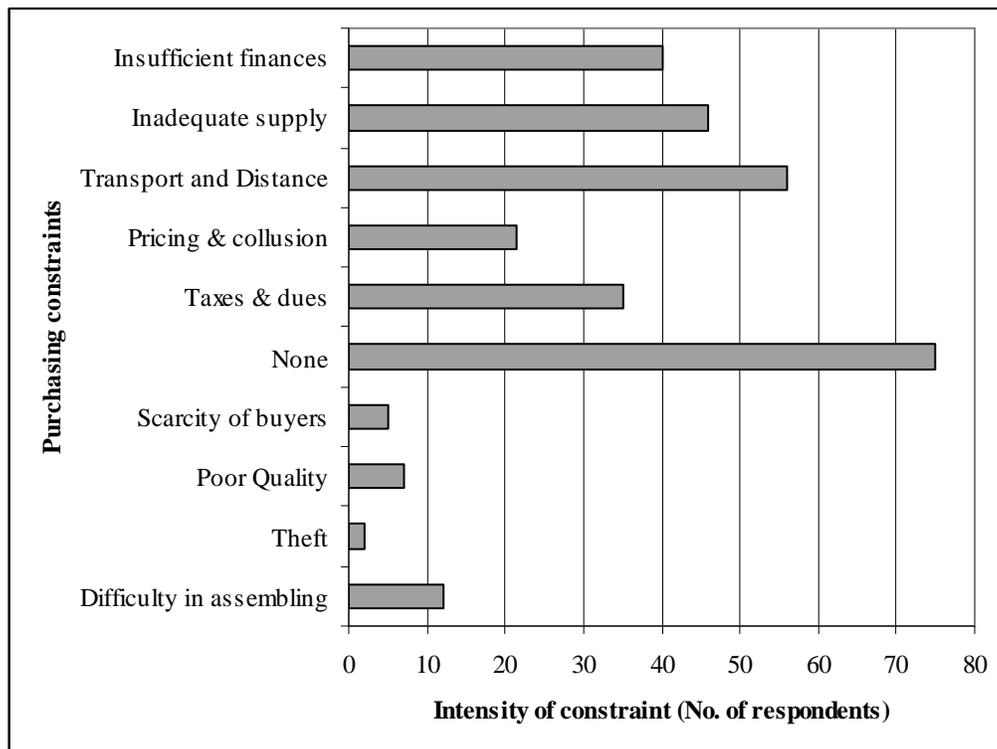


Figure 24: Constraints faced by traders in purchasing bananas in the entire study area
Source: Survey data, 2007

More specifically, in Rwanda, unfair taxation, pricing and collusion by some traders were mentioned as the major problems encountered during purchases. However, in Burundi, insufficient finances and inadequate transport facilities were mentioned as the most pressing constraints. In South Kivu province, scarcity of commodity, inadequate transport facilities and irregularities in pricing were mentioned as the major constraints encountered in purchasing commodities.

3.6.2 Constraints in selling

The constraints mostly faced by traders in general while selling the commodity are summarized in Figure 25. The taxes levied on them are quite high while they often do not have adequate finances for their operations. Finding buyers is not easy and there are inconsistencies in supply. Other problems mentioned include difficulties faced in

transporting the commodity, pricing problems, storage, insecurity and inconsistency in quality.

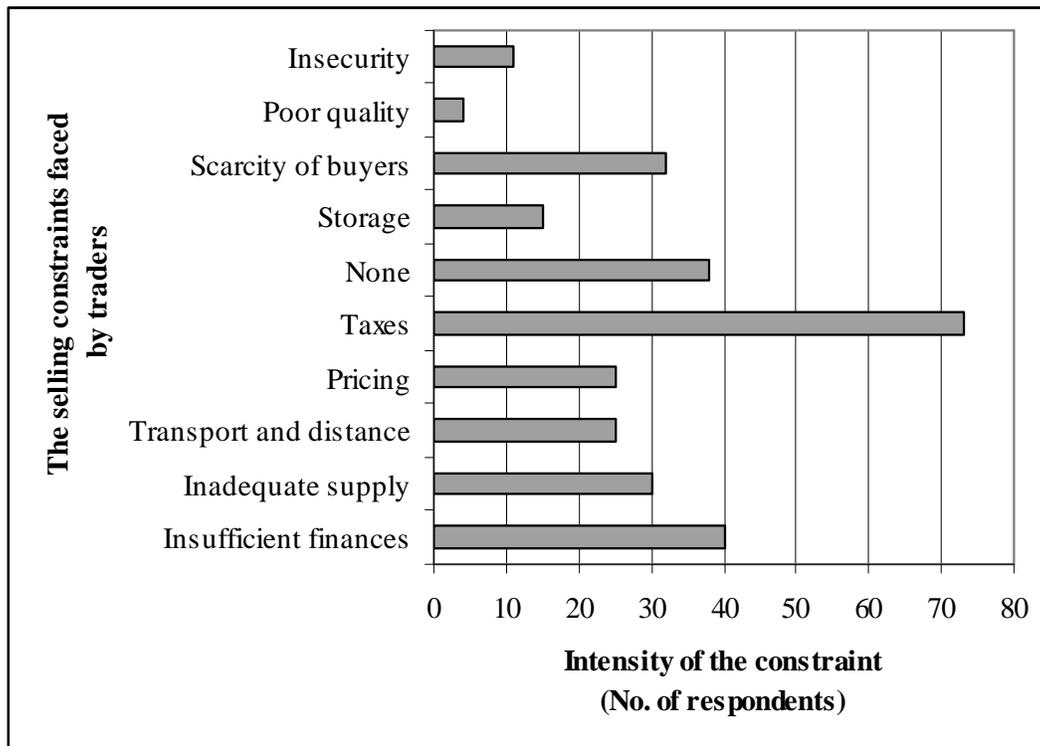


Figure 25: Constraints faced by trader while selling the commodity
 Source: Survey data, 2007

More specifically, traders in Rwanda mentioned unfair taxation, scarcity of buyers and insufficient finances as the major problems. The traders in Burundi mentioned insufficient finances, unfair taxation and inadequate storage facilities as the problems encountered while selling their commodities whereas the traders in South Kivu province also mentioned unfair taxation, inconsistency in supply of the commodity and inadequate transport facilities as the major problems encountered while selling their problems.

3.6.3 Constraints faced by transporters

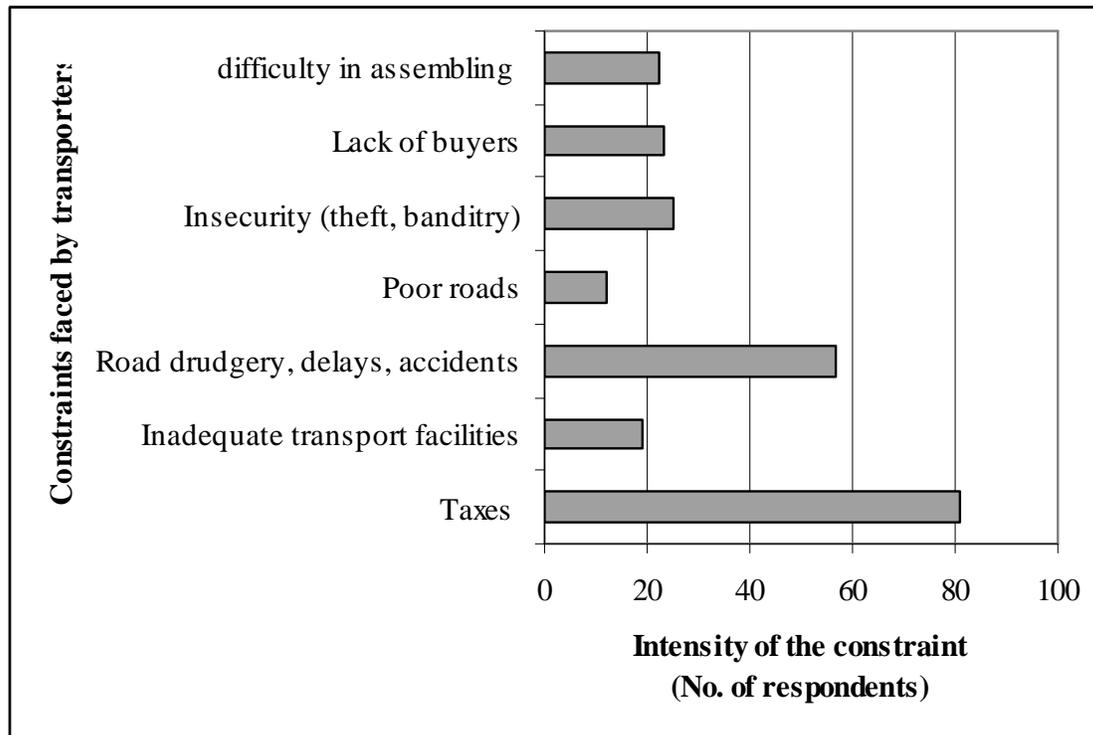


Figure 26: Constraints faced by transporters
Source: Survey data, 2007

The constraints generally faced by transporters in the study area are shown in Figure 26. The transporters from the study area indicate taxation, drudgery; including unpredictable delays, insecurity, scarcity of buyers, inadequate transport facilities and difficulty in assembling the commodity as the main constraining factors. Among the problems mentioned by transporters in Rwanda and Burundi include taxation, tolls and delays or drudgery while the transporters in South Kivu added theft, insecurity and inadequate transport facilities to the list of constraints encountered.

4. MAJOR FINDINGS

The major findings from the results of this survey may be outlined as follows;

- Indeed the importance of banana in the region is quite significant in terms of food security, household incomes and regional trade. Amidst increasing population in the region, bananas are to play a crucial role in providing food for the population and some income to households in the region.
- There exists vibrant cross border trade in the study area and several means of transport are utilized. These include boats, canoes, pickup vehicles, trucks, bicycles, pushcarts and manual carriage. Kiswahili language is instrumental in facilitating this trade. Results indicate that Rwanda and Burundi import bananas,

mostly the cooking type, from the neighboring countries such as the Democratic Republic of Congo, Uganda and Tanzania. South Kivu, Uganda and Tanzania are major exporters of bananas into Rwanda.

- The sale of beer banana is mostly prominent in the rural areas amongst rural assemblers and rural retailers. Consequently, beer bananas are mostly utilized in the local brewing process to make an alcoholic beverage / beer. The beer types are a major source of income in rural areas especially in Burundi. Formal banana beer processing facilities in the region are quite limited.
- The sale of cooking bananas thrives across all categories of traders in Rwanda and mostly among the urban traders in Burundi. Plantain and dessert banana sales are more prominent in amongst the urban traders in South Kivu. This implies that the cooking types are marketable across all types of consumers whereas the dessert and plantain mostly target the urban populations.
- Producer prices for cooking bananas in the region are relatively low as compared to the consumer market prices. In all the countries the market prices are more than 30% higher than the producer prices. This represents welfare losses to both the producers and consumers, possibly due to high transaction costs.
- The margins obtained by traders vary along the chain according to the type of banana traded. In Rwanda and in the South Kivu province, higher margins are obtained by the rural traders as compared to the urban traders for the cooking banana types traded. In Burundi, there is no clear pattern for the cooking banana types but the margins for the beer types are averagely constant along the chain whereas the margins for the dessert types tend to be higher towards the urban retail end of the chain. Likewise, the margins for the dessert bananas in South Kivu are also higher for the urban traders as compared to the margins of the rural traders. The margin patterns follow the importance accorded to the type of banana in the rural or urban areas.
- Among the major problems encountered by traders during purchase and sale of their produce are insufficient finances, unfair taxation and inadequate transport facilities. Difficulty in assembling the produce, inadequate storage and pricing inconsistencies are also among the problems faced by the traders. The transporters also point towards unfair taxation and drudgery / delays as the major constraints encountered.

5. SUGGESTED AREAS OF INTERVENTION

Based on the major findings of this survey, the following are the potential areas of intervention:

- Due to the importance of banana in the region and the deficit experienced mostly in Rwanda and Burundi, it is vital to enhance banana production in the region especially for the cooking and beer types. Varietal and trait preferences need to be established and suitable varieties introduced.
- The producers are pivotal in the banana marketing channel since they are the primary suppliers of the product. There is need to ensure that they have proper market information particularly regarding the market prices to avoid being exploited by traders and middlemen. A potential pathway would be to form producer or marketing groups or cooperatives which would provide such information as well as being an avenue for marketing their product.
- Since banana beer brewing is quite a significant income generating economic activity among many households in the region, there is need for advanced research on the handling and processes involved to assess if there are any public health risks introduced along the channel and to highlight some interventions that may be necessary to ensure limited risks to the end consumers. It might be necessary to encourage serious formal investment in this sub sector, for instance by setting up banana processing plants that can produce a beverage for the high-end market as well. Ideas could be borrowed from the banana beer making plant in Arusha, Tanzania as well as COVIBAR in Rwanda.
- Among the problems encountered by traders in the region are; insufficient finances, unfair taxation, storage and inadequate transport facilities. Considering that traders play a very vital role in moving bananas from households to consumers, it might be necessary to design appropriate programs through which the traders can access finance facilities easily. Likewise, the central and local governments ought to be encouraged to come up with clear and transparent tax administration methods which are not regressive to the tax payers.
- Furthermore, increased investment in infrastructure i.e. roads, electricity, telecommunication ought to be encouraged since it leads to reduction in transaction costs mostly incurred by traders. Emphasis ought to be placed on the feeder road networks which are vital in moving the bulky produce from the remote areas of production to urban areas where consumers are.
- In order to have harmonized interventions in the region, it might be important for all the stakeholder concerned i.e. the traders, farmer representatives, research organizations, NGOs, financial institutions and local government officials to form a coalition to tackle the challenges in a coordinated manner.

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Appendices:

Appendix 1: Production Quantities of Banana and Plantain from leading producers (Metric tonnes)

	2001	2002	2003	2004	2005	2006
India	14,210,000	16,820,000	11,954,300	11,388,000	11,710,300	11,710,300
Uganda	10,342,000	10,503,000	10,315,000	10,301,000	9,668,913	9,677,913
Brazil	6,176,960	6,422,860	6,800,981	6,583,564	6,703,400	7,088,021
China	5,482,183	5,789,404	6,132,671	6,251,746	6,672,789	7,053,000
Ecuador	6,890,166	6,069,689	7,241,374	6,866,937	6,826,437	6,826,437
Philippines	5,060,782	5,274,826	5,368,977	5,631,250	6,298,225	6,794,564
Colombia	4,528,632	4,680,390	4,521,438	4,851,816	5,221,686	5,221,686
Indonesia	4,300,422	4,384,384	4,177,155	4,874,439	5,177,608	5,177,608
Rwanda	1,784,058	2,784,870	2,407,837	2,469,740	2,593,080	2,653,348
Costa Rica	2,211,934	2,109,056	2,093,717	2,319,224	2,397,798	2,429,253
Mexico	2,027,997	1,885,803	2,026,613	2,361,144	2,250,041	2,196,891
Thailand	1,750,000	1,800,000	1,900,000	1,859,442	1,864,850	1,864,850
Burundi	1,548,897	1,602,979	1,600,000	1,556,857	1,538,679	1,538,679
DRC	1,530,000	1,510,000	1,520,000	1,510,000	1,510,000	1,530,000

Source: FAOSTAT | © FAO Statistics Division 2008



Consortium for the improvement of agriculture-based livelihoods in Central Africa

Following a call for proposals of the Directorate General for Development Cooperation (DGDC – Belgium) in April 2004, three proposals were approved:

- ‘Sustainable and Profitable Banana-based Systems for the African Great Lakes Region’, led by the International Institute of Tropical Agriculture (IITA), Kampala, Uganda.
- ‘Enhancing the resilience of agro-ecosystems in Central Africa: a strategy to revitalize agriculture through the integration of natural resource management coupled to resilient germplasm and marketing approaches’, led by the Tropical Soil Biology and Fertility Institute of the International Center for Tropical Agriculture (TSBF-CIAT), Nairobi, Kenya.
- ‘Building Impact Pathways for Improving Livelihoods in *Musa*-based Systems in Central Africa’, led by the International Network for the Improvement of Banana and Plantain of the International Plant Genetic Resources Institute (IPGRI-INIBAP), Kampala, Uganda.

As the above projects proposed to operate largely in the same parts of Rwanda, Burundi, and the Democratic Republic of Congo (DR Congo), with similar national partner institutes, and due to the complimentary nature of the activities proposed, above institutes agreed to operate as a Consortium to ensure cooperation and complementarity and avoid technical and financial duplication at the national level. The Consortium for Improving Agriculture-based Livelihoods in Central Africa (CIALCA) is a Consortium of the International Agricultural Research Centers (IARCs) and their national research and development partners that aims at close technical and administrative collaboration and planning in areas of common interest, thereby enhancing returns to the investments made by DGDC and accelerating impact at the farm level.



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Université National de Rwanda (NUR), Rwanda



Institut National des Etudes et de la Recherche Agricole (INERA), DR-Congo



Plateforme DIOBASS, DR-Congo



Université de Kinshasa (UNIKIN), DR Congo



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