



## **Structure and Dynamics of Malawi Cassava Markets**

**By**

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**Report Submitted**

**To**

**Cassava Transformation in Southern Africa (CATISA) Start Up Project  
Michigan State University  
East Lansing  
USA**

**February 2008**

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## Table of Contents

<b>LIST OF FIGURES .....</b>	<b>III</b>
<b>LIST OF TABLE .....</b>	<b>III</b>
<b>ACRONYM .....</b>	<b>IV</b>
<b>ACKNOWLEDGEMENTS .....</b>	<b>V</b>
<b>EXECUTIVE SUMMARY .....</b>	<b>I</b>
<b>1. INTRODUCTION.....</b>	<b>1</b>
<b>2. FARM PRODUCTION .....</b>	<b>3</b>
2.1    FOOD SECURITY PRODUCTION ZONES.....	3
2.2    COMMERCIAL IMPLICATIONS OF PRODUCTION DYNAMICS .....	3
<b>3. FINAL MARKETS OF CASSAVA .....</b>	<b>1</b>
3.1    FARM HOUSEHOLDS CONSUMPTION (CHANNEL 1).....	1
3.2    FRESH MARKETED CASSAVA (CHANNEL 2) .....	2
3.3    CASSAVA-BASED PREPARED FOODS (CHANNEL 3) .....	3
3.4    INDUSTRIAL USES (CHANNEL 4).....	4
<b>4. COMMERCIAL FLOWS.....</b>	<b>6</b>
4.1    STRUCTURE.....	6
4.1.1 <i>Geographic flows</i> .....	6
4.1.2 <i>Key Actors in Cassava Supply Chain</i> .....	8
4.1.3 <i>Marketing Margins</i> .....	11
4.2    SEASONALITY .....	11
4.2.1 <i>Seasonality of Quantity Traded</i> .....	11
4.2.2 <i>Price seasonality</i> .....	13
4.3    PERFORMANCE.....	14
4.3.1 <i>Market Coordination</i> .....	14
4.3.2 <i>Financing</i> .....	14
<b>5 POLICIES AFFECTING CASSAVA .....</b>	<b>15</b>
5.1    PRODUCTION.....	15
5.2    TRADE .....	15
<b>6. OPPORTUNITIES AND CONSTRAINTS TO CASSAVA-LED     COMMERCIAL GROWTH .....</b>	<b>15</b>
6.1    OPPORTUNITIES .....	15
6.2    CONSTRAINTS .....	16
6.2.1 <i>Price</i> .....	16
6.2.2 <i>Product development, packaging and processing technology</i> .....	16
<b>REFERENCES.....</b>	<b>17</b>

## **List of Figures**

Figure 1: Historic Trends in Maize and Cassava Production .....	2
Figure 2: Proportion of Households Growing Cassava by District .....	3
Figure 2: Proportion of Households Growing Cassava by District .....	4
Figure 3: Alternative Supply Channels in Zambia's Cassava Value Chain .....	1
Figure 5: Average Price at Various Market Levels of Fresh Cassava .....	11

## **List of Table**

Table 1: Price Comparison of Maize flour and Cassava Flour .....	14
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## Acronym

IMF	International Monetary Fund
CMRTE	Chinangwa ndi Mbatata Roots and Tubers Enterprises
SIDA	Swedish International Development Agency
CTA	Technical Centre for Agricultural and Rural Co-operation
USAID	United States Agency for International Aid
SARRNET	Southern African Roots Research Network
IITA	International Institute for Tropical Agriculture
PIM	Packaging Industries Malawi
MK	Malawi Kwacha
MEDI	Malawi Entrepreneurial Development Institute

## **Acknowledgements**

This document is a Technical Report submitted to the Cassava Transformation in Southern Africa (CATISA) Start Up Project under the Food Security Project of Michigan State University, United states of America. This work was conducted between July to December 2007 mainly in the four urban areas of Malawi (Blantyre, Lilongwe, Mzuzu and Zomba) as consuming areas and their supplying areas of Zomba, Nkhatakota, Nkhata-Bay, Kasungu and Mchinji.

The authors take this opportunity to thank the project for the substantial financial and technical support accorded to the assignment. In Malawi, the authors would like to thank the many traders at various levels of the cassava value chain who freely and abundantly took time off their activities to respond to our questions. We would also like to thank officials from various organizations both public and private for also providing information when requested. All errors in this document are a responsibility of the authors.

## Executive Summary

A study was carried out to determine the structure and dynamics of Malawi's cassava markets. This was a follow-up study to one in Zambia. The study was carried out in the urban areas of Blantyre, Lilongwe, Mzuzu and Zomba as major urban areas in Malawi therefore major markets for cassava and the supplying districts of Zomba, Nkhatakota, Nkhata-Bay, Kasungu and Mchinji. The objective was to determine the value chain in terms of actors, what they do, the various channels, the products, the prices and trends.

It was noted that over the years, cassava production has overtaken that of maize. Although cassava initially was not favored in terms of government policies, a few developments have worked towards its favor. These include the implementation of structural adjustment programs, which resulted in the removal of subsidies and eventual withdraw of credit for maize crop, drought, and devaluation of the Malawi Kwacha. These developments made the growing of cassava to be more attractive compared to maize.

Cassava is mainly grown along the lakeshore areas of the central and northern regions and is mainly grown for food in these areas. It competes with maize as a staple food crop. In southern Malawi and some parts of central Malawi, in the non-cassava belt areas, cassava is mainly grown for sale rather than for household consumption. While the cassava growing areas utilize cassava as a staple food, households in the non-cassava belt areas use it mainly as fresh cassava eaten raw or boiled to be eaten as a snack in substitution with bread. Other uses of cassava are in the manufacturing industries where cassava is used as a substitute of wheat in making bread and biscuits. The other use of cassava is industrial in which one factory and others in the pipeline are being produced to manufacture starch which is in high demand and therefore offers a new and large demand for starch.

For each product, the value chains have very clear actors and rules and regulations governing markets. The middlemen while providing a crucial function of moving the product from the farmsteads to the retail markets were oftentimes seen to engage in un-competitive activities such as barriers to entry in the markets, restricting supply by giving each other alternate days of delivering the product to the markets and the amount one can bring to the market. So while the production part is competitive and the retail part to some extent competitive, the middlemen were a restricted market.

The main cassava products in Malawi were fresh cassava, with cassava flour being sold in small quantities. Among the staple foods, especially in the cassava belt, the price of cassava flour is lowest among the various flour types of white maize flour and whole grain flour (*mgaiwa*). In south Malawi, cassava flour made from dried cassava chips is considered a poor man's crop or a hunger crop. Although it is a year round crop, much of the cassava is sold during the dry season just at the onset of the rains.

Opportunities facing the cassava subsector are that there is renewed interest among various players including government, NGOs and international research centers and donors aimed at boosting cassava production as well as value adding activities. Already there are initiatives being undertaken in the country. Some of the major constraints include the fact that the advantage cassava has over competing products is that it is a cheaper product compared to other products such as wheat, bread and maize flour. As such its continued success will mainly hinge on its being a low priced product. Additionally, the developments of value adding activities tend to have public good characteristics. As such there is little private interest in developing various products. This calls for public initiative in spearheading the development of value adding activities to ensure continued growth of the cassava subsector.

## 1. Introduction

The importance of cassava in Malawi has been increasing over the past decade. Although it has historical importance in some parts of the country, it is in recent years that its growing has increased nationwide. The reasons for this development are multifaceted. Cassava has potential to be a major source of calories for poor families because of its high starch content and ease of management. Benesi (2002) reported that cassava was a major important root crop in Malawi and that it is a staple food to about 30% of the Malawi population especially those living along the lakeshore districts of Karonga, Rumphu, Nkhata Bay, Nkhota Kota and Salima. Moreover, the prevailing climate change makes it to be more important as it is drought tolerant, can do well in poor soils and requires less elaborate management. Chiwona-Karlton (2005) noted that cassava has gained popularity as an important crop in view of the HIV and AIDS pandemic in which labor-constrained households find it ideal as it has minimal labor requirements compared to crops such as maize.

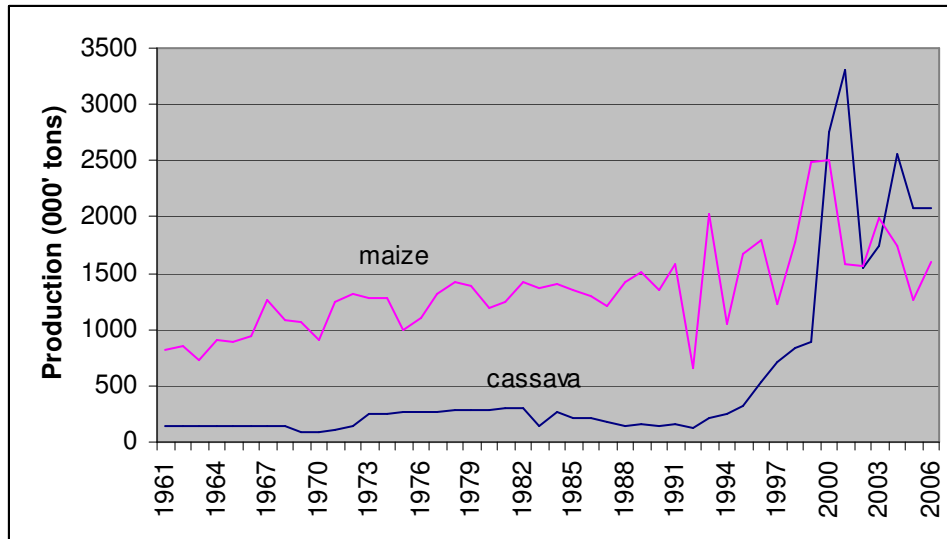
Cassava production in Malawi has had sporadic experience. After attaining independence in 1964, the government encouraged farmers throughout the country to grow maize as a staple food irrespective of prevailing ecological characteristics and people's tastes and preferences<sup>1</sup>. At one point, per capita maize consumption in the country was 150 kg accounting for two thirds of caloric consumption making it the world's largest per capita consumer (Gilbert 2002). This was manifested through smallholder agricultural credit policies that targeted maize crop production up to 1994 while no similar programmes were available for cassava. The cassava crop was further dealt with another blow when cassava mealy bug pest attacked the crop in the main cassava belt in the 1980s. Efforts by scientists saved the situation and the disease was brought under control.

The production of maize was erratic from 1991 while at the same time showing a general upward trend (Figure 1). After the year 2000, Malawi has experienced droughts in 2001/02 and 2004/05 seasons. As a result, maize production trend has fallen. However, the production of cassava increased drastically in the year 2000. Given changes in data collection methodology, some of this remarkable gain is most likely overstated. Nonetheless, cassava specialists all agree that cassava production has grown very rapidly over the past decade. An increase in cassava promotion activities by non-governmental organizations (NGOs) in the country has contributed importantly to these gains by making improved cuttings available to farmers throughout Malawi.

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<sup>1</sup> Malawians were not encouraged to think for themselves or use local knowledge, even after independence from Britain in 1964. The late dictator, Kamuzu Banda, told his people that maize was the way to prosperity and mandated a significant proportion of land to be sown with corn.

(<http://peacecorpsonline.org/messages/messages/467/2038880.html>)



**Figure 1: Historic Trends in Maize and Cassava Production**

Source: FAOSTAT

In the 1980's – 1990's the occurrence of two simultaneous crises in Southern Africa namely the removal of maize subsidies and the cassava mealy-bug attack saw government, people and the international community, paying attention to cassava (Orr and Ritchie 2003). Government policies promoting maize as a food crop were negatively affected especially by the structural adjustment programmes. During the 1980s, under pressure from the World Bank and the International Monetary Fund (IMF), government was advised to remove agricultural subsidies. This resulted in the escalation of prices of fertilizer and maize seed making these inputs to be unaffordable by a majority of the smallholder farmers. The growing of maize thus became even more expensive compared to the growing of cassava. Some observers have believed that smallholder farmers have had to diversify away from maize into growing non-cereal root crops such as cassava and sweet potatoes. The collapse of agricultural credit scheme in 1994 further exacerbated the situation against maize growing.

Apart from government, non-governmental organizations (NGOs) implementing food security projects in the country have promoted the growing of cassava and sweet potatoes as a move to diversify away from maize-based agriculture. The fact that cassava is grown without a need for fertilizer application makes it a more favorable crop unlike maize which in many parts of the country is highly fertilizer-dependent.

In all this development, Chiwona-Karlton (2005) condensed factors affecting the cassava crop as push and pull factors. Among the push factors are the 2002 drought that tipped the preference for farmers to grow cassava, the withdraw of input subsidy (Devereux, 2002) and the reduced urban purchasing power and dwindling farm sizes. Pull factors include the relative ease of cassava cultivation, the utility of 'sweet' cassava as an uncooked snack food, and the lower price of the raw roots in urban markets compared to maize (Haggblade & Zulu 2003; Chiwona-Karlton et al, 2004).

The utilization of cassava in Malawi has mainly been two-fold. First, the areas along the lakeshore have mainly used cassava as a staple food. These are the districts of Nkhota kota in central Malawi and Nkhata Bay and Karonga in northern Malawi. Some parts of southern Malawi cassava is mixed with maize flour during hunger periods. Otherwise in the other areas, cassava is mainly used as a snack either raw or processed (cooked or fried). There have been an increase in value adding activities in cassava production, processing, transportation and marketing that created jobs valued at MK498.4 million (US\$3.6 million) (IITA/SARRNET, 2006).

This paper presents findings from a study conducted in the urban areas of Malawi in October to December 2007. The urban areas of Blantyre, Lilongwe, Mzuzu, Zomba and Kasungu were visited as terminal markets for various cassava products. Important and select markets were visited for this purpose. The supplying districts of Zomba, Nkhotakota, Nkhata Bay, Kasungu and Mchinji were visited. Additionally, a starch manufacturing company in Nkhota kota district was visited as well as its main consumer the Packaging Industries Malawi Limited in Blantyre. Various actors along the cassava chains for each market were interviewed.

Apart from collecting empirical evidence, secondary data were also used in the study. The main aim of the study was to quantify the size of existing markets for cassava as well as determine growth potential for each of the final markets.

## **2. Farm Production**

### **2.1 Food Security Production Zones**

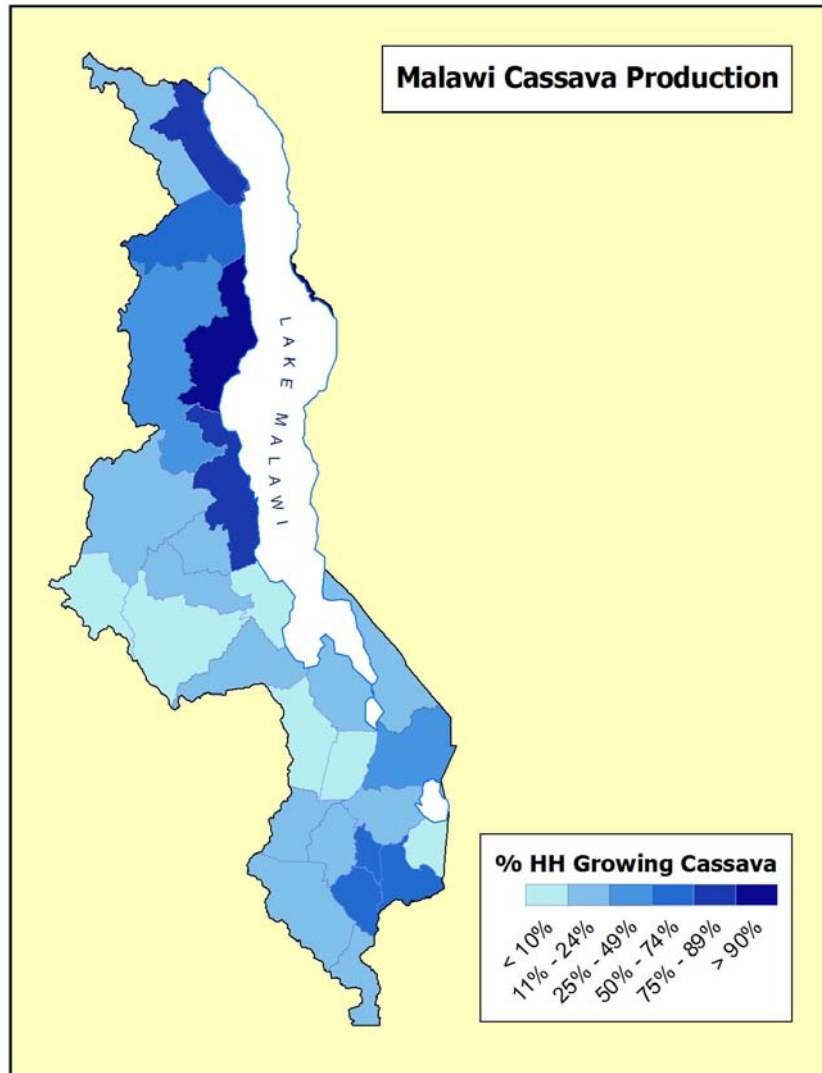
Malawi can be demarcated in five agro-ecological regions of the northern highlands, the lakeshore area, the mid attitude central plains, the Shire Highlands and the Lower Shire (Atlas for Malawi, 1967). The main cassava growing regions as a staple food is the lakeshore area of central and northern regions where at least 75% of the households grow cassava (see Figure 2). In northern Malawi, the two districts of Nkhata Bay and Karonga have over 90% of the households growing cassava. In the other regions, maize is predominantly grown as a staple food crop with cassava grown mainly as a snack. In Nkhota Kota, 75 to 89% of the households grow cassava making it the largest grower of cassava in central Malawi. In southern Malawi the districts with most households growing cassava are Thyolo, Mulanje and Chiradzulu (50 to 74% of the households). The Lower Shire area grows a mixture of food crops such as maize, sorghum and millet.

**Figure 2: Proportion of Households Growing Cassava by District**

### **2.2 Commercial Implications of production dynamics**

A majority of the smallholder farmers growing cassava in the non-cassava belt area, grow it as a cash crop to be sold locally or to traders who transport cassava to the nearest urban centers. Some areas where cassava was not grown some years ago have taken the growing of cassava as a cash crop. This is the case especially for areas near urban

centers. Smallholder farmers near Lilongwe city present a case where cassava is increasingly grown for sale, yet this is supposed to be a pre-dominantly tobacco-growing an area. The smallholder farmers are simply responding to demand from the growing urban population.



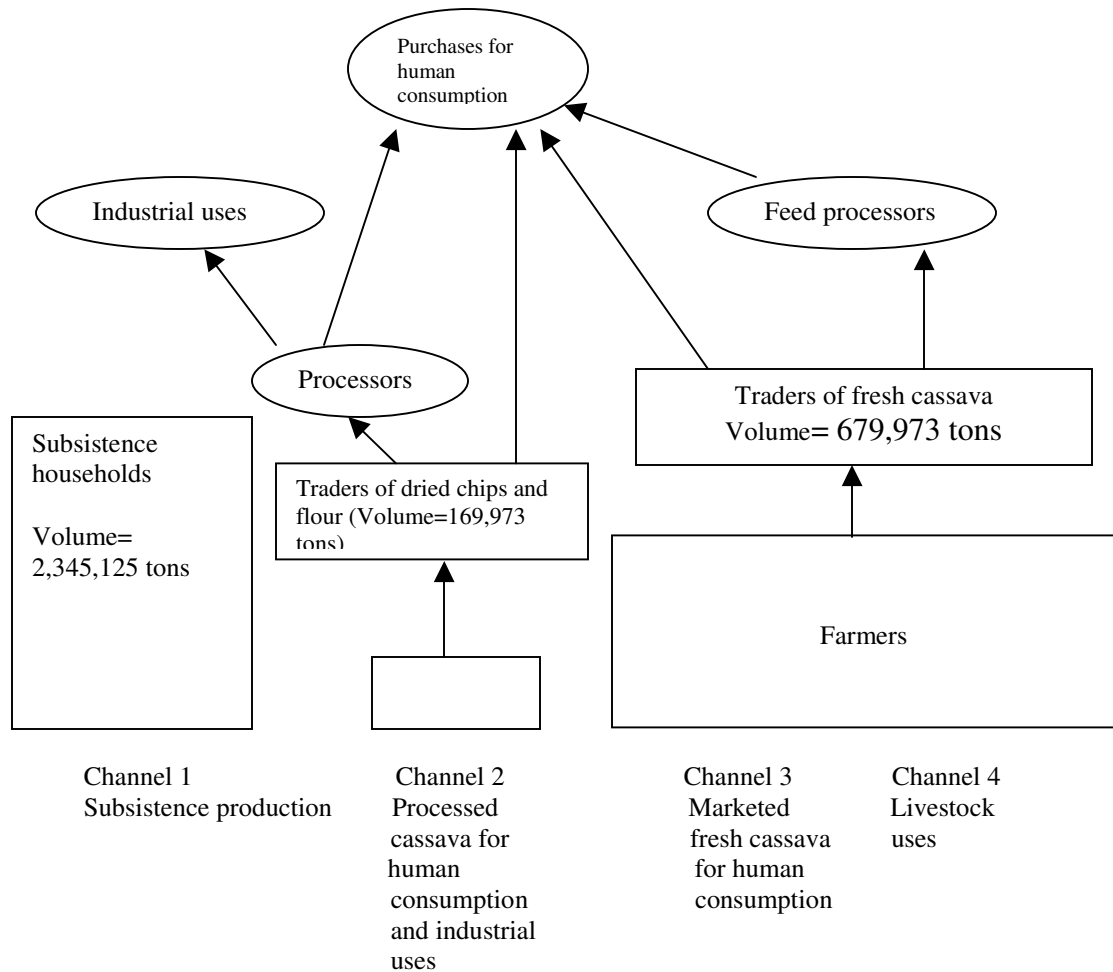
**Figure 2: Proportion of Households Growing Cassava by District**

### 3. Final Markets Of Cassava

As was shown in earlier sections, cassava production has increased especially during the last decade. A study by IITA/SARRNET (2007) reported that in Malawi cassava had an average of 2 to 4 middlemen.

#### 3.1 Farm households consumption (Channel 1)

A majority of the households eat the cassava they grow. This varies by regions with the cassava belt having a majority of the farmers consuming a bulk of their cassava and selling a surplus. These can consume up to 90% of their cassava. Increase is dependent on population growth and not new consumers based on changes on tastes and preferences. This is especially prevalent in the northern Malawi. The smallholder farmers from non-cassava belt have not increased area of growing cassava for own consumption. Rather these have increased the growing of cassava for sale. Figure below shows alternative cassava supply chains.



**Figure 3: Alternative Supply Channels in Malawi's Cassava Value Chain**

Notes: The total cassava production figure is based on the 2007 crop estimate from the Ministry of Agriculture of 3,194,994 tons. Out of the total, 26.6% is sold of which 80% is sold as fresh cassava

representing about 21% of total production and 20% is processed representing about 5% of total production (IITA/SARRNET, 2006)

For cassava consumption, it is important to make distinction of cassava types. Cassava grown in Malawi is in two categories; sweet and bitter cassava. In the cassava belts, bitter cassava is usually grown compared to sweet cassava. This is the case because unlike the sweet type, the bitter cassava stores better i.e. thieves and monkeys do not attack it (Chiwona-Karlton, 2004). From the bitter cassava, flour is produced through a fermentation process and the flour is called *kondowole*<sup>2</sup>. *Kondowole* is processed as follows: after digging, the roots are washed, peeled and washed again before being soaked for three to four days to allow the fermentation process to take place. Thereafter, it is washed and dried. The dried cassava is crushed then milled or pounded and thereafter sieved.

Another cassava flour is formed from dried cassava chips also known as *makaka* and it is non-fermented. In this case after cassava is dug, it is peeled and thereafter dried. The dried chips are sold as such and it is up to the consumer to further process them into cassava flour through crushing and further milling, as is the case with *kondowole*. In some cases, the *makaka* are boiled and eaten. This food is common especially in southern Malawi districts and it is a hunger crop.

Cassava flour from *kondowole* or *makaka* are direct competitors to maize flour. While *makaka* is dominant in the south, *kondowole* is dominant in the lakeshore areas of central and northern Malawi. In the markets surveyed, it was estimated that at Songani Market in Zomba, about 144 tons of *makaka* is marketed annually compared to 19.2 at Kachere in Blantyre and 115.2 tons in Mzuzu. Increasingly though, cassava flour is mixed with maize flour especially in the non-cassava belt areas of southern Malawi. In the cassava belt areas, it is common to find people using cassava flour to make their *nsima*<sup>3</sup>. In the non-cassava belt, when it is used as a staple food it is mainly during the hunger period. Thus when maize fails or maize stocks are low during the rainy season (December-February period, cassava is used as an alternative source of food. In this case, cassava is usually dried from which cassava flour is mixed with maize flour to prepare *nsima*. Thus cassava is used to spread maize flour for a longer period.

### 3.2 Fresh marketed cassava (Channel 2)

Fresh-marketed cassava is the largest channel of cassava in much of Malawi. IITA/SARRNET (2007) carried out a study on fresh cassava value chain for southern African countries of Malawi, Zambia, Mozambique, Angola and South Africa. It was reported that in Malawi, fresh cassava is predominantly sold in fresh form targeting the informal markets for food security. The buyers eat it raw or they buy fresh cassava to boil at home. It is mainly used as a substitute for bread to be taken together with tea or it is

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<sup>2</sup> This is called *bwabi* in Zambia.

<sup>3</sup> *Nsima* is thick starchy porridge made from corn, cassava, or other starch flour. (for example, the corn flours in Malawi are *ufa woyera* and *ufa wa mgaiwa*. *Ufa woyera* is maize flour which has first had the outer kernel shell and seed germ pounded off, leaving just the starchy part of the seed. *Ufa wa mgaiwa* is the whole corn kernel).

eaten as a snack. Although the growth in this channel is not likely to be large, given that its base is large, it is likely that with population growth the demand for fresh cassava is likely to follow suit. Secondly, as price of bread continues to increase in the foreseeable future, many consumers are likely to switch to cassava in substituting bread.

### 3.3 Cassava-based prepared foods (Channel 3)

Cassava based foods are various in Malawi. These are found both in the informal and formal sectors. Cassava based prepared foods in this case exclude home-prepared dishes such as boiling and *kondowole* discussed above. Rather they represent food processed specifically for sale. In the informal sector, cassava is mainly boiled to be sold as a snack at market places. This is sold to workers in the morning or afternoon.



A woman waiting to sell boiled cassava to workers during lunch hour in Blantyre. Boiled cassava is 'convenient' food in the sense that it requires less supporting items such as plates and water. One simply buys cassava and walks away eating and there is no need for relish unlike *nsima* or rice. Thus the poor find it affordable.

In some markets in Mzuzu and Kasungu, it was observed that fresh cassava is also fried as chips to be eaten as a snack. It is sold right as it is being fried (see box below).



This snack competes with chips made from Irish potato which is common throughout the country. In this case, cassava chips is cheaper than chips from Irish potatoes and thus offers an opportunity to the poor to eat 'chips.'

In the picture cassava being fried and sold just outside Kasungu Produce Market. This was also observed at Mzuzu Produce Market and at Nkhata Bay town. Cassava fried chips is about one third the price of fried Irish potato chips

In the formal sector, it was observed that increasingly bakeries are using cassava flour to mix with wheat flour in making bread<sup>4</sup>. The cassava flour is mixed with wheat in the ratios ranging from 20% to 50% depending on the product to be produced (personal communication, Alongolere Enterprise owner, 2007<sup>5</sup>). Additionally, biscuit manufacturers in Blantyre such as Universal Industries Limited and Crest Malawi Limited are also using cassava flour to mix with wheat flour in manufacturing biscuits. This has been triggered by a continuous increase in wheat prices which results in increase in bread prices. Just as was the case with substitution of wheat flour by cassava flour, as the price of wheat continues to increase, it is likely that bakers will continue increasing the proportion of cassava flour in bread making as a cost cutting measure. Thus demand for cassava will continue to increase as a crucial ingredient in bread making.

The manufacturing industries prefer dried cassava chips of higher quality than is locally in the markets. First, the traditional peeling methods leave some rinds on the tuber. Secondly they prefer cassava chips that are grated as drying is more uniform. A group of smallholder farmers in Zomba operating under a community based organization CMRTE<sup>6</sup> has been processing cassava for manufacturing industries in Blantyre. In 2007, the group managed to sell 30 tons of cassava chips to Crest Limited and Universal Industries amounting to MK510,000 (US\$3,669)<sup>7</sup>. They sold their product at a premium price of MK15 to MK18 per kilogram compared to MK4 per kilogram other farmers sell at a local market. This implies that producing good quality chips can result in farmers getting a good return from their cassava.

A local entrepreneur also based in Zomba and belonging to CMRTE by the name Alongolere Enterprise processes *kondowole* for selling in supermarkets in Zomba and Blantyre<sup>8</sup>. The enterprise buys cassava chips from CMRTE members which if further processed into cassava flour and packaged for sale in supermarkets. In 2007, about 2,000 packs of 5 kg were sold through the supermarkets.

### **3.4 Industrial uses (Channel 4)**

There is an association which manufactures starch in Malawi under the name Masinda Cassava Starch Factory. This factory is based in Nkhotakota district which is within the cassava belt. This company was established with the technical support from SARRNET and financial support from USAID. The major consumers of starch in Malawi are:

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<sup>4</sup> Kachere Bakery, Bakeman's, Blue Ribbon, Mum's Bakery, Oats Bakery, Seven Eleven Bakery, Supa Bake Bakery, have used cassava flour in making bread.

<sup>5</sup> Alongolere Enterprise also mixes wheat and cassava flour to make bread which is sold at Domasi Trading Center.

<sup>6</sup> CMRTE is an acronym for Chinangwa ndi Mbatata Roots and Tubers Enterprises. The organization is aimed at encouraging the smallholder farmers to grow cassava as a cash crop and it was founded in 1999 currently with members of over 30 clubs. It has been receiving support from SARRNET, SIDA, CTA with technical support from Ministry of Agriculture and the University of Malawi.

<sup>7</sup> US\$1=MK139

<sup>8</sup> Other products produced by Alongolere from cassava are puffs, cassava juice, cassava wine, energy shake, cassava buns, and cassava roles/dinner roles. These are produced in small quantities sold mostly locally within Zomba Municipality but have fared well on local as well as international trade fares.

match manufacturing company, manufacturers of dry cell batteries, garment/textiles industry, wood industry and a packaging company. Currently Malawi imports its starch from South Africa, which has the only other starch factory in Southern Africa. The starch is maize based unlike the one from Masinda which is cassava-based and therefore is of lower quality. This is the case because cassava starch has better bonding properties than maize starch.

The cassava factory has a capacity of producing 20 tons of starch per month. It has received orders of up to 16 tons from Packaging Industries Malawi (PIM) Limited based in Blantyre a commercial capital of Malawi about 280 kilometers south of Nkhhotakota. In 2007, the factory supplied 16 tons of starch. Box below shows bags of cassava starch at Masinda Starch Factory.



As reported by IITA/SARRNET (2007), PIM has annual consumption of 400<sup>9</sup> metric tons and can only get 20 tons locally. The main problem with the starch company is that its production is low and erratic such that it is yet to be a reliable supplier. A total of over 3,220 metric tons of cassava flour and chips and over 1,522 metric tons of starch are needed to meet current demand for the same. IITA/SARRNET (2006) reported that the number of cassava products increased from six in 2002/03 to 20 in 2006.

Nzeru Radio Company has also used starch from Masinda for manufacturing dry cell batteries. Currently there are plans to sell about 55% of the shares to an entrepreneur so that farmers still own 45% of the shares to make the venture more viable and sustainable. It is envisaged that once it is in private hands, this company will offer an opportunity for smallholder farmers to sell their cassava and get a good return for their money.

The industrial sector represented by starch manufacturing is a single large opportunity for increasing the uptake of cassava compared to the other channels. It is likely that once the factory is privatized and new owners recapitalize it, there is potential of meeting a bulk of the country's starch needs thereby reducing imports. A new factory by the name Warm Heart Products is opening a cassava starch factory in the near future in Lilongwe after obtaining a US\$5.2 million from PTA Bank (IITA/SARRNET, 2006). As long as farmers are given a good return for their crop, chances of this crop becoming an important cash crop are there.

There have been initiatives to produce animal feeds from cassava. Chitsanzo Bulking Group of dairy farmers have ever used cassava silage. Universal Industries Limited has also shown an interest to stimulate cassava production to meet the impending demand for

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<sup>9</sup> IITA/SARRNET (2006) puts this figure at 672 tons.

animal feed IITA/SARRNET (2006). Overall IITA/SARRNET (2006) estimate that annual requirement of starch for Malawi was 4,302 tons per annum indicating that there is plenty of demand locally. Furthermore, standards have been developed for some cassava products such as flour, chips and starch and certificates have been given to Alongolere Entrepise, Masinda and Mbwandimbwandi Gardens.

#### **4. Commercial Flows**

##### **4.1 Structure**

###### **4.1.1 Geographic flows**

Geographic flows to Malawi's urban centers are shown in Figure below. An analysis of the cassava marketing indicated that although the central region district of Nkhota Kota and northern region district of Nkhata Bay are the major cassava producers, there is relatively very little trading taking place in these areas. This implies that cassava is mainly grown for own consumption. On the other hand, areas that produce relatively less cassava in the southern and central regions have highly developed marketing channels of cassava. This cassava in these areas is grown mainly for sale to the urban areas.

Most fresh cassava sold in the urban areas is grown from distant places often outside the district. For example much of the fresh cassava sold in Blantyre city is from Zomba district, about 90 kilometers northeast of Blantyre. Another source of cassava for Blantyre city is Mulanje district and Mozambique about 80 kilometers east of Blantyre. These tend to supply fresh cassava at different times of the year. Mozambique supplies cassava when the supplies from Zomba have dwindled at the onset of the rains from November/December onwards. For example, while Zomba is the major supplier of fresh cassava from October to December period, thereafter much of the cassava is from Mulanje and Machinga. The reasons are two-fold. First, the Zomba farmers normally harvest their cassava during this period in readiness for the rainy season so that they can plant another cassava crop. Additionally after the onset of the rains, the cassava loses its quality so farmers would like to sell before the quality goes bad.

Zomba as a major fresh cassava supplier for Blantyre, also supplies dried cassava chips to markets in Zomba, Blantyre, Balaka and Mangochi. Kambewa et al (2005) observed that fresh cassava from Zomba is mainly sold in Zomba and Blantyre markets (southward) while dried cassava is mainly sold in Liwonde, Mangochi and Balaka markets (northward).

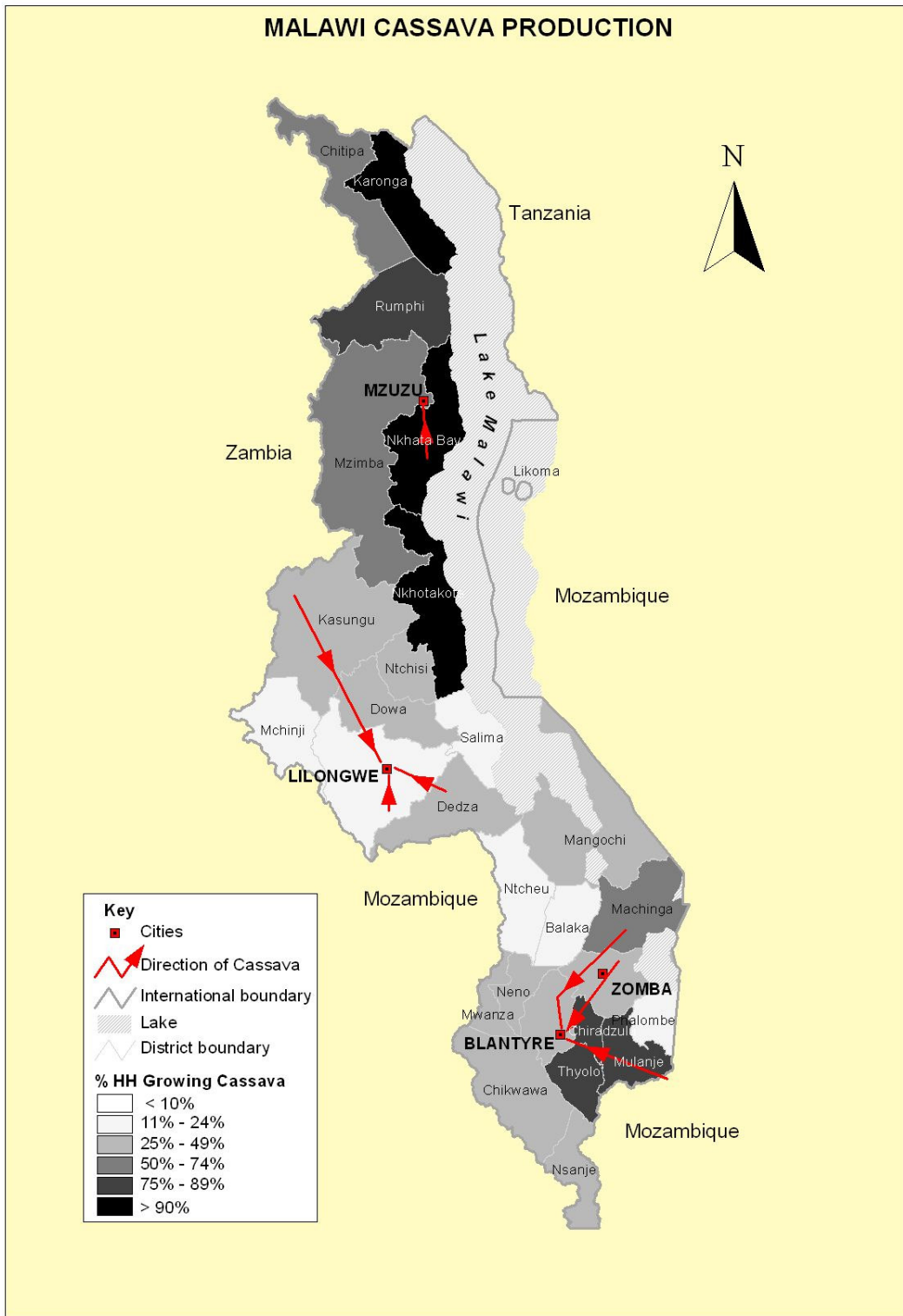


Figure 4: Cassava Flows to Major Urban Centers of Malawi

There are three main sources of fresh cassava in Lilongwe. First, areas within the district, especially south east of the district are the main suppliers during the September to January period. An adjacent district about 60 kilometers to the east is Dedza, another source of cassava when cassava in the Lilongwe district is in low supply at the onset of the rainy season from November onwards. After Dedza, Kasungu district is another main supplier to Lilongwe. The area is about 160 kilometers north of Lilongwe. It was reported that in some cases, cassava is actually sourced from Zambia an area adjacent to Kasungu district.

In Mzuzu city, much of the cassava is from Nkhata Bay district. Unlike the other major urban areas, although the fresh cassava is the major form of cassava sold in Mzuzu, there is a significant amount of cassava flour sold in the markets. This is both flour and cassava pieces already processed into *kondowole*.

Transportation of cassava from the producing areas to the markets is through trucks which range from land rovers (especially in Lilongwe) to lorries (3, 7 to 10 tons) which are used on return trips from original trips/places. It was observed that a majority of the traders arrange their own transport. As a perishable commodity, the traders would not want to take a risk of having to rely for unarranged transport lest their product goes bad. Still there is a group of traders in some markets especially where trucks are regular that unarranged transport is relied upon. In some cases, especially for smaller markets, a number of wholesalers will hire one vehicle to transport their produce to a given market. Depending on form of transport, cassava can either be put in the sacs (50 or 90 kg) or just be put in the vehicle. For areas within the vicinity (20-30 kilometers from the city), bicycles are used to transport cassava. These can transport cassava of up to a 50 kilograms bag.

#### **4.1.2 Key Actors in Cassava Supply Chain**

Cassava markets are well-ordered markets with distinct players along the chain. The various markets have different levels of integration along the chain. Our study showed that in all areas, the producers are not involved in selling their produce in the urban areas. Rather, it is the intermediate traders who are involved in moving the cassava from the farms to the urban areas. The scale of these traders tended to vary by markets. In fresh cassava the market is well coordinated starting from production to consumption with various actors in between such as transporters, wholesalers and retailers and it attracts a lot of people. The second to fresh cassava is dried cassava chips which has few dealers, we can say it has no wholesalers but only traders and farmers, the traders are the retailers as well except in Mangochi district where a wholesaler operates between Mangochi and Zomba districts.

##### *Intermediate/Wholesalers*

At the farmsteads, intermediate buyers directly buy cassava by buying the whole field where cassava was grown. From the field, the cassava is harvested and packed either in bags or in a truck. Thus costs of harvesting and packaging are a responsibility of the trader. This was observed in all areas visited.

In some cases, some local small-scale traders within an area buy cassava which they sell at a nearest market local market to intermediate traders. This was observed in Namwera area in Zomba. At these markets, there are assemblers of cassava who buy from several small traders to transport the cassava to an urban market. In this case this assembler is not willing to stay in the area for a number of days and is only looking for a smaller quantity of cassava unlike those buying a field. These normally use unarranged trucks to transport their cassava.

In Lilongwe, another type of intermediate trader is one that buys from the farms and transports it on bicycles to sell to retailers in various markets. These operate within 20 to 30 kilometer distance.

From the farmsteads, cassava is taken to wholesale markets where retailers buy from. Lilongwe and Mzuzu markets had distinct wholesale markets at Lilongwe Flea market and Mzuzu New Market respectively. Box below shows a wholesale market for cassava at Lilongwe Flea Market with a 3 ton lorry being off-loaded.



Cassava is bought as it is being off-loaded indicating a high demand. A majority of the buyers were women retailers from various parts of the city who in turn take the cassava for sale to the various location markets especially those away from the cassava growing areas northern part of the city. A majority of these women boil the cassava for sale. Selling is by auction handled by hired specialists i.e. selling is not necessarily done by the owner.

In the case of Blantyre, the wholesale markets are scattered in the various locations. Thus cassava is transported to markets such as Limbe Produce Market, Blantyre Produce Market and Ndirande Market from where retailers buy to sell within the area. In this case, one can say that for Lilongwe and Mzuzu cities, there are designated wholesale markets and are centralized, whereas for Blantyre market, cassava is transported to the location from which retailers buy off the wholesaler.

Wholesalers are only found for fresh cassava and to some extent dried cassava chips. For cassava flour, there were no wholesalers observed. These buy dried cassava from markets in Zomba and transport it to Mangochi, Balaka and Machinga where they wholesale it to retailers.

### *Retailers*

Retailers of cassava operate in different modes. For fresh cassava, there are those retailers who operate from a market and they have fixed places from which they operate. Other fresh cassava traders tend to be itinerant traders within a given urban setting often carrying small amounts no more than 10 kg. After selling they will go to a wholesale market to replenish their stocks. These sell to people who especially want to buy cassava for chewing. Men dominate the retail of fresh cassava in all markets. At Blantyre produce market, there were a few female cassava traders while in the other markets in Lilongwe, Mzuzu and Zomba fresh cassava was sold mainly by men. Box below shows cassava retail market at Kawale in Lilongwe City.



They sell cassava by pieces, which can range from MK1, MK2, MK5, MK10 up to MK20 depending on the size of a given piece. The raw cassava is mainly sold in the evening when people have knocked off from work. It is as if they are buying ‘bread’ for the following morning. Apart from people from workplaces, fellow traders are also an important sector of customers who would want to take cassava home after knocking off as well.

Women dominate boiled cassava retail markets. These operate in the morning and afternoon. Thus in the morning the boiled cassava is eaten as ‘breakfast’ before people go to work and in the afternoon, it is taken as ‘lunch’. In Lilongwe Market, sellers of boiled cassava were also serving tea thereby making cassava play the role of bread. The markets are usually located near working places such as near manufacturing companies. In Blantyre alone, it was estimated that there are seven such markets scattered around the city. The price of cooked cassava was uniform since the cassava was sold per heap which was put in a small plastic bag weighing no more than 400 g. The traders interviewed were selling their cassava at MK5 per heap.

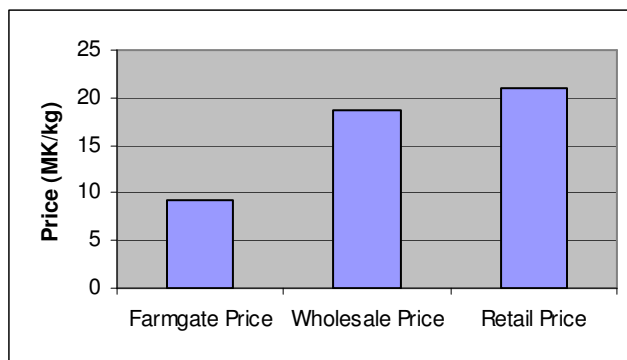
For cassava flour (*kondowole*), all sellers observed were women and this was only observed in Mzuzu. Their other main products of sale were white maize flour (*ufa woyera*) and whole grain flour (*mgaiwa*). All types of flour were either sold by a weighing scale or by volume using plates. For plates, there would be several plate sizes, at least three. Between maize flour and *mgaiwa*, in all markets visited, *mgaiwa* was always having a lower price than the white flour. At that market the white flour also had a premium price which was followed by *mgaiwa* then *kondowole*. This is a reflection that although it is next to a cassava belt, Mzuzu is cosmopolitan therefore this is a reflection of the composition of its inhabitants who are from all over the country. The price trends

is culturally defined whereby *mgaiwa* is regarded as a poor person's food therefore sold at a cheap price. This is irrespective of the fact that *mgaiwa* is more nutritious.

In some markets such as Kasungu and Mzuzu, another cassava product sold at the market is cassava fried chips (processed like Irish potato chips). The selling is by piece i.e. (MK5 per piece). The processors said they could sell one bag on a good day. Eaten as a snack, this product was absent in the other markets of Blantyre and Zomba.

### 4.1.3 Marketing Margins

The price differences at different market levels are a reflection of the costs incurred. The average price across the markets visited indicated that the wholesale price was at least twice as much as the farm gate price. On the other hand, the retail price was about 12 percent higher than the wholesale price (Figure 5).



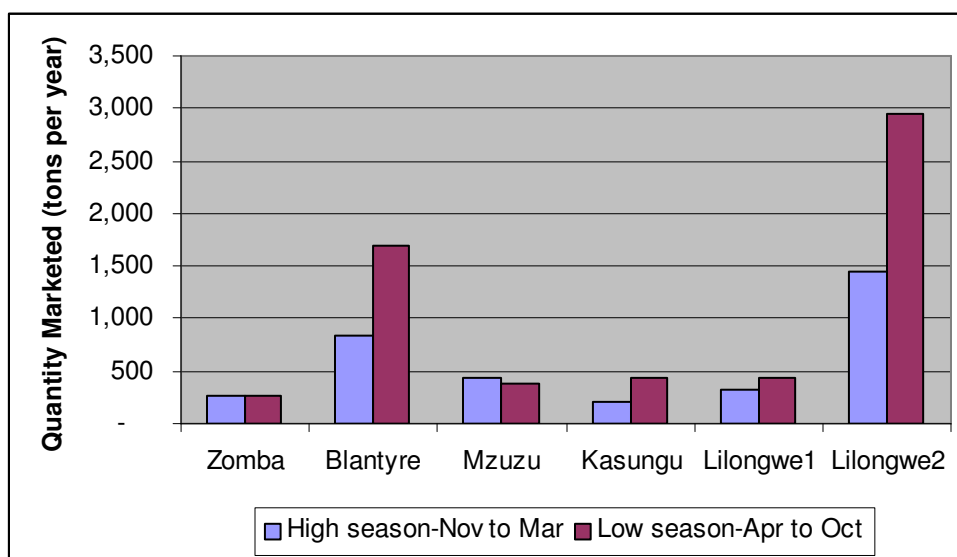
The major cost element in cassava market is transportation costs from the production points to the consumption points with the middlemen incurring the largest portion of the transport costs. This is the case because in many cases, the markets were distant places often another district from producing areas. Once at the wholesale point, the transportation costs tended to be low because of the short distances involved.

**Figure 5: Average Price at Various Market Levels of Fresh Cassava**

## 4.2 Seasonality

### 4.2.1 Seasonality of Quantity Traded

Cassava trading is highly seasonal. Given that much of the cassava is sold raw, in principle fresh cassava is sold when the quality is high. This usually happens during the dry season when the starch content is very high. This period also coincides with the pre-rainy season period. In the markets of Blantyre, Lilongwe and Mzuzu, a majority of the traders indicated that there is a large quantity of cassava sold during the November to February/March period. At this time, the cassava is of high quality since it has a relatively high starch content than during the later part of the rainy season. Also farmers are preparing their gardens so they uproot the previous year's crop so that they can plant the next crop. This results in the fresh cassava market being flooded. During March/April to October period there is the low supply season and the opposite happens for quantity supplied, prices and number of sellers. Even for smallholder farmers who process dry cassava chips, this is the ideal time as there is plenty sunshine for the drying of cassava. Figure below shows the estimated quantities marketed in various urban markets.



**Figure 6: Average Quantity Marketed per annum in Malawi Select Urban Markets**

The smaller markets tended to show small variation compared to the large markets. The wholesale market in Lilongwe (Lilongwe2) had almost half during the low supply compared to the high season. A similar trend was observed in Blantyre and Kasungu. One reason for this large fluctuation is the availability of competing products especially sweet potatoes during the April to October season. Consumers switch to eating sweet potato as 'bread.'

In the subsequent months, cassava is sourced from distant areas. Thus after exhausting cassava supplies from the surrounding areas, traders go to distant areas to get cassava. For example, in Blantyre traders go to Mulanje and Mozambique areas and Machinga to get cassava and in some cases they even go as far as the central region district of Dedza. In Lilongwe, traders go to Kasungu and Dedza districts to get cassava. In Mzuzu, the area for getting cassava is the same irrespective of season.

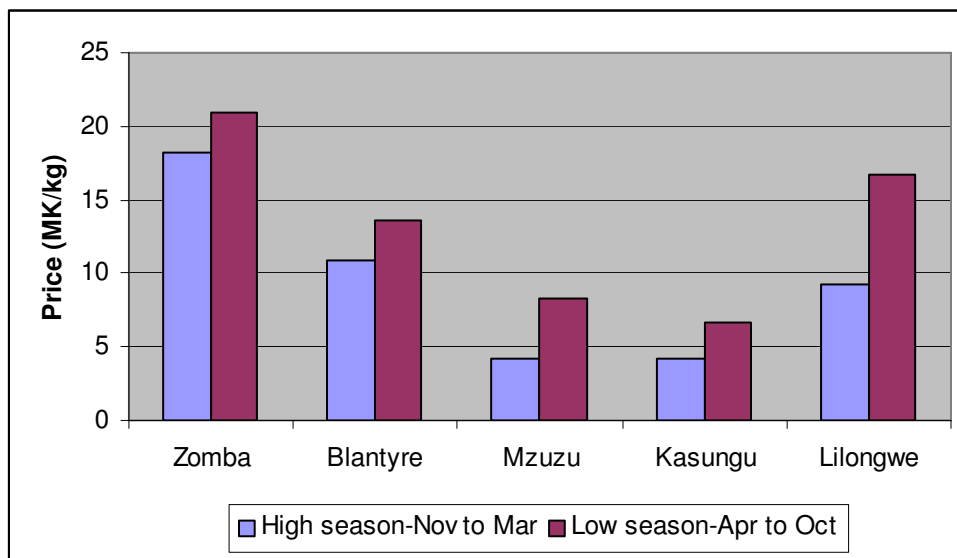
During the period of plenty, there are more traders such that each trader at the market sells less. In contrast, when there is shortage of cassava, there are fewer traders and each trader ends up selling more. This suggests that there are some traders who are seasonal. This is especially the case given that cassava tends to compete more with sweet potatoes in its role as a substitute of bread. From April to September there is plenty of sweet potatoes such that some traders deal in that crop. However when sweet potatoes and mangoes are out of season, then these traders will switch to cassava selling thereby flooding the market.

For cassava flour, this also tends to be seasonal. Cassava flour from cassava chips is generally regarded as a hunger food in southern Malawi. During the December to March period when maize is in short supply and therefore expensive, some households will mix maize flour with cassava flour to maximize the period maize flour would last. This tends

to increase the quantity of flour available to a household as a coping mechanism against hunger. *Kondowole* is also seasonal in Mzuzu market. Although *kondowole* is eaten throughout the year, the quantity increases during the hunger season as a coping mechanism as well.

#### 4.2.2 Price seasonality

Price seasonality follows quantity availability. With scarcity of cassava, price tends to increase as well. This is the case because at this time, cassava is also bought from distant places hence the transport costs increases. At this time, some of the competing foods such as sweet potato and mangoes are out of season. Figure below shows the seasonality based on data from the urban markets visited in November 2007.



**Figure 7: Seasonality of Cassava Markets in Urban Areas**

Source: Data from Structure and Dynamics of Malawi Cassava Market

The figure above shows that the prices in all the markets. Surprisingly, Zomba is a small municipality compared to Lilongwe, Blantyre and Mzuzu yet it had the highest prices for both seasons. This is despite it being a cassava growing district and a supplier of Blantyre city markets. On the other hand, Blantyre which is about 70 kilometers from Zomba and gets its cassava from the latter had lower prices for both seasons. This is a reflection of the large market where competition is stiff among sellers unlike a small market of Zomba where the number of sellers tends to be low as well. Lilongwe had the largest range of prices between the low and the high seasons. This could reflect the fact that during the low season, cassava is sourced from distant places hence a wide price range indicating transport cost differences.

A comparison of prices among maize flour and cassava flour is presented in table below.

**Table 1: Price Comparisons of Maize flour, Wheat flour and Cassava Flour**

Urban Market	White maize flour (MK/kg)	Mgaiwa (MK/kg)	Wheat flour <sup>a</sup> (MK/kg)	Cassava flour (MK/kg)
Zomba	66.7	50	104	60
Blantyre	87.5	50	104	60
Mzuzu	52.1	43.8	104	28.6
Kasungu	66.7	50	104	Not available <sup>b</sup>
Lilongwe	94.1	58	104	Not available

Source: Structure and Dynamics of Malawi Cassava Market 2007

<sup>a</sup>These are wholesale prices. Very few households in Malawi make their own bread but instead rely on bakeries. The price given here is from one of the leading processor of wheat flour which is sold through middlemen across the country.

<sup>b</sup>Cassava flour was not found at Kasungu and Lilongwe markets

Among the various types of flour, white refined maize flour was the most expensive while *mgaiwa* is next. Given that a significant number of people nationwide do not eat cassava flour as a staple food, a comparison of its price with that of maize maybe of limited importance compared to other countries such as Zambia in which maize flour competes with maize as a staple food. The comparison of wheat flour to cassava flour is also of limited use since wheat is consumed as a processed product, bread and its (bread's) competitor is boiled cassava.

### 4.3 Performance

#### 4.3.1 Market Coordination

In the large urban markets, the traders at the produce markets coordinate the markets. In most markets, there is a defined number of traders acting as wholesalers. For example in Lilongwe Flea Market, there were 13 traders and they bring cassava to the wholesale market on alternate days. One cannot bring a truck of more than 7-ton capacity. The same practice was observed on the other markets. This ensures that the market is not too flooded with cassava to sell at a low price. A retailer at Lilongwe Flea market complained that the wholesale market is not competitive enough. As such, the retailers have a raw deal by buying their cassava at a higher price than if it were competitive.

#### 4.3.2 Financing

Much of the transactions on the market is on cash basis. The wholesale market in Lilongwe and Mzuzu is characterized by large number of buyers relative to the wholesale markets in Blantyre where traders (i.e. wholesalers and retailers) have a more stable relationship given the number and also vicinity. One wholesaler in Ndirande market sells to retailers on loan which they repay once the retailers have sold their products. In this case, the retailer assumes costs of buying the produce from the farmers, pays for

transportation. By selling on loan, he ensures that the entire product is sold and therefore avoids spoilage.

## **5 Policies Affecting Cassava**

### **5.1 Production**

Cassava production is being supported through its programs under the Tubers Commodity Research which is conducted in conjunction with SARRNET. New varieties are tested and once approved they are distributed to the smallholder farmers. NGOs have taken an initiative of multiplying and distributing cassava cuttings free of charge to smallholder farmers.

### **5.2 Trade**

Trading in cassava is predominantly informal involving small scale producers through middlepersons to retailers in the informal sector. In very few cases, the formal sector is involved through selling of cassava of small scale farmers to processing units such as the cassava starch factory or bread and biscuits manufacturers. Thus much of the cassava is in private hands.

## **6. Opportunities And Constraints To Cassava-Led Commercial Growth**

### **6.1 Opportunities**

Cassava crop has a lot of potential for growth from both supply side (push factors) as well as demand side (pull factors). First, there is growing initiatives from a number of organizations to promote the growing of cassava both as a cash crop as well as a food crop. Given that maize has been a major focus of government efforts, cassava is seen as a neglected crop which can otherwise make a difference in people's lives. Furthermore, there is growing efforts from the SARRNET/IITA in promoting cassava research in collaboration with government researchers so as to offer smallholder farmers high quality cassava varieties.

Kellogg Foundation is implementing a cassava promotion programme in Malawi. The Initiative aims at contributing towards sustainable economic development through cassava production and commercialization by promoting strategic partnerships along cassava value chains. As part of this initiative, the Malawi Entrepreneurial Development Institute (MEDI) is currently implementing a cassava promotion program. So far over 50 cassava clubs have been formed which are being supplied with cassava cuttings. Every club is given a grating machine, baking ovens and an office. Each catchment area will be provided with a cassava starch-making factory, which will be operated by independent entrepreneurs who are provided the capital on loan. Some of their potential consumers include PIM, garment manufacturers, dry sell manufacturers and pharmaceutical companies. The project will also promote the packaging of cassava leaves as a value adding activity and use of wax to improve storage of cassava, again a value adding activity.

On the demand side, there is an increase in the number of products or uses cassava is being subjected to. First, the number of uses of cassava is increasing with some new developments. For example, it is envisaged that the use of cassava flour in bread baking will continue with the portion of cassava flour increasing. This will be a source of growth for cassava demand. Also, as price of wheat increases, consumers will most likely continue substituting bread for cassava. In 2007 alone, price of bread was increased twice due to increase in price of fuel since much of wheat is imported. The cassava starch factory will also offer an important source of growth in the near future. Once operating on full capacity and maybe increase in capacity, it will offer a large source of growth of demand for cassava.

## **6.2 Constraints**

### **6.2.1 Price**

The advantage of cassava on the market place has so far been based on it being a low cost vis a vis its competitors. This ranges from maize flour being more expensive at some times of the year compared to cassava flour made from *makaka* in the non-cassava belt areas, to people using boiled cassava instead of bread as bread made from wheat flour is increasingly expensive; to substituting wheat flour by cassava flour in the making of bread and other confectioneries such as biscuits and crisps. In all these cases, cassava has the advantage of being a cheaper alternative. The sustainability of this advantage can be increased if productivity of cassava is increased compared to the other crops such as maize and wheat. On cassava starch, its competition i.e. starch from maize is likely to be more expensive also because of transportation costs since this is imported from South Africa. As long as the costs of processing are kept low, cassava starch is likely to remain more competitive than imported starch.

### **6.2.2 Product development, packaging and processing technology**

In the non-cassava belt, the development of cassava products will offer an opportunity to increase uptake of cassava-based products. Already with the manufacturing sector including cassava in their products as a raw material, it offers an opportunity for small-scale food processors to introduce processed cassava products. In the central and northern regions, it was observed that fried cassava is gaining ground as a cassava based product gaining popularity. Product development has public good characteristics such that private entrepreneur might not venture into developing new products since once the product is developed, it cannot stop others from copying the product. There should therefore be an effort by the public sector to take lead in developing new products as this will offer a new source of growth for cassava.

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