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# Rice Value Chain Analysis in the Lake Chilwa Basin



Produced by

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A RICE VALUE CHAIN ANALYSIS IN LAKE CHILWA BASIN UNDER THE LAKE CHILWA BASIN CLIMATE CHANGE ADAPTATION PROGRAMME AND WALA.



**LAKE CHILWA BASIN CLIMATE CHANGE ADAPTATION PROGRAMME  
(LCBCCAP)**

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AND WALA PROJECTS**

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## **CHAPTER 1: INTRODUCTION**

### **1.0. Background**

The Lake Chilwa Basin stretches along the area surrounding Lake Chilwa and extends into the highland plains of Phalombe, Machinga and Zomba. The main features of the basin are Lake Chilwa and the surrounding flat wetlands. Fishing and wetland cropping feature in the zone areas surrounding the lake basin. Fish populations are said to be dwindling due to over-fishing and environmental degradation. The driving force behind deforestation and degradation of natural resources in the Lake Chilwa Basin is poverty. Poverty and insecure livelihoods force people to pursue natural resource management practices that are ultimately destructive of their long-term livelihoods, their adaptive capacity and the resilience of their environment.

In order to maintain the important food security, economic and social benefits of agricultural and natural resources in the face of known climate variability and anticipated climate change, planned adaptation and cross-sectoral collaboration at local, basin and national scales is required. Enhancing local-level adaptive capacity and building resilience of communities to climate variability and change must focus on strategies that lead to livelihoods improvements. Livelihoods can be improved by strengthening existing activities, improving access to alternative ones, strengthening household asset profiles (including social and human capital) or by addressing the institutional causes of vulnerability and insecurity. A key point is that there is scope for improving livelihoods even in contexts where natural resource dependence is high and few alternative income-generating activities are possible. Such scope is, however, very limited when the natural resource base is declining.

It is against this backdrop that the Lake Chilwa Climate Change Adaptation Program (LCBCCAP) was developed with the aim to increase the capacity of households to adapt to climate change by reducing the vulnerability and poverty of local communities residing in the Basin. The LCBCCAP is a five-year (from January 2010) program jointly implemented by Leadership for Environment and Development Southern & Eastern Africa (LEAD SEA) based at Chancellor College, WorldFish Center and Forestry Research Institute of Malawi (FRIM) with

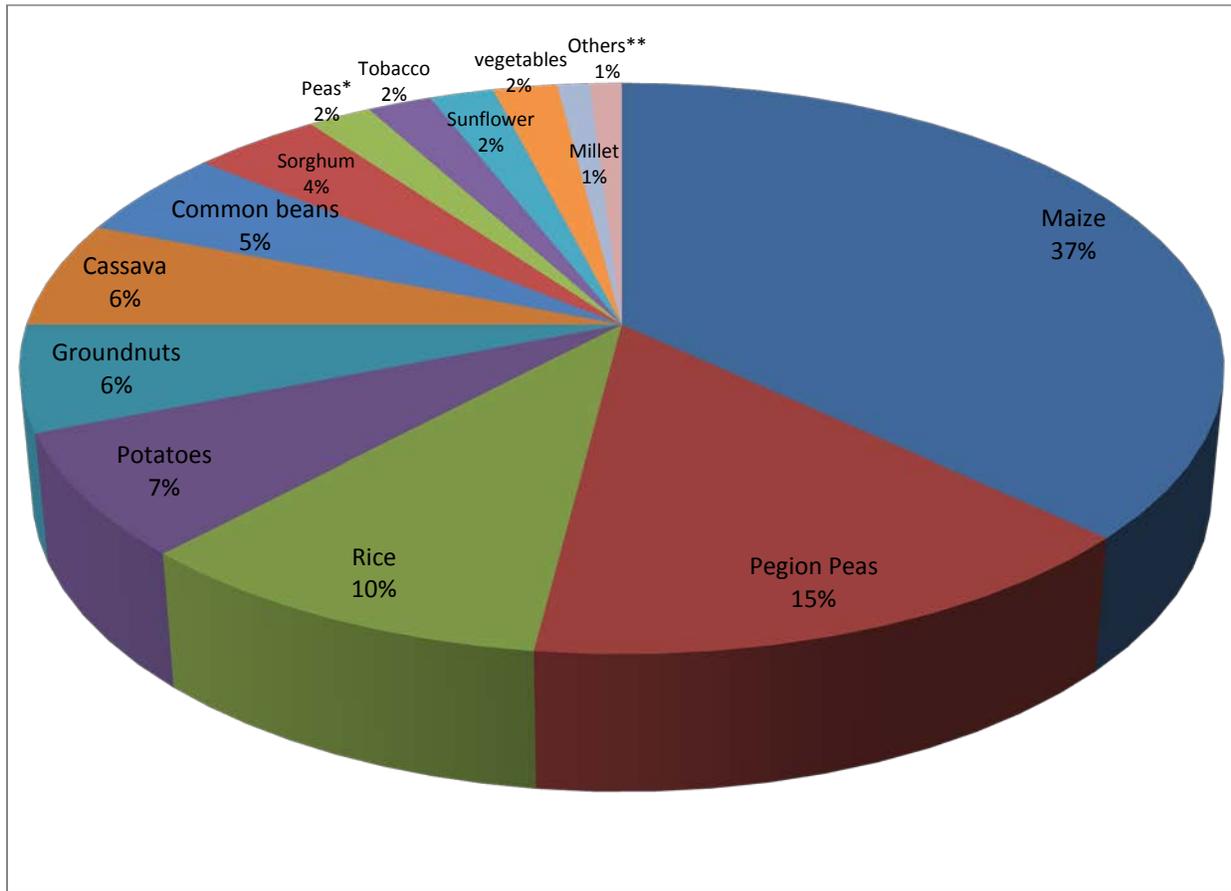
financial support from the Norwegian Government. The Program is being implemented in 10 hotspots in the three districts of Machinga, Phalombe and Zomba in collaboration with district councils. The overall goal of the program is to secure the livelihoods of 1.5 million people in the Lake Chilwa Basin and enhance resilience of the natural resource base. On the other hand, one of the primary objectives of the Wellness and Agriculture for Life Advancement (WALA) project implemented by Emmanuel International operating within the same basin aims to improve the livelihoods of 147,500 smallholder farming households by improving crop production practices, increasing use of financial services and assisting smallholder farmers to engage in commercial marketing. The WALA project has a five-year life span that commenced in June 2009 and is implemented by a consortium of 8 Non-Governmental Organizations (NGOs) led by Catholic Relief Services (CRS) as the grant holder.

LCBCCAP and WALA are therefore collaborating in ensuring quality and harmonized delivery of services to the people of Lake Chilwa Basin. This collaboration minimizes duplication at the same time ensures efficiency in resource use. LCBCCAP and WALA collaborated to conduct a value chain study of rice and develop interventions that would improve the sector and increase the adaptive capacity of the households in the basin. The study results will be used to strengthen producers' and traders' participation in the value chain and enable them to increase their returns, and to innovate and develop new links to markets where possible. The adaptive capacity of people with a strong asset base (e.g. good health and financial savings), diversified income sources, strong support from government agencies and NGOs and engagement in community institutions is likely to be higher than people who have few and precarious assets.

### **1.1 Why Rice Value Chain Analysis**

The livelihoods study conducted in 2010 in the Lake Chilwa Basin (Nagoli and Mwanza 2010) identified pigeon peas and rice as the main agricultural economic commonalities on top of maize, the main staple (Figure 1). However, pigeon peas were found to be economically more important in the middle basin while rice is very important in the lower basin.

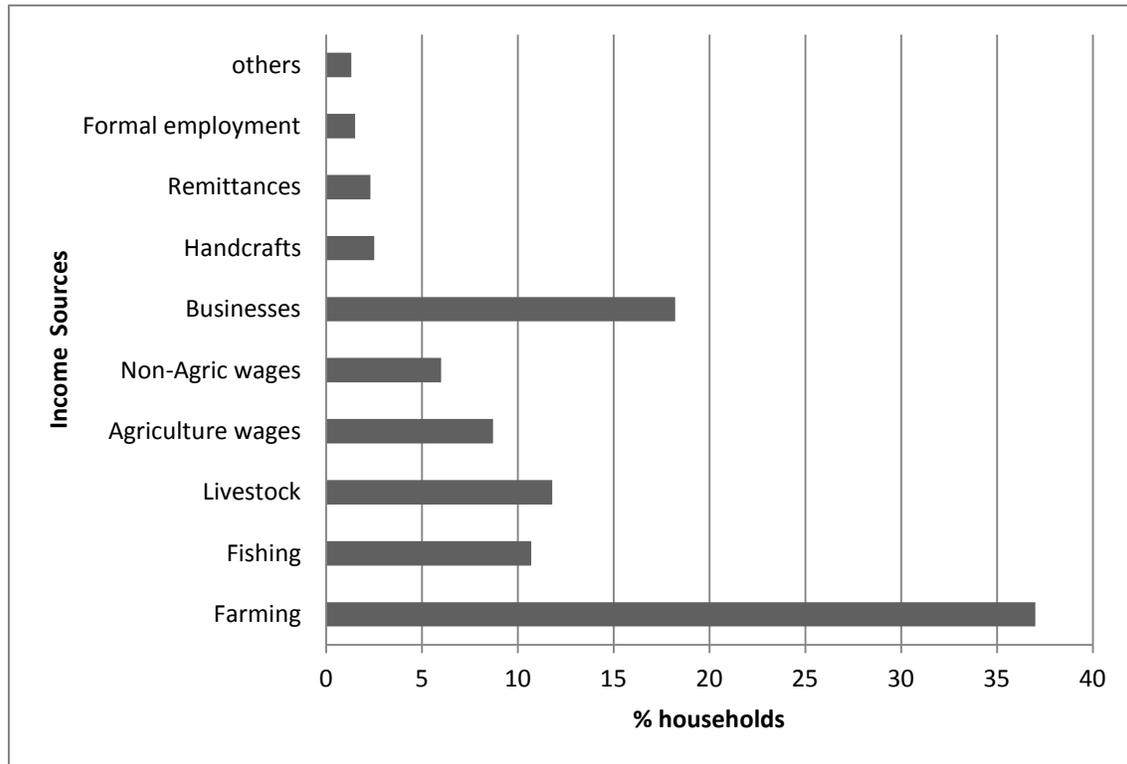
**Figure 1: Major crops of the Lake Chilwa Basin**



\*Peas include: green peas, cowpeas, chick peas  
\*\*Others include: sugarcane, fruits, cotton, and okra

The livelihoods study also identified existing livelihood strategies, the asset status, and vulnerability context for men, women and the youth in communities across the basin together with their options for addressing the challenges faced by climate change. Figure 2, lists down the major strategies with farming as the main one surpassing fishing and small businesses.

**Figure 2: Sources of income in the Lake Chilwa Basin**



### 1.2 Objectives of the Study

Two commodity value chain studies have since been conducted in 2011: (1) pigeon peas value chain that was done by the WALA Program; and fish value chain that was done by the WorldFish Center.

The specific objectives of the rice value chain study were to:

- Gather information about the marketing channels, the players and the market dynamics involved in moving rice from production to end markets as relates to Lake Chilwa Basin.
- Assess the constraints and opportunities for increasing profitability along the value chain with a particular focus on smallholder farmers who are the target beneficiaries of the two programs.
- To develop an intervention strategy for the two programs to link targeted smallholder farmers to profitable markets.

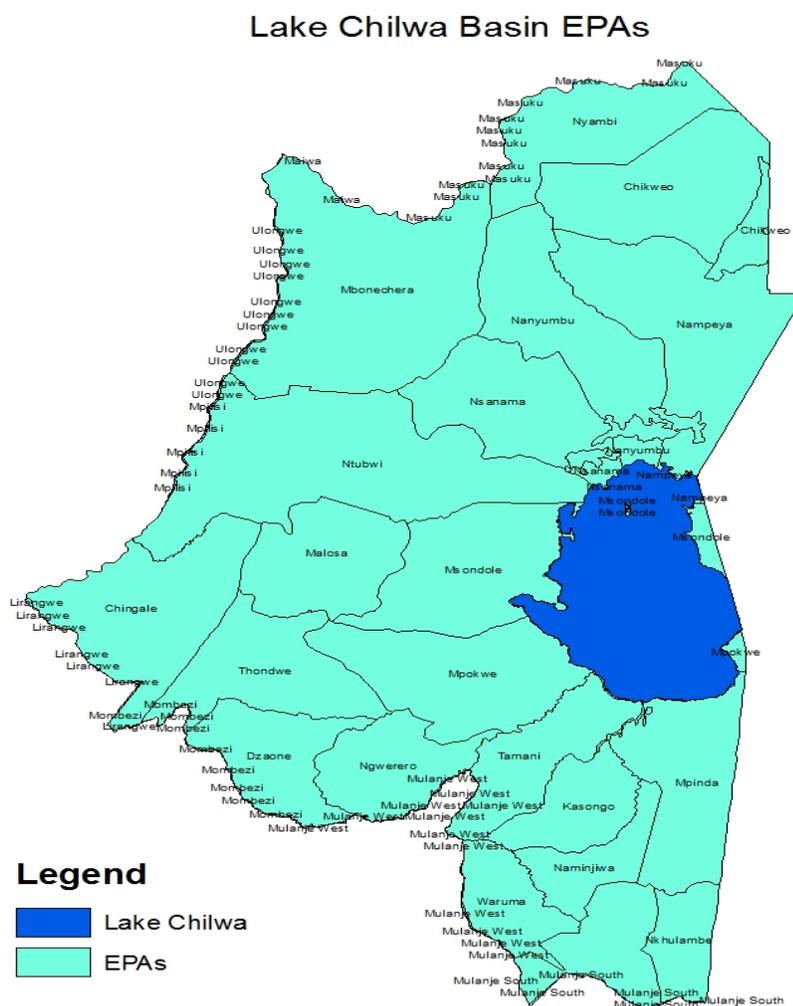
- To document information for dissemination among industry stakeholders regarding the identified opportunities and constraints and create a platform for collaboration to improve profitability within the sector.

## **CHAPTER 2: METHODOLOGY**

### **2.1 Study Site**

The Lake Chilwa Basin lies in a tectonic depression in south-eastern Malawi (latitude 15° 30' S and longitude 35° 30' E) and is one of the most densely populated areas in Malawi (over 300 people per square kilometer). The study was carried out in three agricultural Extension Planning Areas (EPA) of Machinga and Zomba Districts. In Machinga information was collected in Mtubwi and Nsanama EPAs from farmer groups in the Traditional Authority (TA) Kawinga, Mlomba and Mposa. In Zomba farmer groups interviewed came from Msondole EPA (TA Mwambo and Kuntumanji). Figure 3 shows the location of these EPAs in relation to other EPAs in the Lake Chilwa Basin.

**Figure 3: EPAs in the Lake Chilwa Basin**



## 2.2 Data Collection

A “WALA Malawi value chain study interview guide” was used for collecting data on sampled actors/players involved in the rice value chain. Focus group discussions with farmer groups and interviews with key informants were based on the interview guide. Input suppliers interviewed were Lifuwu Research Station, AGORA, Rab Processors and other local Agro Dealers. Traders interviewed included vendors, intermediate buyers, wholesalers and retailers like Rab Processors, Peoples, AGORA and Transglobe while processors interviewed were local millers, Transglobe, Rab Processors and Mulli Brother. Government institutions like Ministry of Trade

and Industry and Ministry of Agriculture and Food Security provided relevant information. The study applied the value chain approach in identifying linkages between farmer marketing groups, commercial buyers and private sector service providers in order to increase profitability throughout the industry.

### **2.3 Desk Studies**

In appreciation that a lot of work has been done on rice in Malawi and the region, the team reviewed a number of reports and papers. These included rice subsector study by PESA project of Tanzania, manuals and bulletins from Lifuwu Research Station. Policy documents that appeared to have a bearing on rice sub-sector were reviewed to examine the extent to which they promote or inhibit rice production and trade.

## **CHAPTER 3: RESULTS AND DISCUSSIONS**

### **3.1 Rice Production in the Basin**

Rice provides food and income for many households in the basin. Apart from maize as the major staple food in Malawi, rice is the second most important, mostly consumed in towns. In rural areas, rice consumption is significant along the lakeshore areas of Lake Chilwa in the southern region, covering districts of Zomba, Phalombe and Machinga and along Lake Malawi shores in the districts of Salima and Nkhotakota in the central region and Nkhata Bay and Karonga in the northern region and on a lower scale in the Lower Shire's east bank region. Rice is also grown as a cash crop to meet other household demands. Currently rice is among the special crops including Soyabeans, common beans, Pigeon Peas, Sugar beans and Groundnuts under the "Presidential Initiative on reducing Poverty and Hunger". These special crops are targeted for increased production for export markets. Rice is also a target crop for the GreenBelt Program that is aiming at developing one million hectares for irrigation.

In the Lake Chilwa Basin, rice is grown on the wetlands both as rain-fed and irrigated. There are nine rice irrigation schemes in the Lake Chilwa basin, of which Domasi (Mpheta) is the largest. Farmers grow different rice varieties namely TCG10 (Tayichuni), Blue Bonnete, Kidney, Amanda, Pusa and Kilombero. Among these varieties, TCG10 is preferred by the producers because it is high yielding, early maturing and withstands low water levels while consumers like the scented varieties – amanda and kilombero. From the discussions and interviews with farmers, it was realized that land holding size was 0.3 hectares on average, producing an average of 6 tons per hectare per annum. Out of the 6 tons produced, 2 tons are consumed by the producer household and the rest is sold. During the 2011 agricultural season, 18,669 hectares were grown to rice in Machinga District alone.

Although wetlands are being cultivated - and apparently at an increasing rate - there is no wetland policy or guidelines for their utilization in Malawi. This is also the case in most other countries in the SADC region. Governments therefore adopted the concept of 'wise-use' to guide wetland utilization (Ramsar Convention Bureau, 1997). Wise use is defined as sustainable utilization of wetlands for the benefit of humankind in a way compatible with the maintenance of

their natural properties. Sustainable utilization refers to “human use of a wetland so that it may yield the greatest continuous benefits to the present generation while maintaining its potential to meet the needs and aspirations of future generations”. However, the guidelines have not been translated into country-specific strategies or plans

Currently, the irrigation policy has been revised and it calls for the creation of water user associations (WUA) in irrigation schemes and farmer clubs in wetland farming. WUAs act as a framework for governing irrigation scheme use. Under this arrangement the management of formal irrigation schemes, Mpheta and Likangala in the Lake Chilwa are in the hands of WUAs. Likangala and Mpheta schemes were established in 1969 and 1972 respectively, as demonstrations on intensive cash crop production. The Government used to run the schemes by providing farmers with inputs, extension services and maintaining the canals. However, Government could not continue providing the services to farmers because of financial problems, hence the handover to WUAs.

### **3.2 Actors in the Rice Industry in the Basin**

#### **Farmers**

Subsistence farmers are the primary producers of rice in the basin. Rice is mostly grown as a secondary crop to maize and is purposed to serve as a food as well as a cash crop. In cases where farmers come together to work as a group, a club, an association or a cooperative, rice is grown for commercial purposes. The farmers produce in small quantities for food and sell part of the produce in order to access other basic needs. Before rice is taken to the market, the following activities are undertaken which include winnowing, drying, sorting/grading and packed in bags for storage or transporting to the mill or markets. These activities are done to add value in order to attract high price premiums. However, most farmers grow different varieties of rice on one plot as a result there is no uniformity in the final product that is taken to the market. Rice that is set aside for consumption is stored in bags and has a shelf life of one year. Farmers usually raise cats of use rat traps in stores to prevent rat damage which is the most post harvest pest for rice.

Govala and Nsanama are the main outlet markets in Zomba and Machinga Districts respectively. Traders from other areas as far as Blantyre and Lilongwe come to these markets to buy rice and this creates competition among buyers who in turn offer higher prices to farmers. Other local markets include Mpyupyu, Mwambo, Mposa and Gomani. In some years, ADMARC also buys rice from farmers. From the sales, farmers buy inputs such as hoes, sickles, slashers from Agro dealers such as AGORA. Most farmers sell their rice as individuals as a result they are not able to meet the economies of scale needed to reach out to lucrative markets. In many cases (70%), farmers are cheated on prices when selling to middlemen who use uncertified weighing scales while also offering low prices. Prices differ according to the season. Prices during peak season are usually higher averaging at K67.50 and hitting as high as K89.40 during the off season. The table below summarizes the price differences in the value chain which are also dependent on varieties. Rules of demand and supply dictate the market price for rice. Rice is mostly harvested in May and selling begins in June through August. In some cases, farmers hold their rice up to December to wait for prices to appreciate during the off season when supply is limited.

Varieties	Farm Gate Price (MK/Kg)		Milled Price		Processors /Wholesalers (MK)	Retailers Price (MK)
	Zomba	Machinga	Zomba	Machinga		
Pusa and CG10	50-60	40-50	80-100	70-80	130	200
Kilombelo and Super Faya	80-90	60-80	120-140	90-120	160	

### Input Suppliers

The main input suppliers in rice production are:

- Agricultural Development and Marketing Cooperation (ADMARC) supplies fertilizers especially to organized irrigated rice farmers. Farmers that practice rain-fed rice production have very low use of fertilizers because of the difficulties to regulate water levels in their fields.

- Lifuwu Research Station, a government research station provides certified seed and extension, however most of the farmers use recycled seed.
- Other input suppliers especially for fertilizer include AGORA, Smallholder Farmers Fertilizer Revolving Fund of Malawi (SFFRFM) and other small agro dealers.

### **Middlemen**

Most middlemen operate as individuals. Competition remains the main reason they work in isolation. In terms of communication, they use cell phones to link up with buyers. They work through chiefs who organize meetings with the farmers. During these meetings, some middlemen provide loans to the farmers which are repaid after harvesting the rice. Middlemen receive rice orders from different buyers and use the aggregate total to determine how much to buy from the farmers. They do not have specific buying point as they only settle in locations where rice is available and prices are good at that time. They buy larger quantities of rice and sell either immediately or in most cases, they hold the rice awaiting better prices. Some middlemen also sell to intermediate buyers who sell the rice finally to processors. During the inactive period, most of the middlemen engage in other income generating activities such as selling second hand clothes among other small scale businesses.

### **Processors**

Processors are located in urban centers with national electricity grid connection. There are mainly two types of processors: small-scale normally situated along the main roads with one or two rice mills. The large scale located in Urban centers mainly Blantyre and these include Mulli Brothers, Rab Processors, AGORA and TransGlobe. These processors have a dual buying process: buys directly from producers and/or buys from middlemen.

### **Research and Extension Providers**

Malawi Government is a key stake holder in the rice industry as it is responsible for policy development, review and implementation; research and extension services.

### ***Lifuwu Rice Research Station***

Through Lifuwu Rice Research Station, the government plays three main roles in the rice value chain:

- *Seed Service:* The station produces certified seed from basic seed. Farmers buy the certified seed for commercial rice production.
- *Breeding:* Lifuwu is also involved in a number of breeding programs aimed at producing improved varieties.
- *Agronomy:* The station provides agronomy support services which involve advising farmers on production issues such as varieties to grow, where and when. Currently, there is a technology transfer program in all research stations whereby several demonstrations have been mounted in selected areas and farmers are given inputs mainly seed and fertilizer and technical know-how. The produce becomes theirs after harvest. This is one form of seed multiplication system.

### ***Ministry of Trade and Private Sector Development***

The Ministry works with the Ministry of Agriculture (MOA) to provide export permits to those who seek to sell their rice outside Malawi. When one wants to export rice, they apply for export permit from MOA which is sent to Trade for approval. Applications can be rejected on grounds such as failure to account for foreign currency earnings, poor tax records and low supply versus high demand at local level.

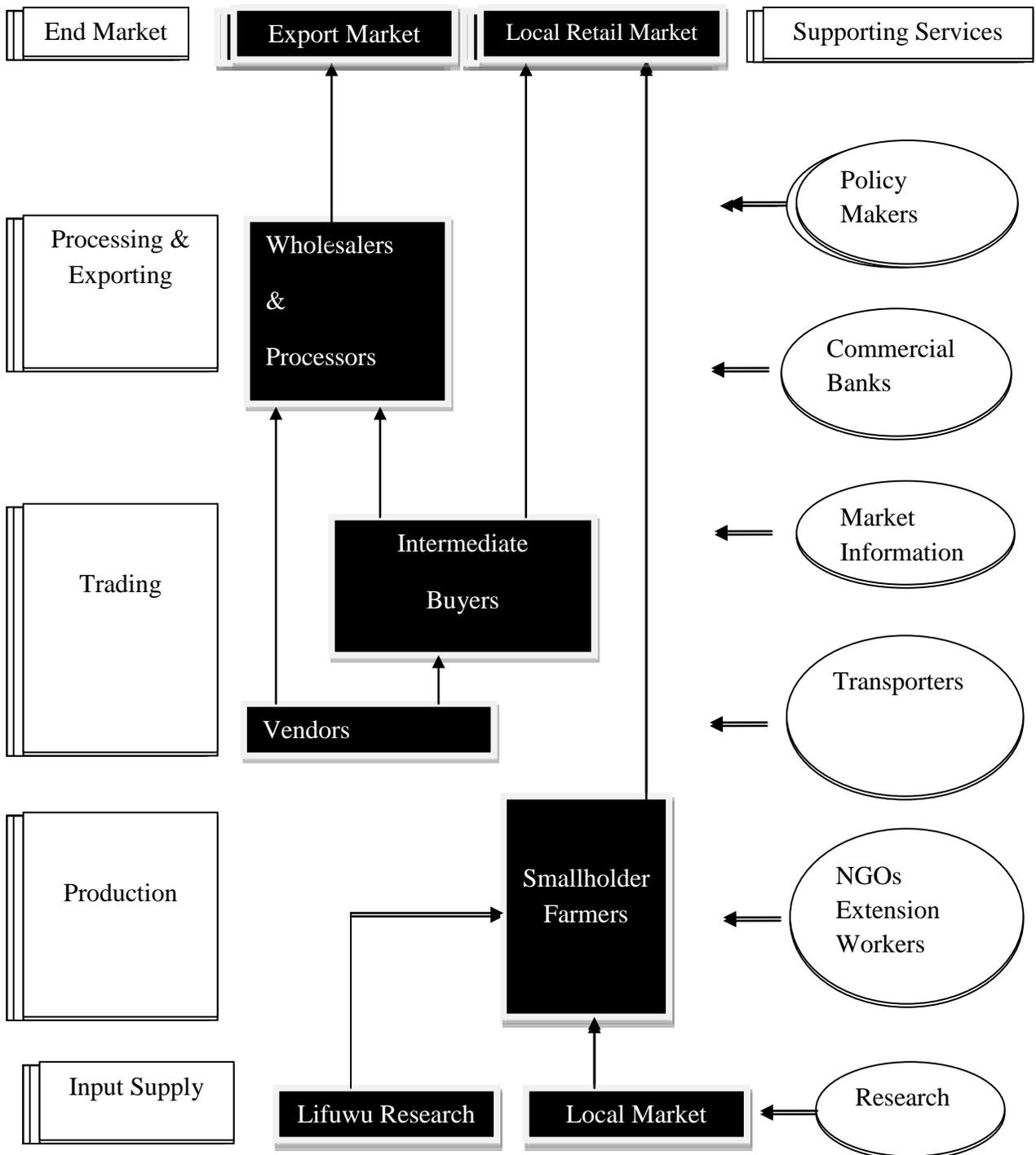
### **3.3 Coordination among the Different Stakeholders**

There is lack of coordination among different stakeholders as evidenced by different messages that are being disseminated to the communities. Some stakeholders are advocating for groups, others are championing clubs, cooperatives, associations etc. The government through programs such as One Village One Product is promoting cooperatives where as other non-governmental organizations are promoting associations. It appears there is competition among stake holders for beneficiaries of their programs and at the end of day the effort is disintegrated. However, the collaboration between WALA and LCBCCAP is one of the efforts by Emmanuel International and WorldFish to bridge this gap.

### 3.4 Marketing Channels and Dynamics

Marketing channels for rice in the basin involve the above mentioned actors as schematically presented in Figure 4.

**Figure 4: Rice value Chain map**



### **3.5 Constraints and Opportunities**

#### **Production Constraints**

- i. Productivity per farmer is still low. Though seed services have just been initiated in the past five years, most farmers are using recycled seeds.
- ii. Average cost of production per farmer is still very high because production is fragmented and mechanization is very low even in rice schemes.
- iii. Constraints farmers face as they grow rice
  - ✓ Climate change: since rice needs a lot of water, erratic rains and changes in the rainfall pattern is affecting rice production. Farmers are abandoning broadcasting method of planting rice as water becomes scarce during the growing season.
  - ✓ Lack of capital
  - ✓ Lack of lucrative markets
  - ✓ Transport: farmers use ox carts, motorcycles, bicycles and hired vehicles but vehicles are the most expensive transportation means. Farmers are made to pay MK120 per bag if they hire an ox cart.
  - ✓ Limited extension services: most farmers complained about absence of extension services in their area such that they grow rice with no technical support.

#### **Marketing Constraints**

The ministry says Malawi is a net exporter of rice. The country grows enough to feed itself and export some to other countries such as Zambia. Little rice is imported and these imports target a few foreigners in the country who prefer special rice products. Exports however are limited due to compromise on quality. Most farmers have failed to export their rice because they grow multiple varieties and yet international markets demand specified rice. In many cases, farmers fail to quantify the produce because the rice is kept in individual homes hence difficult to determine tonnage. Exports to countries such as Tanzania, Zambia and Zimbabwe are mostly through informal markets.

### **Constraints Affecting Support Institutions**

In many cases, seed inspection by research institutions such as Lifuwu is compromised due to lack of transport and hence this results in production of low quality seed among the farmers. Last year the program was heavily affected by the fuel scarcity

### **Opportunities**

- i. Availability of improved seeds, farm mechanization, loan facilities and irrigation has the ability to improve the rice production.
- ii. It is cheap to grow as it does not require fertilizer as much as other crops like maize do.
- iii. Post harvest losses resulting from pest attack are limited hence farmers do not lose income on chemicals as is the case with maize

### **Threats**

Climate change continues to pose a threat to rice industry as changes in rainfall pattern has an effect on rice production. Unless farmers adopt drilling method, transplanting rice is no longer effective during these days when rainfall is unpredictable.

## **CHAPTER 4: CONCLUSION AND RECOMMENDATIONS**

### **Conclusion**

Rice is a very important sub-sector in Malawi. Rice is the second most important food crop, after maize, and the country produces enough for its consumption and it is a net exporter. Having recognized the potential of rice to increase incomes and benefit millions of smallholder farmers, the USAID funded (WALA) project in collaboration with Norwegian funded Lake Chilwa Basin Climate Change Adaptation Project are spearheading efforts to increase the production and improve the marketing of the crop among smallholder farmers in the Lake Chilwa basin of Southern Malawi.

### **Recommendations**

#### ***Production***

- i. Farmers should undergo regular trainings to ensure adherence to quality control over certified seed production.
- ii. Due to rainfall unpredictability, farmers should be encouraged to practice drilling method of planting rice as opposed to transplanting.

#### ***Marketing***

- i. There is need to make available improved technology for value addition so that farmers can maximize profits from rice.
- ii. Farmers should work in groups to market their products collectively and profitably.

#### ***Support Institutions***

- i. There is need to revamp ADMARC so that farmers can buy and produce certified seed and sell to ADMARC. This will ensure that quality seed is available and affordable to farmers across the country.

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