

# Development of Inclusive Markets in Agriculture and Trade (DIMAT)



*Empowered lives.  
Resilient nations.*



**Value Chain Analysis (VCA) of the  
Rice Sub-sector in Uganda**







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**“Rice is the most traded food commodity across borders in the EAC region – while traditional staples such as bananas, are the least traded. terms of production, marketing and consumption”**

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# The Nature and Markets of Rice Value Chains in Uganda

## Development of Inclusive Markets in Agriculture and Trade (DIMAT) Project

November 15, 2012



Empowered lives.  
Resilient nations.





### About DIMAT:

Development of Inclusive Markets in Agriculture and Trade (DIMAT) in Uganda is a project supported by the United Nations Development Program (UNDP) and the Government of Uganda (GoU). Enterprise Uganda (EUG) is the implementing partner while Kilimo Trust (KT) and Private Sector Development Companies (PSDCs) are the Responsible Parties (RPs) for the project. The aim of the project is to contribute to Programme 2 of Uganda's Agriculture Development Strategy Investment Plan (DSIP) – in relation to enhancing “Market Access and Value Addition”. DIMAT Project is focused on building strong business linkages and inclusive business approaches to link small and medium scale producers and enterprises to profitable markets at national, regional and global levels.

### About this Report:

The data collection exercise for this VCA report was conducted in July 2012. The report was developed using both secondary literature and primary data gathered from various rice growing and trading districts of Uganda. The report provides a background of the DIMAT project, the purpose of the VCA, the methodology applied, the status of the sector and the value chain characteristics of demand and supply, the characteristics of the rice value chain actors, processes, services, relationships and key partners. It also highlights the constraints the actors face and the opportunities available within the value chain. It then presents conclusions and recommendations of strategic interventions for the project, regarding entry points to the Rice Value Chain in Uganda.

### Acknowledgement:

Availability of data and information on various agricultural issues is a challenge in Uganda. Therefore, the authors thank all the organizations, private companies and individuals who provided information and data to support the analysis.

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The views and conclusions contained in this report are entirely those of the authors and do not necessarily reflect the policy and views of UNDP, GoU or Kilimo Trust.

### Citation:

Kilimo Trust, 2012. Development of Inclusive Markets in Agriculture and Trade (DIMAT): The Nature and Markets of Rice Value Chains in Uganda.

# EXECUTIVE SUMMARY



## Introduction

Global trade in rice is extremely “thin” with only about 5% of the rice produced globally being traded across country borders. This is so because, most producing countries are also main consumers and thus impose stringent controls on rice exports. This together with the very high (75%) external common tariff imposed on rice imported into the EAC provides an opportunity for expanding rice production in Uganda.

The East African Common Market (EACM) protocol presents unique opportunities for Delivering Inclusive Markets in Agriculture and Trade for small and medium scale producers and enterprises (SMEs) and other actors in the rice sub-sector in Uganda. However, the DIMAT project will only succeed in delivering its objective to “enhance market access and value addition” if it focuses on enhancing tradability of rice within the framework of the EACM. This is because increased regional agricultural trade in rice will act as a pull factor for Uganda to realize its untapped production potential. This will ensure availability of rice at affordable prices for low-income consumers, while increasing profitability and income security for rice producers and other SMEs along the rice value chain.

Then why Rice? i) It is the most traded food commodity across borders in the EAC region while traditional staples such as bananas, is among the least traded, ii) rice is second to maize as the food commodity most imported into, as well as most exported from the EAC and iii) over the period 1990 – 2010, consumption of rice in the EAC has increased by 360% owing to the change of eating habits with urbanization. As a result, supply of rice in Uganda and other EAC Partner States cannot keep-up with the rapidly expanding regional market demand.

Therefore, the rice Value Chain Analysis (VCA) was designed to:

- Compile and assess baseline information with respect to the rice sub-sector in Uganda,
- Map the main characteristics of demand, supply and the relevant value chain(s) for the rice produced in Uganda,
- Identify and examine constraints and opportunities within the mapped value chains,
- Identify underlying policies, institutional and infrastructural issues that affect competitiveness of Uganda’s rice sub-sector,
- Identify possible bilateral partners; NGOs, facilitating organizations and private sector players within the value chain and specific regions (centers of production and consumption of rice) in Uganda.

The data and information used in the analysis include: (i) secondary data with global, regional and national coverage, (ii) primary data collected at national level from key informants on cross-cutting aspects of the rice sub-sector in Uganda and (iii) primary data collected from a survey of rice producers in the districts of Ntungamo, Busia, Gulu, Iganga, Jinja, Kampala, Lira, Masaka, Mbarara, Soroti, Namutumba, Kibuku, and Mbale.

The VCA had a limitation of coverage and depth because of:

- Limited categorization of value chain operators into small, medium and large scale groups for the purpose of the study – as their characteristics differ significantly – which led to wide ranges in the data collected to measure different characteristics.
- Limited coverage of geographies and categories of actors because the time allocated and available for the study was inadequate for a comprehensive field work.

- c) Finally, most of the actors were not willing to disclose information related to costs of operations- leading to very limited information to support the calculation of value formation, capture and distribution along the value chain.

## Findings - Baseline

According to the study,

It is estimated that rice production in Uganda for the year 2010/11 was 233,000 MT, making it the second most important cereal, after maize. It is grown mostly for income generation although approximately 18% of household produce is used for food. During the same period, producers sold about 84% of the rice they produced, up from 71% in 2005/06 and 55% in 1999/00. The implication is that the production of rice as business in Uganda is expanding rapidly.

The increase in production of rice in Uganda is attributed to a combination of factors such as: appropriate government policy, intensive promotion of the commodity, availability of improved rice varieties and other relevant technologies and the increased consumption of rice driven mostly by rapid urbanization as well as the relatively high rate of population growth.

However, despite the availability of improved rice varieties as well as modern and better technologies, the increase in rice production in Uganda has mostly been dependent on expansion of land under cultivation rather than raised levels of productivity per unit of land and/or labour. It is important to note that, to achieve economic and environmental sustainability, this trend must be reversed.

Rice imports into Uganda are mainly in four forms; broken rice, semi-milled or fully milled rice, rice in husks (paddy) and brown rice. One of the interesting findings of this study is that, most of the rice imported into Uganda is broken rice. This very high level of importation of broken rice suggests that the expanding rice market is dominated by consumers of low quality rice.

Inconclusive evidence from this VCA report shows that, dominance of demand for low grade rice could be the main cause of the reluctance of value chain actors to invest in adoption of modern varieties (e.g. only 8% of the rice seed used by farmers is procured from certified seed suppliers) to produce higher grades of milled rice in Uganda. This requires more detailed study and analysis and if confirmed - then it means that without dealing adequately with the factors that are forcing the consumers to only demand and/or accept lower grades of rice - there will be very limited chance of successful upgrading of the Rice Value Chain in Uganda.

At the same time, the study also found that, consumers prefer rice varieties that are: aromatic, non-sticking, whole grained and white as well as with ability to swell when cooked. Analysis of the survey data collected from retailers showed that, price is not such a strong determinant of consumer demand and preference. For example, the 'Super' variety is among the most expensive but still it is most preferred by consumers in the urban areas while the lowest priced 'Kibuyu' variety is also the least preferred. The big question is what happens to all that broken rice being imported into Uganda? Is there a mis-selling of rice grades to consumers? Therefore, the above finding leads to the conclusion that, upgrading of the rice value chain in Uganda must start and be driven by the **"up-grading of the consumer"**.

## Findings – Value Chain Maps

The rice value chain mapping process depicted that:

For the rice produced in Uganda, the core value chain actors are: input suppliers, producers, processors, traders/brokers, retailers (urban and rural), wholesalers (urban and rural). Transporters also double as traders, processors, exporters and importers.

Trade begins when local traders (popularly known as middlemen and/or assemblers) purchase from individual farmers and farmer groups. The rice is then sold at open markets to medium and large scale traders and/or processors. However, most of the traders procure directly from either individual producers or organized groups.

The input supply stage of the rice VC is inadequately developed and has a very limited geographical reach because of its concentration in urban areas such as Kampala and other up-country towns such as Bugiri, Busia and Iganga. It mostly supplies farm implements, rice seed of upland rice varieties such as NERICA 4, fertilizers and pesticides. Though limited, the input suppliers provide after-sales and extension services.

There are three rice production systems in Uganda namely: (i) rain-fed lowland, (ii) irrigated low-land and (iii) upland production systems. Producers are categorized into three as follows: (i) small-scale forming 80% of farmers employed in the production of rice cultivating less than 2 hectares of land using rudimentary technologies, (ii) medium scale producers cultivating 2 - 6 hectares of land and account for 15% of the rice producers, and (iii) large scale farmers who cultivate over 6 hectares of the land and account for 5% of the people employed in rice production. However, large scale producers contribute a large proportion of rice produced in Uganda due to higher productivity per unit of land and labour employed. It is estimated that production of the paddy rice employs about 250,000 - 300,000 households in Uganda.



As already noted before, producers as individual households, organized producer groups/cooperatives and/or commercial firms, undertake agronomic operations, primary postharvest handling, milling, wholesaling and retailing. The surveyed farmer groups had an average of 187 members. Labour is mostly provided by household members at production level. Most employment opportunities are found in the post-harvest component of the value chain.

The characteristics of millers in the rice value chain are that: (i) they are dominated by small-scale facility of poor quality, producing low quality of milled rice (e.g. they produce high proportion of broken rice with stones and other contaminants), (ii) Some millers operate toll millers for rent by producers and bulk buyers of paddy, (iii) some millers are large-scale millers who are either operators of large estates and/or are also wholesalers of rice. Currently, there are 591 rice mills operating in Uganda, composed of 11 large processing mills with destoners and packing units (1.7% of milling capacity), mill tops (20.8% of milling capacity) and rudimentary poor performing Engelberg mills (77.5% of milling capacity).

From the transporters interviewed, 34% not only transport rice but other commodities for local traders. They transport for 28% of farmers, 18% exporters, 14% processors and importers 6%. Rain bag wear & tear, substandard weighing scales, sorting and cleaning, mechanical problems, loading & offloading, poor packaging, theft and spillage during transportation were reported as the major causes of losses incurred during transportation of rice.

Paddy rice from producers whether individuals or producer groups pass through different channels to reach the final consumers (individual, institutions and hotels). Three major channels were identified:

- Producers sell their paddy to brokers/traders, who normally visit the production areas to collect, bulk and pack. This channel was found to be handling about 42% percent of the rice coming from the producers; and majority of processors depend on this channel.
- About 15% of rice from farmers is sold to processors directly or through brokers.
- Farmers organize milling of their paddy at a fee and then sell the milled rice to urban traders, retailers and wholesalers depending on the volumes. About 24% percent of rice is sold through this channel.

**Value capture** - rice enterprises are more profitable at all components of the value chain compared to other cereals (maize, sorghum and finger millet) and profitability increases with investment in and use of improved production technologies such as quality seed, fertilizers,

irrigation and mechanization. The **relatively high gross margins across all stages of the chain provide key opportunity for maximizing returns, if MSMEs** invested in improved management practices as well as run efficient businesses and supply chains. Both the absolute figures and range of gross margins achieved by actors across the chain are good and provide some level of flexibility for making improvements.

However, **the market for rice by-products is under-developed and thus provides a huge potential for expanding end-markets for the rice sub-Sector.** With the main products being paddy and milled rice, rice by-products are under-utilized, in spite of increasing availability of proven technologies to utilize them.

**The weakest links in the rice sub-sector are those that involve individual farmers and producer organizations, in either direction of the chain.** However, linkages involving out-grower schemes are reported to be strong thus, the strongest supply chains are those that link input providers in out-grower schemes and leading off-takers.

With respect to services, there are existing linkages between all service providers and core actors of the value chain. The notable weak linkages are between extension services, research and development and the core actors of the VC. However, in spite of existing linkages with providers of financial services, technology and BDS, the suitability of the available services, ability to pay and ease of access still remained the main constraints.

The key constraints across the rice VC vary in nature. In the upstream of the VC, limited business skills of producers, inability to deal with risks brought about by weather variability, pests and diseases, low adoption rates of technology and access to finance are the main puzzles. In the downstream of the chain, key constraints include unreliable and generally low supply volumes of rice, limited storage and drying facilities and access to appropriate financial products.

The rice sub-sector in Uganda is supported by several organizations and programmes. However, mechanisms for coordinating and sharing information among organizations and partners supporting the value chain are limited. There is no rice platform(s) in Uganda and so, there is a high chance of duplication of interventions and poor utilization of synergies. This also makes it difficult to lobby for policies that affect rice production and trade in Uganda.

## Conclusions

### Potential of Establishing Formal Business Linkages

- The biggest challenges are: inadequate trust among actors as implied by the high rate of side selling, inadequate collaboration among farmers and high transaction costs associated with operating contracts. For those not engaged in formal contracts, price fluctuation is the main challenge deterring full participation of actors in the value chain.
- Over 70% of off-takers (traders and processors) that were interviewed were willing to enter into formal contractual agreements with their suppliers on condition that, there is commitment to supplying the agreed quantity and quality maintaining a good relationship with the supplier at the same time.
- Those off-takers willing to enter into contractual arrangements also emphasized the need to share information with their suppliers regarding targets for the company and implications of side selling on the operations of the company.
- Over 80% of the farmers groups approached were willing to enter into formal contractual agreements with their buyers.

### Policies and Institutional Issues

- Rice ranks the highest, according the Uganda Agricultural Sector Development Strategy and Investment Plan (DSIP), 2010 – 2015.
- The National Rice Development Strategy (NRDS) identifies priority interventions as: strengthening the institutional framework, research, technology dissemination to increase utilization of agro- inputs and sustainable soil management among others.
- The National Agricultural Advisory Services (NAADS) has partnered with Tilda Uganda through an out-growers' scheme to enable farmers access the milling, processing and branding facilities and for smallholders to have access to regional and national markets.

### SWOT Analysis

The main strengths of the rice VC chain are:-

- The sub-sector has a critical mass of actors at each stage of the chain – which gives a very good basis for upgrading the value chain.
- Availability of proven products, affordable technologies and practices for raising rice productivity and quality of finished products.
- The producers control most of the produce by hiring milling services after which they sell the milled rice to traders.
- There are a significant number of large players in the sub-sector that can facilitate efficient access to markets.

The main weaknesses of the rice VC chain are:

- Unstructured trade largely caused by inadequate enforcement of standards and rules, lack of fool-proof quality assurance systems and low trust.
- Weak vertical integration resulting to inefficient rice VC in Uganda.
- Low levels of operation resulting to diseconomies of scale.
- Few and/or weak or non-existent value chain institutions.
- Low productivity and poor quality of rice.

The main opportunities the rice VC chain are:

- Expanding national, regional and international markets for rice and its by-products.
- The high EAC tariff on imported rice plus export restrictions in major producing countries protect locally produced rice.
- Huge availability of agricultural financing for investment (FDI, Equity investors, international/regional/development banks).
- Unexploited land and water resources with potential to produce rice.

The main threats the rice VC chain are:

- Inadequate infrastructure especially to effectively connect different VC actors located in different geographic areas.
- Sudden removal of tariff protection plus the easing of restrictions on exportation of rice by leading producers in the world.
- With the increasing urbanization and population in general, water resources available for rice production (especially irrigated rice) will significantly reduce in future unless serious measures are put in place to optimally utilize the available water.

## Recommendations

### Proposed Short Term Interventions

- Focuses on **“expanding, optimizing and mainstreaming the utilization of the healthy stock of proven technologies, products and practices”** so as to fully respond to the expanding markets for main products and by-products of rice - while paying more attention to the consumer – through the development of markets for high quality rice as well as its byproducts.
- Facilitate market and profit motivated adoption of the available technologies and practices at all levels of the value chain.
- Strengthen linkages between the production, processing and trading components of the value chain** - building on: (a) the extent to which producers are involved in managing processing and trading in milled rice; (b) the dominance of small scale processing facilities and (c) the market presence of



brands of large scale processors who are currently struggling to obtain enough paddy to mill. The aim would therefore be to bring the three parts together through a “win-win” partnership that improves the SME processing while expanding market access for the SME through franchise arrangements for use of leading brand names. This will also contribute to the implementation of the BCtA component of the DIMAT Project.

### Proposed Short - Medium Term Interventions

- a) Support the **“development of structured trade for rice in Uganda”**. Preliminary work will be required to identify which among the many models for structured trade focused on reducing the problem of trust, by trying a hybrid model that brings together the warehouse receipt system (WRS); out-grower schemes built around mini-estates and processing enterprises (MEPEs) owned by cooperatives of producers and the adoption of a private sector driven code of “Good Agricultural Practices for Uganda Rice” (GAPUR).
- b) Focus on **“strengthening value chain institutions including, enhancing the voice of consumers to drive the market for high quality rice”** through consumer platforms e.g. the Kenya Rights Empowerment Forum

**Proposed Medium Term Interventions** - designed to enhance and to put into use the identified strengths in the rice value chain in Uganda the study recommends for::

- a) Advocacy in investments to optimize the use of infrastructure and agricultural water systems to support the rice sub-sector.
- b) Support in the development of structured trade with decentralized anchors rather than centralized anchors, so as to mitigate the effect of poor infrastructure for transporting paddy to central processing facilities.
- c) Adoption and mainstreaming of water-efficient systems for producing aromatic rice.

### Proposed Long Term Intervention

The intervention proposed in the long term would be designed to counter the identified weaknesses in the rice value chain in Uganda. The intervention would be to **invest to raising productivity in quality and quantity of aromatic rice while lowering the cost of production, processing and marketing**. This is recommended because, without raising production efficiency, it is difficult to achieve commercial adoption of productivity-enhancing technologies and practices.

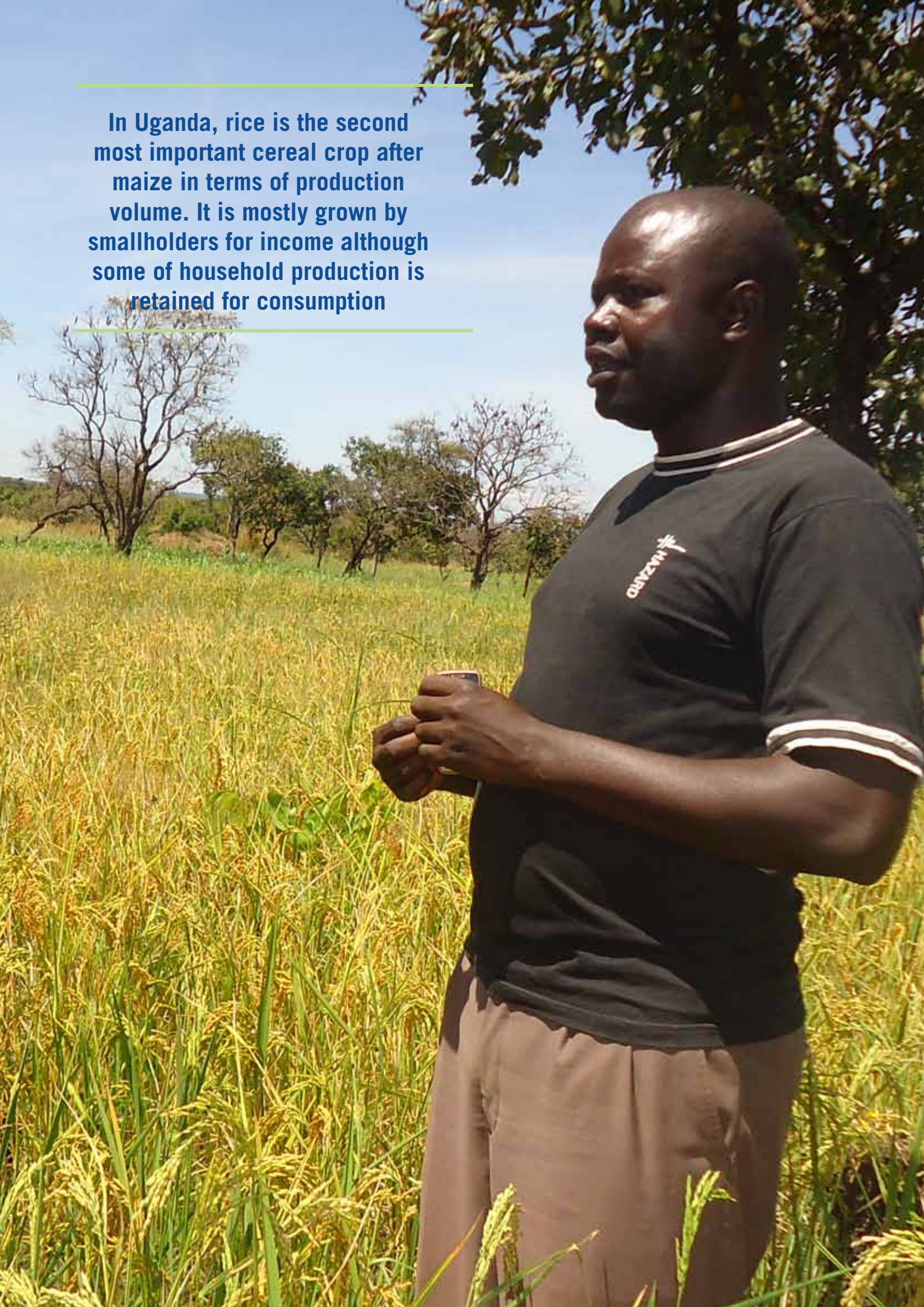




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**In Uganda, rice is the second most important cereal crop after maize in terms of production volume. It is mostly grown by smallholders for income although some of household production is retained for consumption**

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# LIST OF ACRONYMS & ABBREVIATIONS

ACP	Africa Caribbean Pacific	NAP	National Agricultural Policy
AgGDP	Agricultural Gross Domestic Product	NARO	National Agricultural Research Organization
AGRA	Alliance for a Green Revolution in Africa	NASECO	NALWEYO SEED Company
ATAAS	Agriculture Technology and Agribusiness Advisory Services	NERICA	New Rice for Africa
BCtA	Business Call to Action	NGO	Non-Governmental Organization
BDS	Business Development Service	NRDS	National Rice Development Strategy
BMO	Business Membership Organizations	PMA	Plan for the Modernization of Agriculture
CARD	Coalition of Africa Rice Development	PYMC	Pe Yero Rice Millers Co. Ltd
COMESA	Common Market for Eastern and Southern Africa	R&D	Research and Development
CSO	Civil Society Organization	SACCO	Savings and Credit Cooperative Society
DANIDA	Danish International Development Agency	SMS	Short Message Service
DIMAT	Development of Inclusive Markets in Agriculture and Trade	SRI	System of Rice Intensifications
DRC	Democratic Republic of Congo	SSA	Sub-Saharan Africa
DSIP	Development Strategy Investment Plan	SWOT	Strengths, weakness, opportunities, and threats
EAC	East African Community	UBOS	Uganda National Bureau of Statistics
FAO	Food and Agriculture Organization	UEPB	Uganda Export Promotion Board
FDI	Foreign Direct Investment	UGX	Uganda Shillings
FG	Farmers Group	UIA	Uganda Investment Authority
FY	Financial Year	UNADA	Uganda National Agro-Input Dealers Association
GAPUR	Good Agricultural Practices for Uganda Rice	UNBS	Uganda National Bureau of Standards
GDP	Gross Domestic Product	UNDP	United Nations Development Programme
GoU	Government of Uganda	UNFFE	Uganda National Farmers Federation
Ha	Hectare	USAID	United States Agency for International Development
IDO	International Development Organization	USDA	United States Department of Agriculture
IFAD	International Fund for Agricultural Development	VCA	Value Chain Analysis
IFPRI	International Food Policy Research Institute	VSLA	Village Savings and Loan Association
IRRI	International Rice Research Institute	WFP	World Food Programme
ITC	International Trade Centre	WRS	Warehouse Receipt System
JICA	Japan International Cooperation Agency		
KT	Kilimo Trust		
LEAD	Livelihoods and Enterprises for Agricultural Development		
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries		
MDI	Microfinance Deposit-taking Institution		
MEPE	Mini-estates and Processing Enterprises		
MSME	Micro, Small and Medium Enterprise		
MT	Metric Tons		
NAADS	National Agricultural Advisory Services Programme		



# 1. INTRODUCTION



## 1.1 Situation Analysis

Globally, nearly 700 million MT of rice are produced annually in more than 122 countries. This volume represents about one-third of grains produced worldwide (World Wheat, Corn and Rice, 2009). Leading countries in the production of rice are: China, India, Indonesia, Bangladesh, Vietnam, Thailand, Myanmar, Philippines and Japan (not necessarily in that order). However, global trade in rice is extremely “thin” with only about 5% of the rice produced globally being traded across country borders. This is because; most producing countries are also main consumers and thus impose stringent controls on rice exports. In 2010, the three leading exporters of rice were Thailand, Vietnam and India accounting for 70% of rice exports (World Rice Trade, 2011). China, one of the key exporters of rice, became a net importer in 2010. Countries leading in the importation of rice are Nigeria, Indonesia, Bangladesh, Saudi Arabia, Iran, Iraq, Malaysia, the Philippines and Brazil.

Most African countries produce rice but it is the main staple in only a few countries: Cape Verde, Comoros, Gambia, Guinea, Guinea Bissau, Liberia, Madagascar, Egypt, Senegal and Sierra Leone. Rice is also considered an important food in Cote d'Ivoire, Mali, Mauritania, Niger, Nigeria and Tanzania. There are also countries in which rice is an important component of food security namely: Angola, Benin, Burkina Faso, Chad, Ghana and Uganda. Madagascar and Tanzania are the leading rice producers in Sub-Saharan Africa (FAOSTAT 2012).

In Uganda, rice is the second most important cereal crop after maize in terms of production volume. It is mostly grown by smallholders for income although some of household production is retained for consumption. However, Uganda is a net importer of rice since domestic demand exceeds its supply/production.

The East African Common Market Protocol (EACM) presents unique opportunities for Developing Inclusive Markets in Agriculture and Trade (DIMAT) for small and medium scale producers and enterprises (SMEs) and other actors in the rice sub-sector in Uganda.

DIMAT is a project supported by the United Nations Development Program (UNDP) and the Government of Uganda (GoU). It is implemented by a consortium made up of Enterprise Uganda (EUG), Kilimo Trust (KT) and the Private Sector Development Companies (PSDCs) in the various target districts of Uganda. The aim of the DIMAT Project is to contribute to Programme 2 of the Uganda's Agriculture Development Strategy Investment Plan (DSIP) – in relation to enhancing “Market Access and Value Addition”. DIMAT Project intends to focus on building strong business linkages and inclusive business approaches to link small and medium scale rice producers and enterprises to profitable markets at national, regional and global levels.

Rice has been selected as a priority commodity under the DIMAT project for three reasons. First, it is the most traded food commodity across borders in the EAC region compared to traditional staples such as bananas. Secondly, rice is second, to maize, as the food commodity most imported into, as well as, most exported from the EAC. Thirdly and most importantly, **over the period 1990 – 2010, consumption has increased by 360% due to a shift on eating habits as a result of urbanization and the influx of the youth in the population.** As a result, supply of rice in Uganda and other EAC Partner States cannot keep-up with the rapidly expanding regional market demand.

However, the DIMAT project will only succeed in delivering its objective to “enhance market access and value addition”– if it focuses on enhancing tradability of rice and rice products within the framework of the EACM. This is because increased regional agricultural trade in rice will assist Uganda to realize its untapped production potential. This will ensure availability of rice at affordable prices for the low-income consumers, while increasing profitability and income security for rice producers and other SMEs along the rice value chain.

## 1.2 Objectives of the Study

The general objective of the study was to analyze the rice value chain in order to identify key areas for strategic intervention by DIMAT stakeholders. Specific objectives were to:

- a) Compile and assess baseline information with respect to the rice sub-sector in Uganda,
- b) Undertake a value chain analysis with the aim of mapping the main characteristics of the rice value chain,
- c) Identify and examine constraints and opportunities within the value chain,
- d) Identify the underlying policies, institutional and infrastructural issues that affect competitiveness,
- e) Identify the potential for upgrading the value chains and
- f) Identify possible bilateral partners, NGOs, facilitating organizations and private sector players within the value chain and specific regions of operations who could be engaged to support and sustain the VC.

## 1.3 Structure of the Report

This report is organized into five chapters supported by several appendices. In the first chapter, introduction including situational analysis and objectives of the study is presented. The second chapter focuses on the methodology used in the study. The third chapter presents the findings of the VCA, based on both the secondary and primary data. Chapter four discusses these findings and draws conclusions in line with each of the specific objective and relevant research questions. Chapter five presents recommendations focusing on the way forward for DIMAT.

The report also includes the following Appendices:

Appendix 1: Scientific names of rice varieties grown in Uganda

Appendix 2: Detailed list of constraints and opportunities as identified by stakeholders interviewed

Appendix 3: Existence and willingness of producer enterprises to enter into contractual agreements

Appendix 4: Existence and willingness of traders and processor companies to enter into contractual agreements

Appendix 5: Case studies of off-takers' willing to formally engage their suppliers

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**“In Uganda, rice is the second most important cereal crop after maize in terms of production volume.”**

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## 2. METHODOLOGY



### 2.1 Value Chain and SWOT Analytical Methods

The study employed the Value Chain Analysis (VCA) and the SWOT analytical method to achieve its objectives. The value chain approach is an accounting framework which uses both the functional and economic analysis (at market prices) of an identified value chain (FAO, 2005). The functional analysis was used to define the actors (agents) in the value chains while the financial analysis was used to analyze the economic returns of the different agents.

In the functional analysis, different agents in the chain and the roles they play in the chain were identified. The functional analysis involves: a) identification of physical flows of the commodity, b) identification of technical functions of the chain, c) identification of actors in the value chain and d) quantification of physical flows of the commodity. After the agents in the value chain were mapped and their technical functions defined, the amount of goods they were handling were quantified.

The financial analysis of the value is a data intensive approach which involves identification of the inputs and outputs used in a particular activity in a value chain and attaching financial values to them. The aim of financial analysis was to determine whether: a) every agent was generating a surplus, b) the surplus was adequate to sustain the agents (e.g. maintenance and replacement of equipment, ability to cover financial charges), c) the surplus was a sufficient and financially acceptable return on investment, d) the whole chain was profitable, e) there are winners and losers in the chain and f) the prices in the chain correctly reflect production costs.

The SWOT analysis served as an interpretative filter to reduce the information relating to strengths, weaknesses, opportunities and threats to manageable amounts of key issues. The SWOT analysis classified the internal aspects as strengths or weaknesses and the external situational factors as opportunities or threats. Strengths can serve as a foundation for building a competitive advantage by value chain actors, whilst weaknesses may hinder utilization of such a foundation. By understanding these four aspects of its situation, the rice value chain actors can better leverage their strengths, correct their weaknesses, capitalize on opportunities and prevent threats.

### 2.2 Data Needs and Sources

Both primary and secondary data were used in this study. The main sources of secondary data included; Civil Society Organizations (CSOs), AfricaRice, Food Security Research Projects, Food and Agriculture Organization (FAO), COMESA, International Trade Centre reports, Uganda Bureau of Statistics, MAAIF, Business Membership Organizations (BMOs), development agencies, similar Value Chain Analysis (VCA) studies conducted.

More specifically, the following information on the rice sub-sector in Uganda was assembled from the above secondary sources:

- a) Global, regional and national structure of demand for raw materials and finished products,
- b) Production and trade volumes and trends in the past 10 years,
- c) Inputs and products' prices and trends in the past 5 years,
- d) Key drivers of the demand for rice products globally, regionally and nationally and how these affect market shares of key industry players,
- e) Data on relationship between commodity sector contributions and broader macroeconomic indicators (e.g. GDP, inflation, employment, foreign earnings and tax revenues),
- f) Potential public and private sector players (including market leaders) that may influence the flow of rice trade,
- g) Underlying policies, institutional and infrastructural issues that affect the competitiveness of the selected value chains and
- h) Current and planned investments and priorities of governments and development agencies in the sectors.

With respect to primary data, the following data specific to the rice sub-sector were collected:

- a) Data on Costs, production volumes, sales volumes, values and margins,
- b) From finance institutions, data collected included types of products and services offered, loan requirements and levels of lending to arable farming, processing and marketing.
- c) From traders and traders' associations, the data collected included support services offered to the rice VC, trade volumes, storage facilities, operation costs and margins, constraints and opportunities. Some of



these traders were lead firms/market off-takers and data collected from them also included: demanded volumes from suppliers, demand projections, pricing mechanisms, willingness to enter into contractual arrangements with other actors along the value chain and conditions for these contractual agreements.

- d) Data on nature of services, target beneficiaries of such services as well as constraints hindering their operations and opportunities was collected from market information providers, input suppliers and technology providers.

## 2.3 Sampling and Data Collection

To collect the required data, purposive sampling was used to select the districts to be included in the rice VCA. This selection was guided by a set criteria focusing on:

- Districts where the production of rice is significant by volume; and/or
- Where there is significant trade of rice and/or rice products; and/or
- Districts where the consumption of rice by volume is significantly high to provide attractive markets.

**Table 2.1: List of Districts Selected for Rice VCA**

	Selected Districts	Reason for Selection for Rice VCA
1.	Ntungamo	Significant trading activities
2.	Busia	Significant trading activities
3.	Gulu	Significant production and trading activities
4.	Iganga	Significant production
5.	Jinja	Significant trading activities
6.	Kampala	Significant trading activities
7.	Lira	Significant trading activities
8.	Masaka	Significant trading activities
9.	Mbarara	Significant trading activities
10.	Soroti	Significant production
11.	Namutumba	Significant production
12.	Kibuku	Significant production
13.	Mbale	Significant trading activities

The sample size for individual respondents for the primary data collection was determined using precision criterion which assumes that the dominant characteristics of the study would occur if the confidence interval is set at 5% marginal error.

**Table 2.2: Number of Respondents for Primary Data Collection on Rice**

a) By Category of Value Chain Actors

Category of Value Chain Actor	Specific to Rice	Cross Cutting	Total
Farmer Groups	27		27
Traders	32		32
Retailers	38		38
Processors	20		20
Input Suppliers		61	61
Transporter		62	62
Institutional buyers		79	79
Financial service providers		77	77
Market information providers-Checklist		31	31
BDS (Extension, R&D, Technologies, Support Institutions)		34	34
Government Officials		18	18
BMO's		41	41
<b>Total</b>	<b>117</b>	<b>403</b>	<b>520</b>

## b) By district

District	Total
Amuru	5
Bugiri	10
Busia	3
Gulu	19
Iganga	18
Jinja	7
Kampala	6
Kibuku	7
Lira	4
Masaka	2
Mbarara	3
Namutumba	19
Sironko	1
Soroti	10
Wakiso	3
Total	117

## 2.4 Data Analysis

The data for the different value chain actors were entered in spread sheets and cleaned for any outliers and entry errors. The first step of the analysis involved descriptive statistics which were conducted to aid in characterising rice production, consumption and marketing in Uganda.


The second step involved functional and financial analysis of the rice value chain. The functional analysis of the value chain involved mapping of the value chain, identification of the roles of the different actors at different stages and quantification of volumes of rice along the value chain. The volumes flow along the value chain is important in categorizing the actors e.g. a chain could have small and large scale farmers producing the same commodity but have different production approaches. In this study, for example, it would have been important to categorise traders into low, medium and large scale traders. However, this was not achieved due to lack of clear definition of these categories.

The third step was a financial analysis of the value chain which involved attaching prices to the various quantities of outputs and inputs along the value chain. The aim of this analysis was to determine the financial returns to the different agents of the value chain and also determine the value added at each stage of the chain.

Finally, a SWOT analysis of the rice value chain was conducted. Factors that influence the internal workings of the chain were categorised into strengths and weaknesses, while those influencing the chain from outside were categorised as opportunities and threats. The aim was to determine the factors that make the chain competitive, so as to capitalize on them but also identify those that may weaken or threaten the chain so that their effects could be mitigated.







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**“Production of rice in Uganda has been increasing rapidly. Over the last 7 years, it has increased by 52% by volume and 46% by land under cultivation (MAAIF, 2010)”**

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# 3. RESULTS AND DISCUSSIONS



## 3.1 Rice Production and Productivity in Uganda

### 3.1.1 Production of Rice

It is estimated that rice production in Uganda for the year 2011 was 233,000 MT from an area of 90,000 ha (UBOS, 2012). Production of rice in Uganda has been increasing rapidly (Figure 3.1a). Over the last 7 years, it has increased by 52% by volume and 46% by land under cultivation (MAAIF, 2010).

Although rice is grown in two seasons (March to June

and August to November) per year in Uganda, three-quarters is produced in the second season (UBOS, 2010 and MAAIF, 2010). The contribution towards total rice output differs by region (Figure 3.1b). During the production year 2008/09, the eastern region accounted for 67% (128,000 MT) of the total rice produced, northern about 23% (44,000 MT), western about 9% (17,000 MT) and the central region about 1% (2,200 MT).

Figure 3.1a: Trends in Produced Volumes and Area Cultivated, 2004-2010 (MAAIF, 2011; 2012)

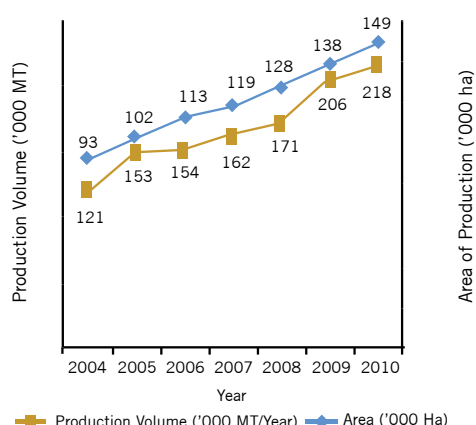
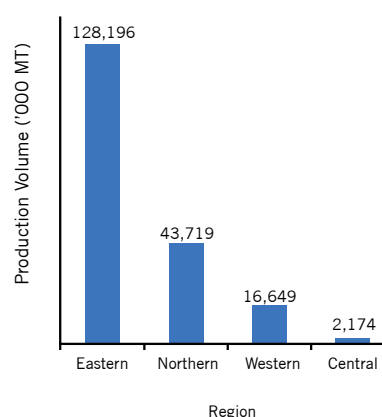


Figure 3.1b: Production of Rice in Uganda by Region in 2008/09 Production Year (MAAIF, 2011)



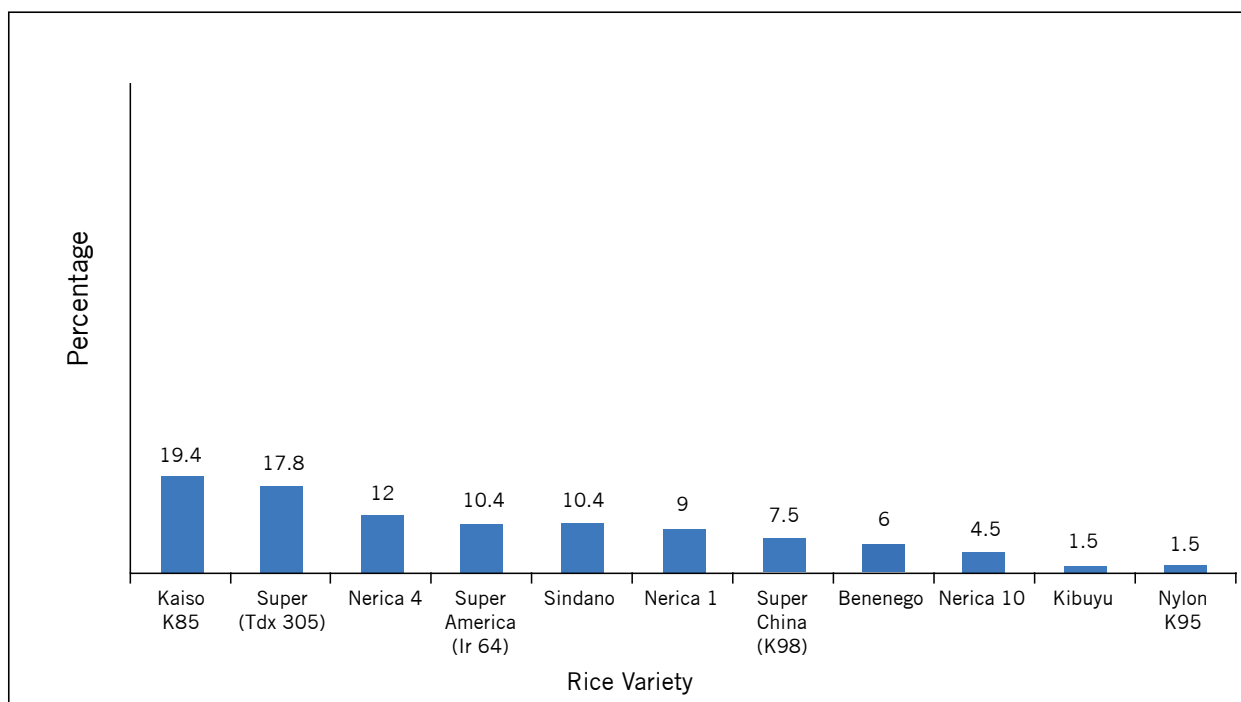
The increase in production of rice is attributed to a combination of several factors such as appropriate government policy, the release of improved varieties particularly NERICA upland variety, promotion of rice trade by various organizations, increased consumption particularly in urban areas and a decline in the importance of cotton and coffee, the traditional cash crops. Consequently, rice production has spread to all regions in Uganda and more land has been opened up for both upland and lowland rice.

There are three rice production systems and three categories of rice farmers in Uganda (MAAIF, 2009). The production systems are: rain fed lowland, irrigated low land and upland production system. Farmers on the other hand have been categorized into small-scale, medium-scale and large-scale. Small-scale farmers who

constitute about 80% of all the rice farmers cultivate less than 2 hectares of land, using rudimentary technologies. Medium-scale farmers cultivate between 2 and 6 hectares of land and constitute 15% of the rice producers while the large-scale farmers (including rice irrigation schemes) cultivate over 6 hectares of land and constitute 5% of the rice farmers. However, this may not reflect the contribution of these farmer categories to total rice production. For example, the output from Tilda, one of the large scale rice producers contributes 20% of the total rice produced in Uganda. In spite of this typology, most rice farmers cultivate less than 1 hectare of land (PMA, 2009).

The major rice varieties reported to be grown are Kaiso, Super, NERICA 4 and Sindano with the least grown being K95 and Kibuyu (Figure 3.2). Others include

NERICA 1 and NERICA 10. The scientific names of above stated varieties are listed in Appendix 1. However, scientific names of some varieties which are grown by farmers were not available even after consulting rice researchers during a rice validation workshop for the study. These include Kibuyu, Benenego and Sindano. It is possible that original sources of these varieties are not known.



**Figure 3.2: Major varieties of rice grown by the surveyed producers**

### 3.1.2 Productivity of Rice

The highest yielding variety grown in Uganda is NERICA 4 with yields of approximately 1.3 MT/ha. The Super and Kaiso varieties were shown to have average yields of 0.75 MT/ha. The K-series varieties gave the lowest yields averaging at 0.9 -1.1MT/ha (MAAIF, 2009). Table 3.1 presents a comparison of the yields reported during the primary data survey, with verified potential yields obtainable on farm. For all varieties compared, farmer reported yields are far below the potential farm level yield. The observed yield gap ranges from 32 to 75% of the potential farm yield. This is not surprising given the nature of rice farmers in Uganda who are mostly smallholders using traditional inputs.

**Table 3.1: Productivity of different rice varieties in Uganda**

Variety	Reported Current Yields (MT/ha)	Potential farm level yield (MT/ha)	Yield gap (%)
TDX 305 (Super)	1.9	2.7	32%
K85 (Kaiso)	1.6	5	68%
NERICA 4	1.5	5	71%
NERICA 1	1.9	7.5	75%
NERICA 10	1.4	4	64%
Sindano	1.0	2.7	63%
IR 64 (Super America)	1.3	3	56%
K98 (Super China)	2.1	4.7	55%
K95(Nylon)	0.9		
Kibuyu	1		
Benenego	1.1		

Source; NaCRRI 2012

The survey found out that productivity of varieties grown varies from about 0.9 – 1.9 MT/ha with K95 being the lowest and TXD 305 (Super) being the highest yielding

variety (Table 3.1). The difference in productivity could be attributed to different factors such as seasonality, type of soil, practices and use of fertilizers. However, there is need for more scientific research to establish what factors are contributing to the differences in rice productivity in Uganda and whether the differences are significant.

## 3.2 Rice Processing in Uganda

Rice processing basically involves milling of paddy rice to produce milled rice, which is the main end product. Other by-products obtained from rice processing include rice husks and rice bran.

Rice is processed either by small mills mostly owned by small and medium scale millers and/or by modern processing machines owned by large processors and located in the big towns. Small mills do not have graders and de-stoners and as such, they produce a single grade type of rice which is a polished mixture of broken and whole grain rice with stones (Trias, 2012).

Based on the services provided, two types of millers can be identified: toll millers and trade based millers (UEPB, 2008). Toll millers mill rice belonging to other millers for a fee, which ranges from UGX 60/Kg – UGX 100/Kg and earn a margin of between UGX 20/Kg and UGX 40/kg. Trade based millers are involved in procuring, transporting, storing, milling and marketing of milled rice. As such, they tend to have stronger links with other actors in the value chain. Milling centres act as rice marketing centres that bring together actors in the value chain (Trias, 2012). Some millers provide transport services to farmers and even extend loans for opening up land and acquisition of other inputs (PMA, 2009).

Currently there are 591 rice mills operating in Uganda, which consist of 11 large processing mills with de-stoners and packing units (2%), mill tops (21%) and rudimentary poor performing engelbergs (78%) (MAAIF, 2012). Mill tops and engelbergs mill 95% of the paddy produced in the country which explains the persistence of low quality rice in the market (Kijimal et al., 2008).

The main determinants of the quality of milled rice are: i) the quality of paddy and ii) the type of mill used. Most of the small local mills are old hence producing lot of broken rice. Although most of the rice is not graded and is mixed, there are two rice grades: grade 1 with less than 15% broken grains and standard with between 30% and 50% broken grains.

## 3.3 Rice Marketing and Consumption in Uganda

### 3.3.1 Marketing of Rice

Local traders (popularly known as middlemen and/or assemblers) purchase paddy from individual farmers and farmer groups. They sell the paddy rice in open markets and/or to medium and large scale traders and/or processors. However, most of those trading in paddy rice procure directly from either individual farmers or organized farmer groups (Figure 3.3a). It is also interesting to note that, most of the traders (43%) sell to other traders (Figure 3.3b). This finding implies that the **most critical function in Rice Value Chains is Bulking**.

Fig 3.3 (a): Source of Rice Produced by Traders

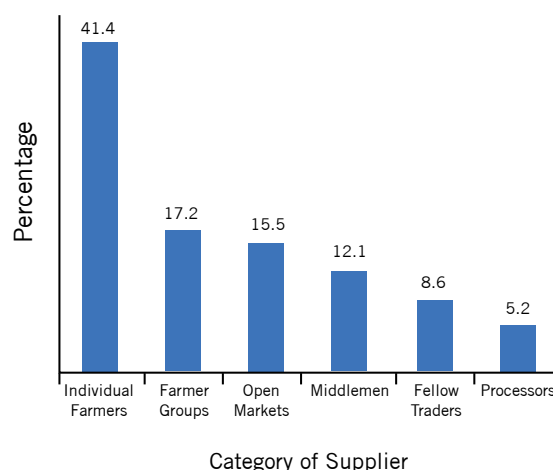
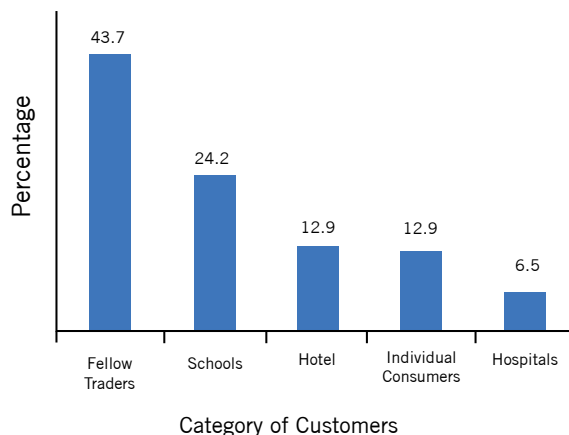
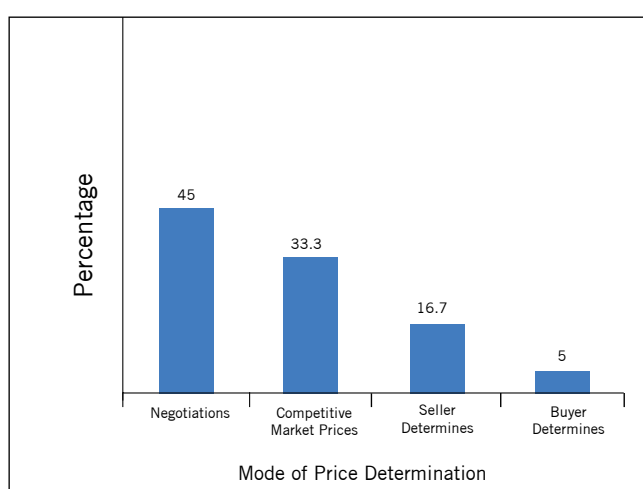


Fig 3.3 (b): Major Rice Customers at Traders' level



Traders use different methods to determine rice prices in Uganda (Figure 3.4). Negotiating prices is the main approach with buyer determined prices being the least used approach by rice traders. The implication is that although there is some level of competitiveness in the rice market, more needs to be done to boost the bargaining power of producers. One of the ways could be through dissemination of market information to reduce information asymmetry existing between producers and traders. The end result would be a price purely determined by market forces of demand and supply.

**Figure 3.4: Modes of determining prices among sellers and buyers**

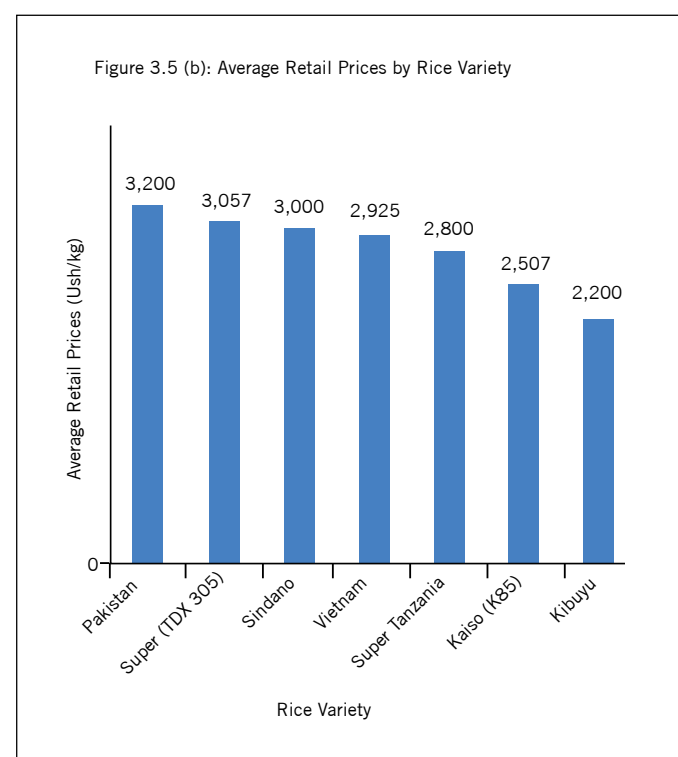
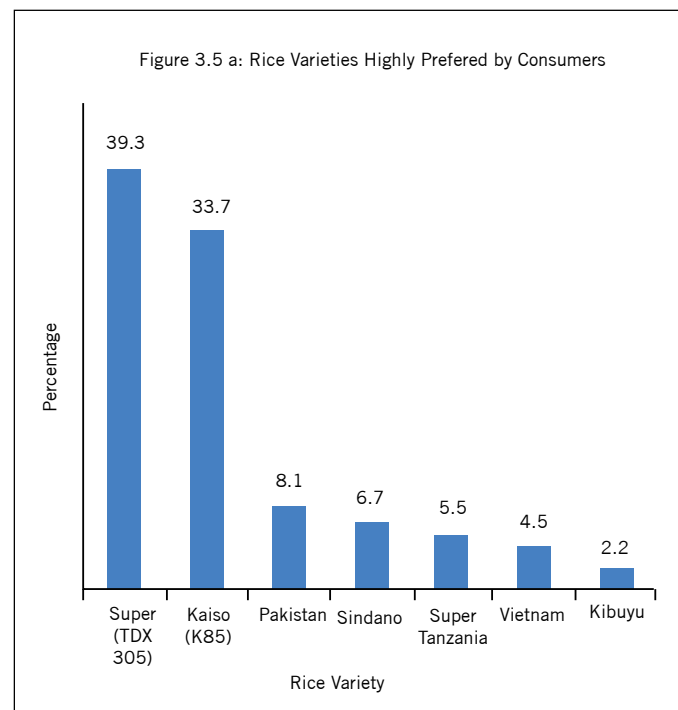


### 3.3.2 Consumption of Rice

Per capita consumption of rice in Uganda is estimated to be 8 kg per annum. Much of this demand comes from urban markets and is in part attributed to the high population growth rate (3%/year) in general and rapid urbanization (5%/year) in particular (Africa Rice, 2006). The key drivers of the demand for rice include prices, varieties, consumer tastes and preferences, population growth, social status, locality and availability.

Ranking of preference by variety presented in Figure 3.5a, places Super and Kaiso as the most preferred varieties by consumers. Consumer preference for a variety is driven by factors such as aroma, taste, quality and level of foreign matter in the milled rice. Kaiso is most preferred by institutions like schools due to its relatively higher swelling ability when cooked. Super and some upland rice varieties are particularly popular with the elite urban consumers due to their aromatic and non-sticking properties.

According to Figure 3.5b and Figure 3.5a, for locally produced rice, price is not such a strong determinant of consumer preference. For instance, Super variety is among the most expensive but also the most preferred by majority of the consumers while the lowest priced Kibuyu is also the least preferred.





### 3.4 Rice Exports and Imports in Uganda

#### 3.4.1 Rice Exports

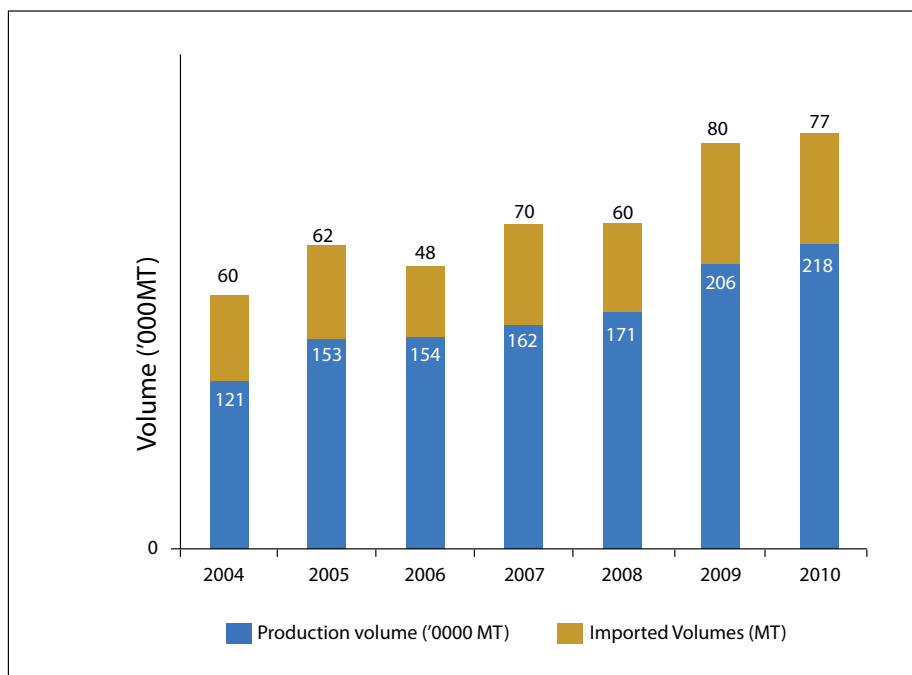
Yearly exports add up to less than 40,000 MT/year including formal exports by large processors such as Tilda (UBOS, 2012). The main destinations of these exports are Rwanda, Kenya, DRC and Southern Sudan.

#### 3.4.2 Rice Imports

To meet the increasing domestic demand, Uganda imports significant quantities of rice to supplement local production (Figure 3.6).

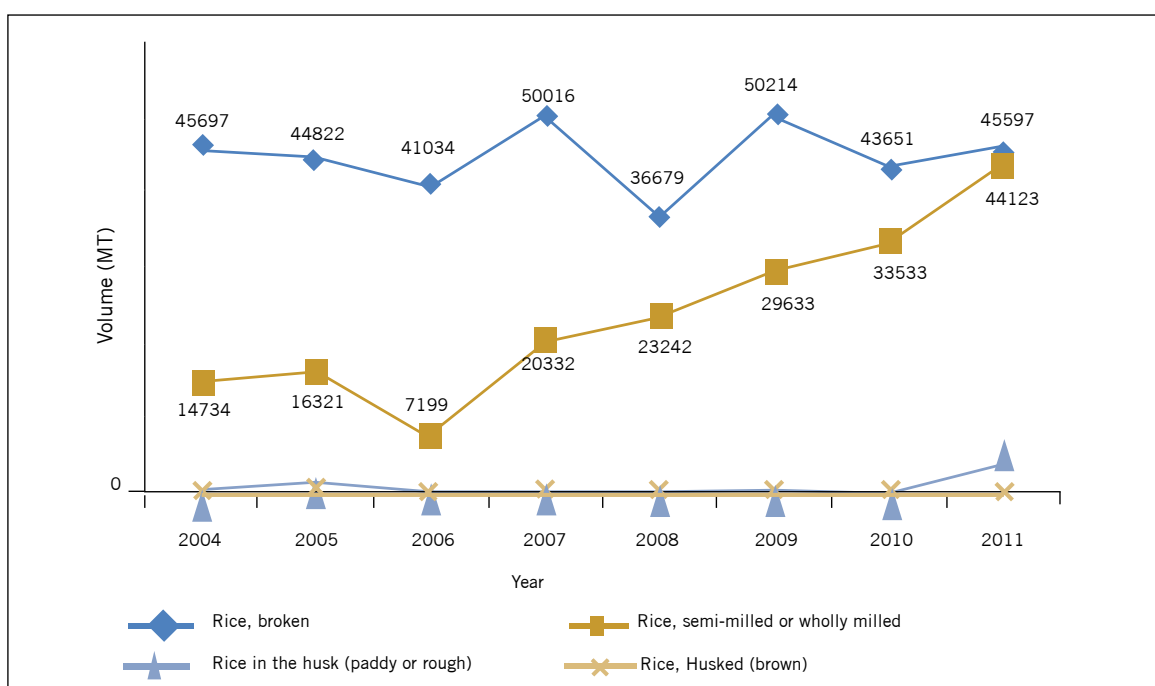
**Figure 3.6: Contribution of Local Production & Imports to Total Supply, 2004 - 2010**

(MAAIF, 2011 & ITC, 2012)



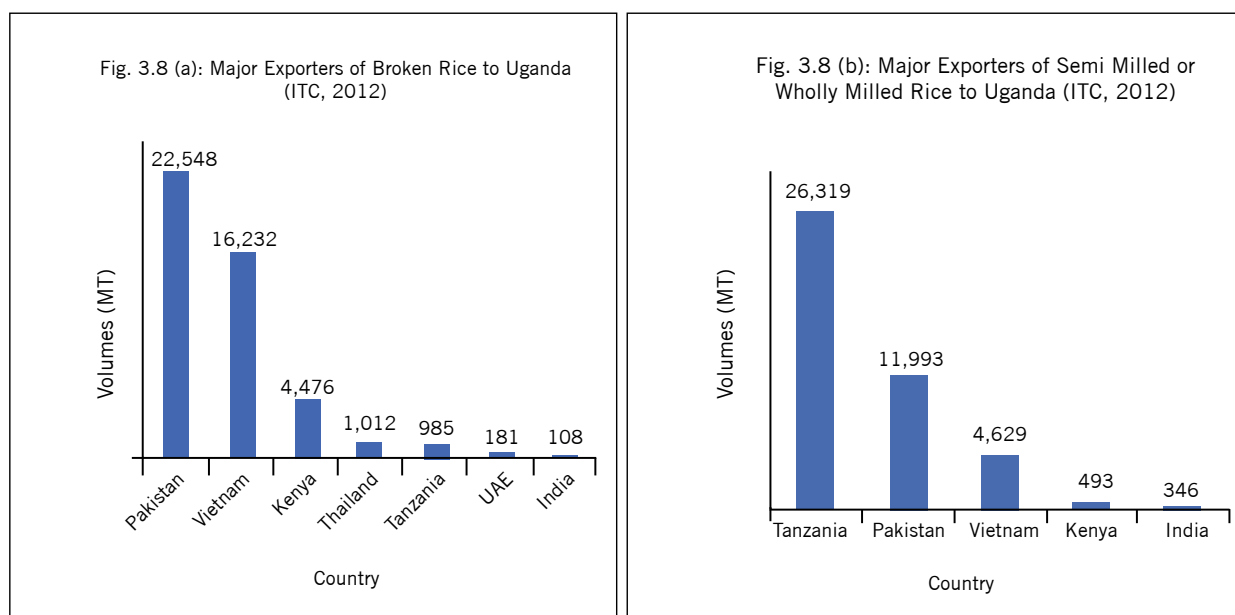
Rice imports into Uganda are mainly in four forms: broken rice, Semi milled or wholly milled rice, paddy and husked rice (brown) (Figure 3.7).

**Figure 3.7: Trends in Quantities of Imported rice products, 2004-11 (ITC, 2012)**



## VALUE CHAIN ANALYSIS (VCA) OF THE RICE SUB-SECTOR IN UGANDA

Most of the imported rice to Uganda is mainly broken and semi or wholly milled rice. It mainly comes from Pakistan, Vietnam, Kenya, Tanzania, India and United Arab Emirates (Figure 3.8 a & b).

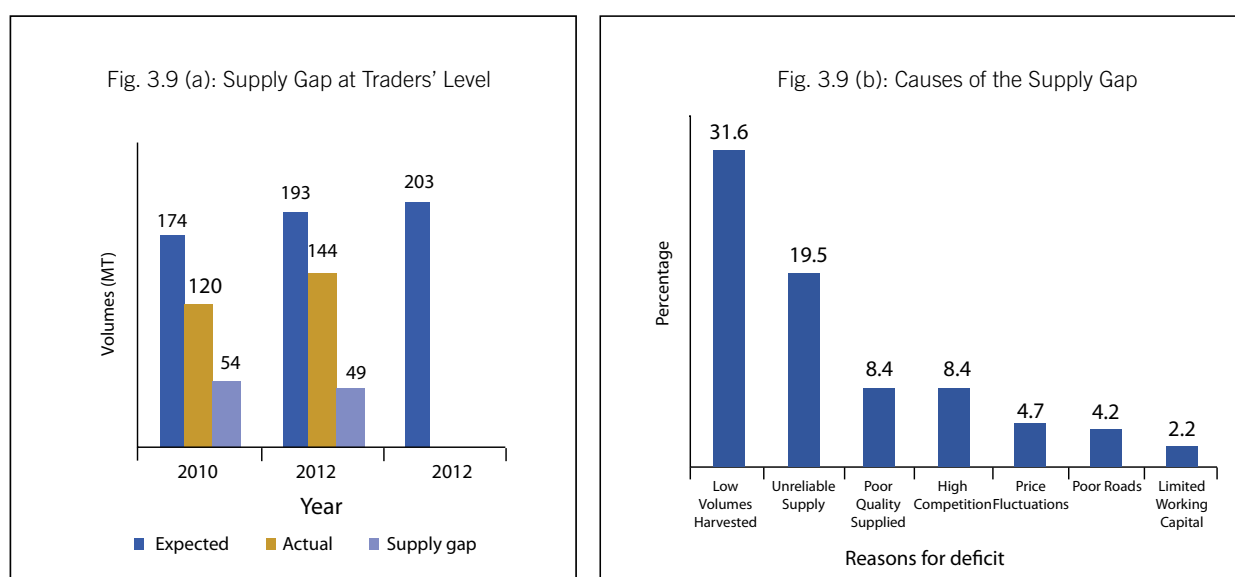


For paddy rice imports, 99.9% comes from Kenya and only 0.1% from India. The origin countries for husked rice (brown) imports and its respective shares are Tanzania (65%), Kenya (30%) and South Africa (5%). This finding means that if Uganda is currently importing mostly broken rice, then there is a market for such a grade of rice. This market needs to be studied to determine whether this could be a disincentive to any investments to produce high quality milled rice in Uganda.

### 3.4.3 Rice Supply-Demand Gap

Uganda is a net importer of rice and will continue to do so in the near future unless there is significant improvement in domestic production.

Rice deficit is reflected at the traders' level where those interviewed indicated that, often they fail to obtain 30% of the amount of rice they plan to in (Figure 3.9a). The reasons for this are ranked in Figure 3.9b with the leading one being low volumes harvested due to inadequate rainfall.

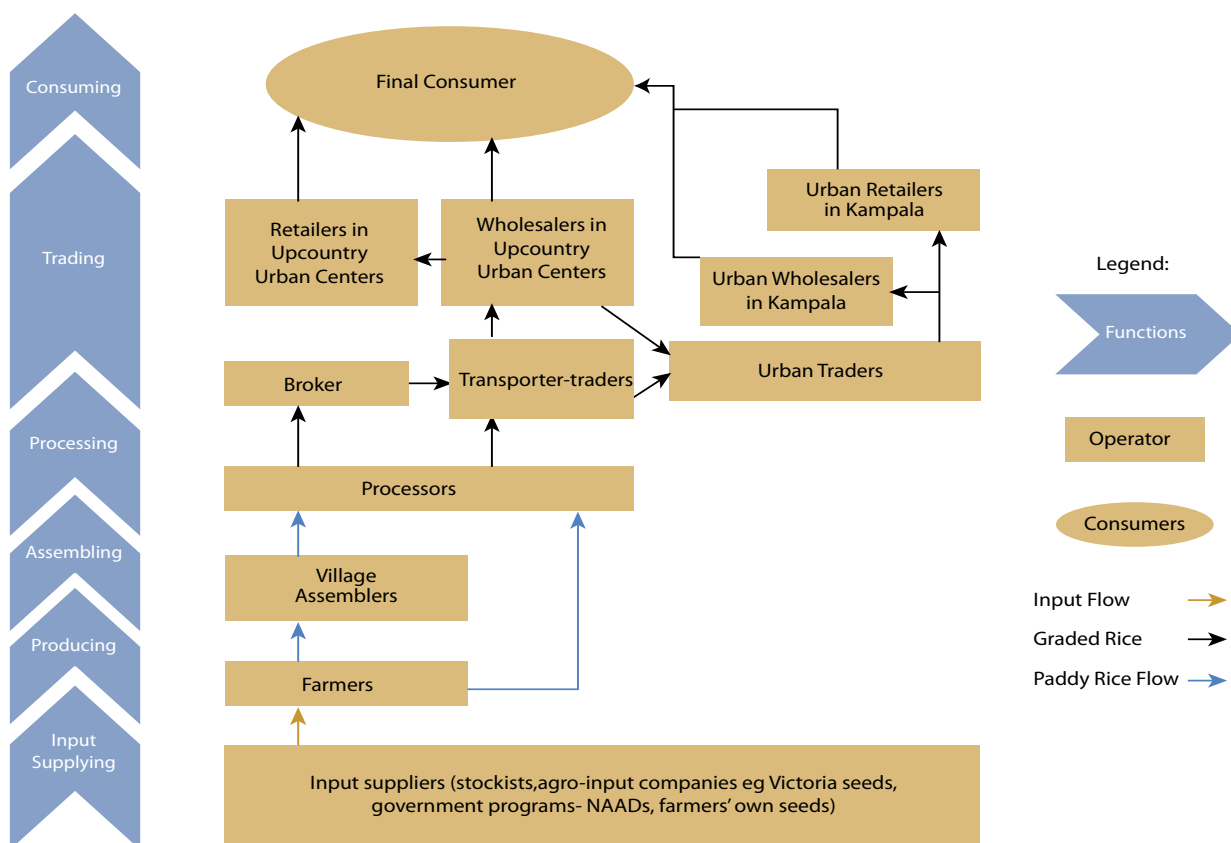


### 3.5 Mapping of the Rice Value Chain in Uganda

#### 3.5.1 Core Processes in the Rice Value Chain

Figure 3.10 shows the key processes and their relationships that enable rice as a finished product to reach the final consumer.

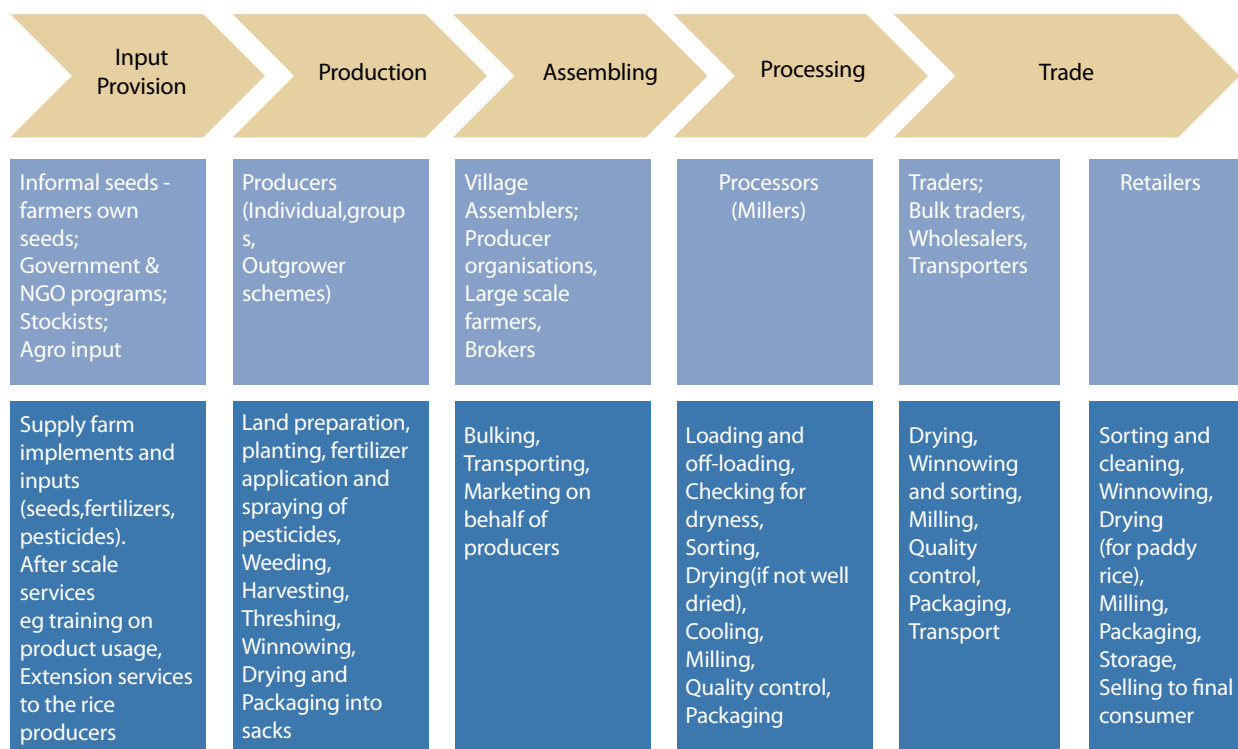
**Figure 3.10: Rice value chain core processes map**



### 3.5.2 Rice Value Chain Actors and their Functions

The main operators in the rice value chain are: input suppliers, farmers, processors, traders/brokers, retailers (urban and rural), wholesalers (urban and rural), transporters who also double as traders, processors, exporters and importers (Figure 3.11).

**Figure 3.11 Map of actors and functions**



#### 3.5.2.1 Input suppliers

The main inputs procured by farmers from input suppliers include: seed, chemicals (herbicides, pesticides and fertilizers), agricultural implements and machines. Other inputs that are important at the processing stage of the value chain are milling machines and packing materials.

The rice seed sector consists of both formal and informal suppliers. The formal seed supply accounts for about 8% of the seed, while the informal sector accounts for 92% of total seed supply (Seed sector country profile, 2008). There are a number of actors within the formal seed sector which may constitute a sub-chain in the rice value chain. Major seed companies in Uganda are: NASECO, FICA seeds, OTIS garden seeds Ltd, Uganda Seeds Ltd and Harvest Farm seeds Ltd (TRIAS, 2012). Seed companies work with input stockists who are not specialized and stock various varieties of rice seed among other seeds.

Private sector input suppliers are organized under the umbrella organization, Uganda National Agro-Input Dealers Association (UNADA). UNADA has a total

of 2,200 members spread across the country. NGO service providers are particularly common in northern and eastern Uganda. Another hybrid arrangement is the ASPS supported voucher for work programme (PMA, 2009).

The study noted that, most input suppliers are located in urban areas such as Kampala and other up-country towns such as Bugiri, Busia and Iganga. They mostly supply farm implements, rice seed of upland rice varieties such as NERICA 4, fertilizers and pesticides. They provide after sale services such as training on chemical usage and offer limited extension services to the rice producers.

#### 3.5.2.2 Producers

The study findings show that, rice farmers are largely smallholders with rice fields of about 0.8 ha. Most of the rice varieties grown in Uganda are the lowland varieties including; Kaiso, Sindano, Supa and other local varieties. Some farmers grow upland rice varieties such as NERICA 1, NERICA 4 and NERICA 10. Fifty three percent of farmers grow the low land varieties which are not as input intensive as the upland varieties. Farmers



sell their rice to processors, village traders, brokers or transporters who in-turn sell to wholesalers and retailers as depicted in Figure 3.10 above.

Activities in the rice value chain include:

- a) **Farmers:** Land preparation, planting, fertilizer application and spraying, weeding, harvesting, threshing, winnowing, drying and packaging. These processes are aimed at reducing post harvest losses which stand between 2 and 30 kg per 100kg bag of rice.
- b) **Farmer groups:** Training and collective marketing, collective production, storage and bulk purchasing of inputs. Farmer groups thresh, winnow, dry and pack the rice into sacks. Sixty eight (68%) percent of the farmer groups did not have group storage facilities for their rice. Stores and family houses were the most common stores for rice. The use of stores by farmer groups is still minimal with only 25% of them having access to such a facility. The capacity of the storage facilities ranged from a minimum of 0.1 MT to a maximum of 200 MT.

Marketing functions undertaken by producers:

- a) **Farm-gate marketing of rice:** About 75% of the rice produced by farmers is sold, with remaining 25% of the rice produced being retained for home consumption (Odogola, 2006). At the farm-gate, two marketing channels were identified: i) paddy rice is sold to traders or processor agents. This is common with farmers who grow less than 0.5 hectares of land or in areas where mills are not available and ii) milled rice is sold to traders after farmers hire milling services from those who own milling machines. This is common with farmers who grow more than 0.5 hectares of land and can easily access milling services. Most farmers in Eastern Uganda sell milled rice. This is because mills and milling services are available while farmers in Northern Uganda sell mostly paddy rice due to unavailability of milling services.
- b) **Purpose of rice production:** Seventy three percent (73%) of rice producers grow rice for both food and income security with close to 30% growing it for income generation only. Some of the farmers do not retain any rice to be used as seed in the subsequent growing season. Overall, the study showed that, about 84% of all harvested rice was sold, while the rest was retained for home consumption and for seed. Approximately 79% of the farmers sell their rice as de-husked with the remaining selling it as paddy. Rice is sold not only within the major markets in the country but also to Kenya and South Sudan. Other consumers of rice in Uganda include processors, brokers, urban-traders, village collectors, schools and other institutions and exporters.

### 3.5.2.3 Rural traders (brokers or assemblers)

They perform the brokerage function between farmers and traders and are a vital source of information to actors on either side of the chain. They also provide bags

to the farmers for packing the rice and advise the millers or bigger traders on when sufficient stocks have been bulked in order to arrange for transportation.

Traders are the “middlemen” in the rice value chain. They buy paddy from farmers, mill it and then sell to other traders who then transport it to Kampala or other urban centers. Many of them have strong linkages with processors and with the farmers based on trust. The processors entrust the traders with credit advance and get paid back after sales. In addition, traders have strong links to farmers since they crop finance their production process and the farmers pay back after harvest. The traders purchase the paddy, mill, sell the milled rice and deduct the money advanced to farmers plus some interest and give the farmers the balance. Some times, the traders pay for the farmers’ paddy below prevailing market prices and in that way recover the money loaned to farmers plus interest.

### 3.5.2.4 Processors (mainly millers)

According to the study, the majority of rice processors in Uganda are small mill owners spread in the urban centres of the rice producing districts. A typical small mill has a milling capacity of 1MT/day. These mills are mostly of the hammer type as opposed to the rubber type and are not equipped with de-stoners, graders or hullers. The result is poor quality broken rice which is mixed up during packaging and sold under the brand name Supa or Kaiso. There are a few modern mills owned by multinational companies such as Tilda- which owns a state of the art milling plant capable of milling 110MT/day. These modern mills are fully equipped rubber mills with hullers, destoners, graders and dryers.

The rice from the processors is sold to traders and wholesalers in urban centres and upcountry towns. Millers usually have brokers who buy the rice immediately after milling and sell it to the traders who also double up as transporters who take the rice to urban centers in the country. Other millers or processors such as Tilda transport their rice to Kampala using their own trucks and distribute to outlets such as Uchumi, Nakumatt and other supermarkets in urban centres. Tilda also exports its rice to regional markets, such as South Sudan and Rwanda.

Most value addition of rice takes place at the processing stage of the VC. Millers also serve as bulking and storage centres for rice and often have an elaborate network of agents. However, Tilda is the only processor that packs and brands their rice. Therefore, processors appear to have the greatest potential to improve rice value addition and marketing through packaging.

### 3.5.2.5 Traders – bulk buyers, wholesalers and retailers

These are mostly based in Kampala and other upcountry towns. They are supplied with milled rice by traders which they then sell to final consumers such as

individuals and institutions – schools, hospitals, prisons. Retail outlets include supermarkets in urban areas and shops while wholesale outlets are in major markets such as St. Balikuddembe, Nakawa, Kalerwe and Kikubo.

Most of the rice traded is mainly milled (76.3%) with some traders buying paddy rice (23.7%) which they mill and later sell. About 94.7% of retailers are also trading in milled rice. This is mainly because, it is highly demanded in the market as it is ready for use, there are readily available suppliers and it has a longer shelf life. Other reasons are that, there are no extra costs incurred in terms of milling, it is easy to check quality, it is profitable and easy to estimate its weight.

### 3.5.2.6 Transporters

About 81% of transporters are engaged in multiple commodity transportation with 19%) engaging in rice transportation only. Thirty four percent 34% of the transporters interviewed transport for local traders, 28% transport for farmers, 18% transport for exporters, 15% transport for processors and 5% transport for importers.

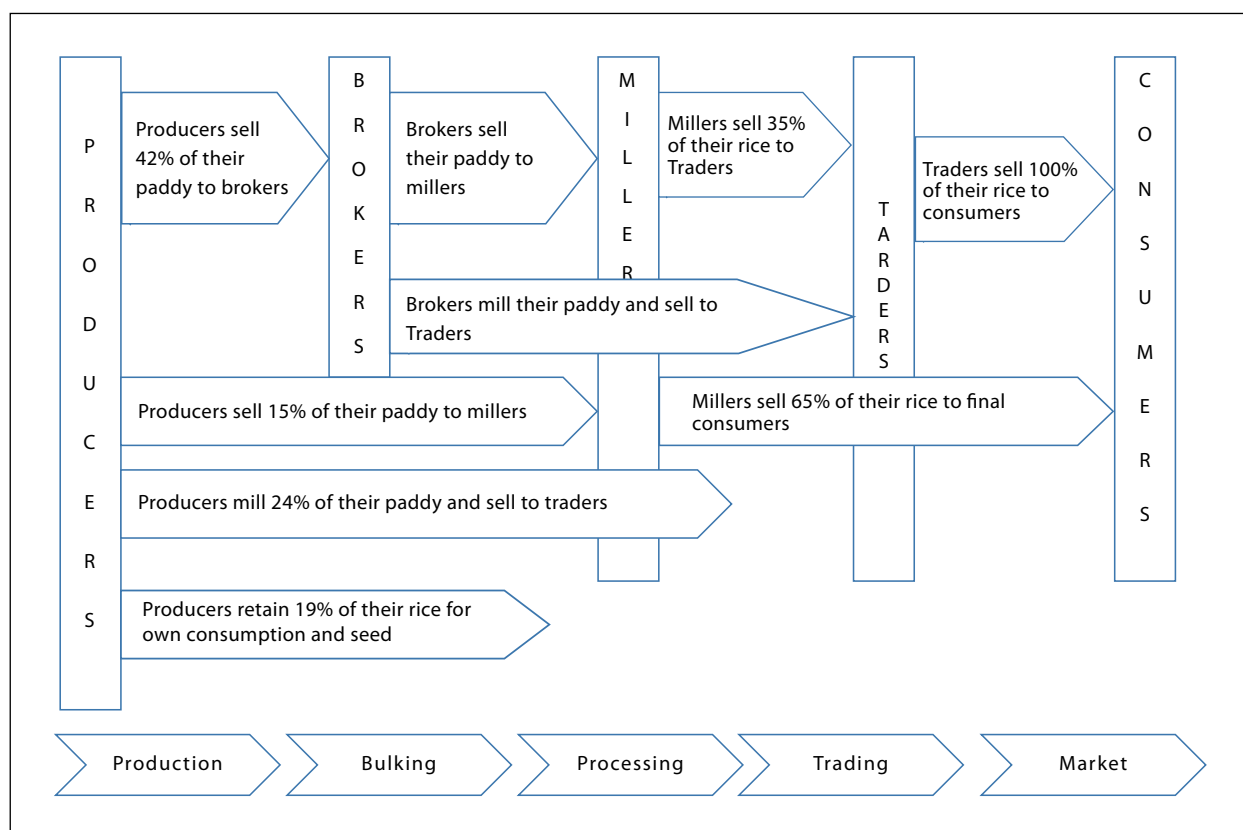
The most important requirement for transporting rice is that, the truck must be covered with tarpaulin to protect the rice from rainfall, must have a metallic top, and transporters must have a valid driving as well transportation license.

Rain, bag wear & tear, substandard weighing scales, sorting and cleaning, mechanical problems, poor packaging, theft and spillage during transportation were reported as the major causes of losses during transportation of rice.

### 3.5.3 Rice Volumes Flowing through Different Channels

This survey found out that paddy rice from producers whether individual or farmer groups pass through different channels to reach the final consumers (individual, institutions and hotels) as shown in Figure 3.12.

**Figure 3.12: Proportion of rice that flows through different channels**



Three major channels were identified in this survey as follows:

- a) The major channel is the one where farmers sell their paddy rice to brokers/traders, who normally go collecting the rice themselves, bulk and pack. Rice sold through this channel was found to be accounting for 42% percent of the total rice produced.
- b) The Second channel involves processors or millers buying paddy directly from farmers but also using brokers and about 15% of the rice produced is traded through this channel.
- c) The third and last channel involves famers hiring milling services and then selling milled rice to urban traders, retailers and/or wholesalers depending on the available volumes. About 24% of produced rice is traded through this channel. However, farmers retain about 19% of the total produce for home consumption and seed.

### 3.5.4 Rice Commodity Flow from Producing Areas to Markets

The main production districts of rice in Uganda are Iganga, Soroti, Bugiri, Pallisa Kibuku, Amuru, Lira, Dokolo, Hoima, Kamwenge and Wakiso. The main markets for rice from these districts are Kampala, Gulu, Jinja, Lira, Masaka and Mbarara. The amount of rice reaching the trade districts depends on the proximity between the districts as well the neighboring countries. Cross border trade is common between Uganda, Kenya, Northern Tanzania and South Sudan. The flow of rice in Uganda is shown in Figure 3.13.

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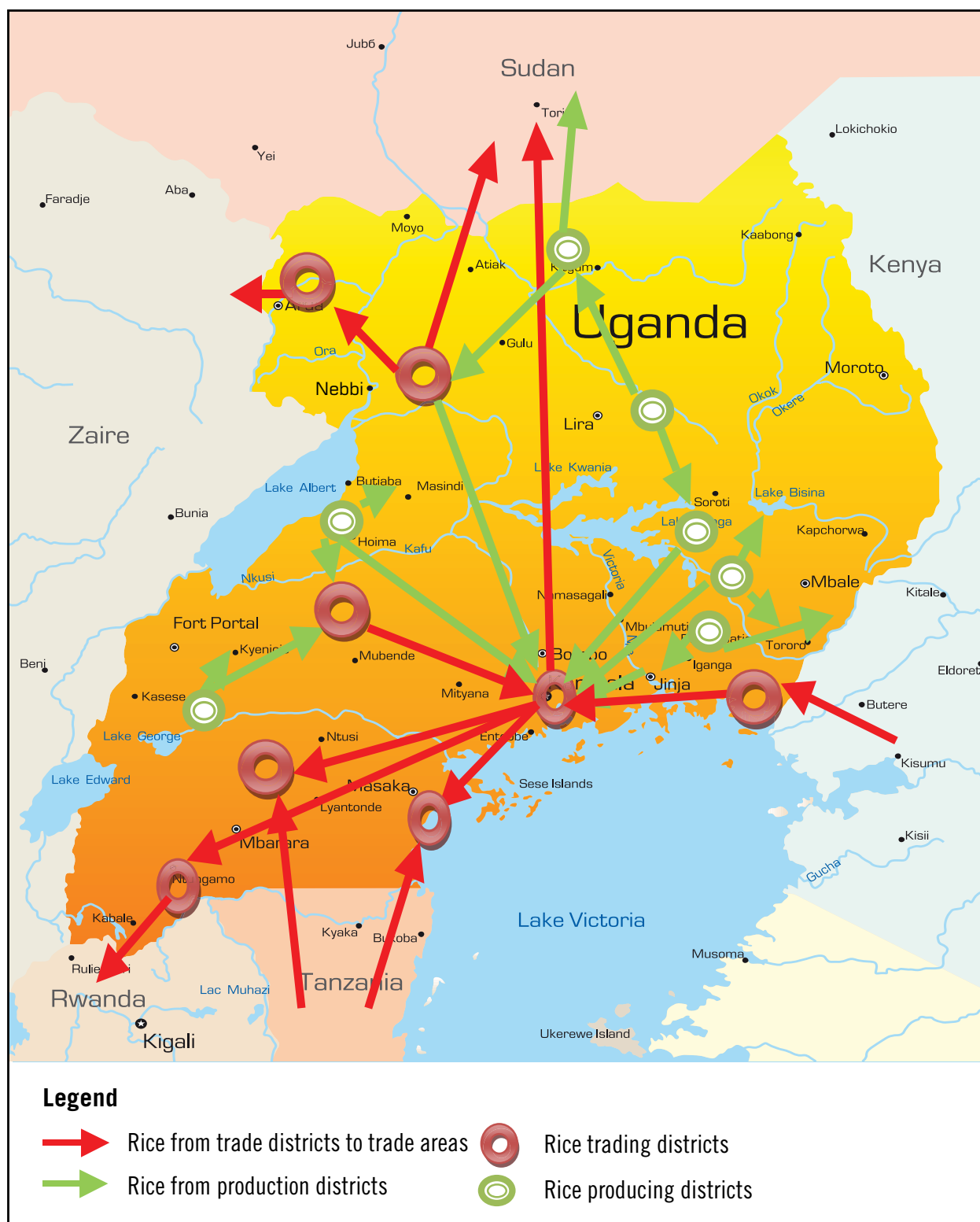
**“Most of the rice traded is mainly milled (76.3%) with some traders buying paddy rice (23.7%) which they mill and later sell. About 94.7% of retailers are also trading in milled rice”**

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**Figure 3.13: Map of Uganda showing the flow of rice from producing areas to Markets**



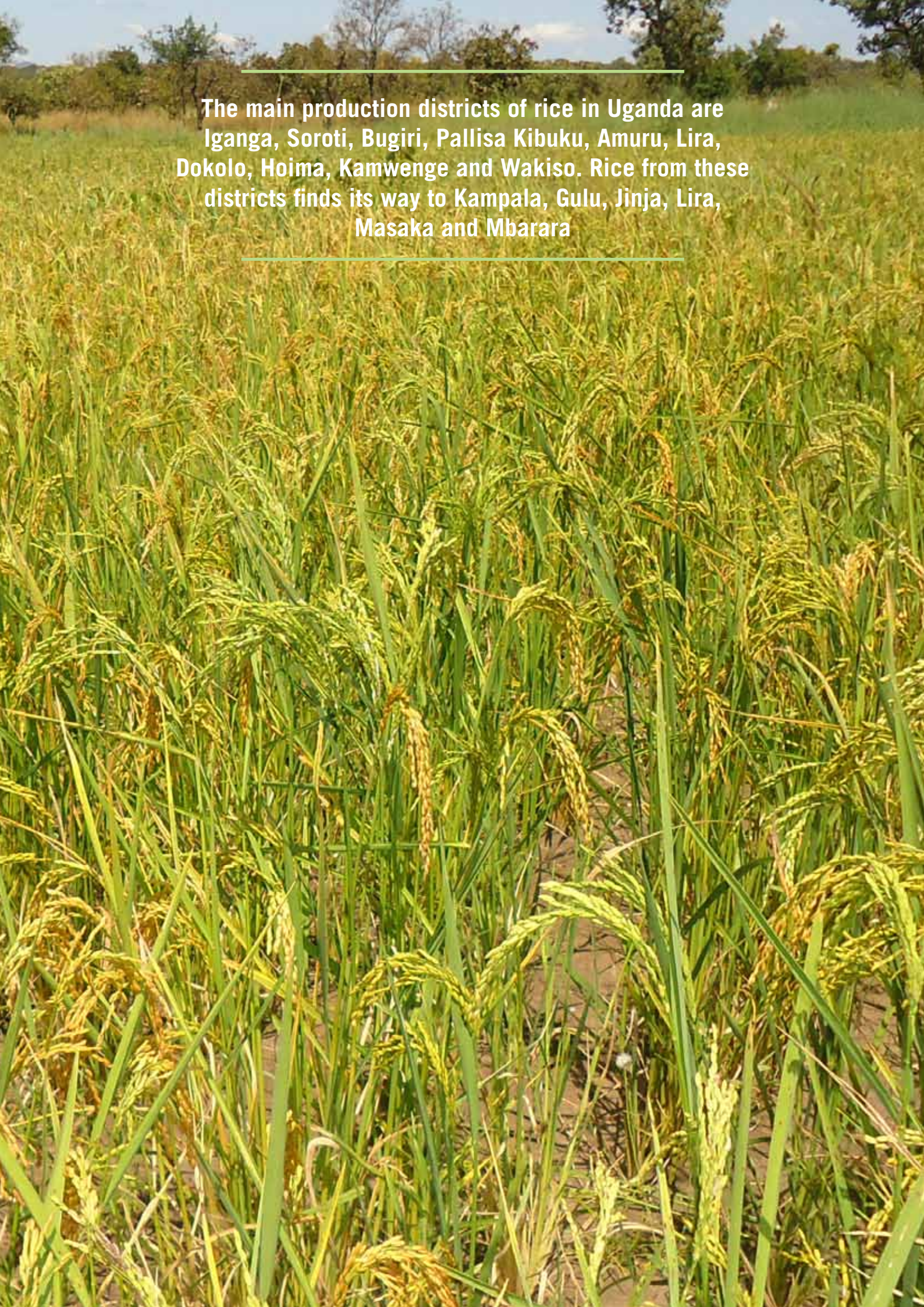
Kampala seems to be a hub of rice business from different production districts. This is due to the fact that most of the big traders are in Kampala and also presence of good processing and marketing facilities like warehouses, big processing mills, big supermarkets, transport facilities as well as the presence of income secure consumers. From Kampala, rice is transported to different district towns and also exported to countries like South Sudan, Congo and Rwanda.



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**The main production districts of rice in Uganda are Iganga, Soroti, Bugiri, Pallisa Kibuku, Amuru, Lira, Dokolo, Hoima, Kamwenge and Wakiso. Rice from these districts finds its way to Kampala, Gulu, Jinja, Lira, Masaka and Mbarara**

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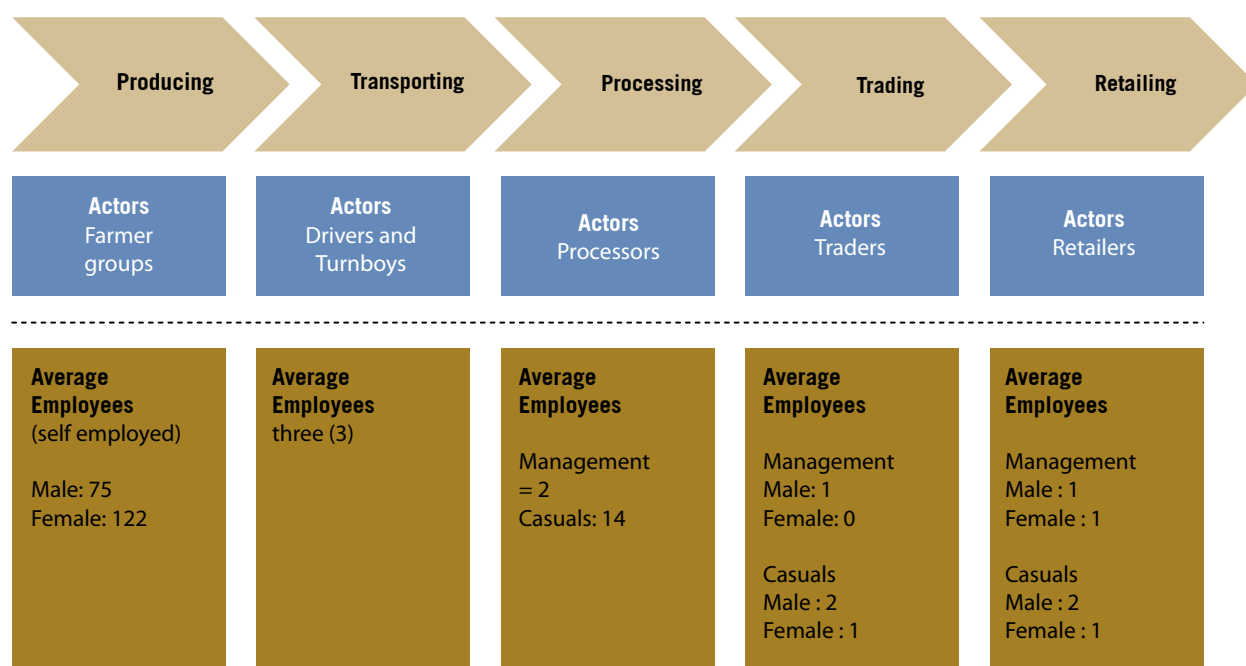
Eastern part of Uganda is a main rice producing region. The region includes Pallisa, Soroti and Iganga districts. Increased investment in production and processing of rice in the region could stimulate more business in the region.

Northern districts of Gulu, Lira and Kitgum are booming trade hubs through which rice is informally exported to South Sudan. Supporting rice farmers and processors in these areas to increase produced and processed volumes of rice would stimulate more cross border trade and increase incomes of the players in the chain.

### 3.5.5 Level of Employment in the Rice Value Chain

The number of employees varies with level of the value chain (Figure 3.14). Both females and males are employed either as permanent or casual labourers. However it is important to note that men dominate employment at all levels of the chain.

**Figure 3.14: Level of Employment in the Rice Value Chain**

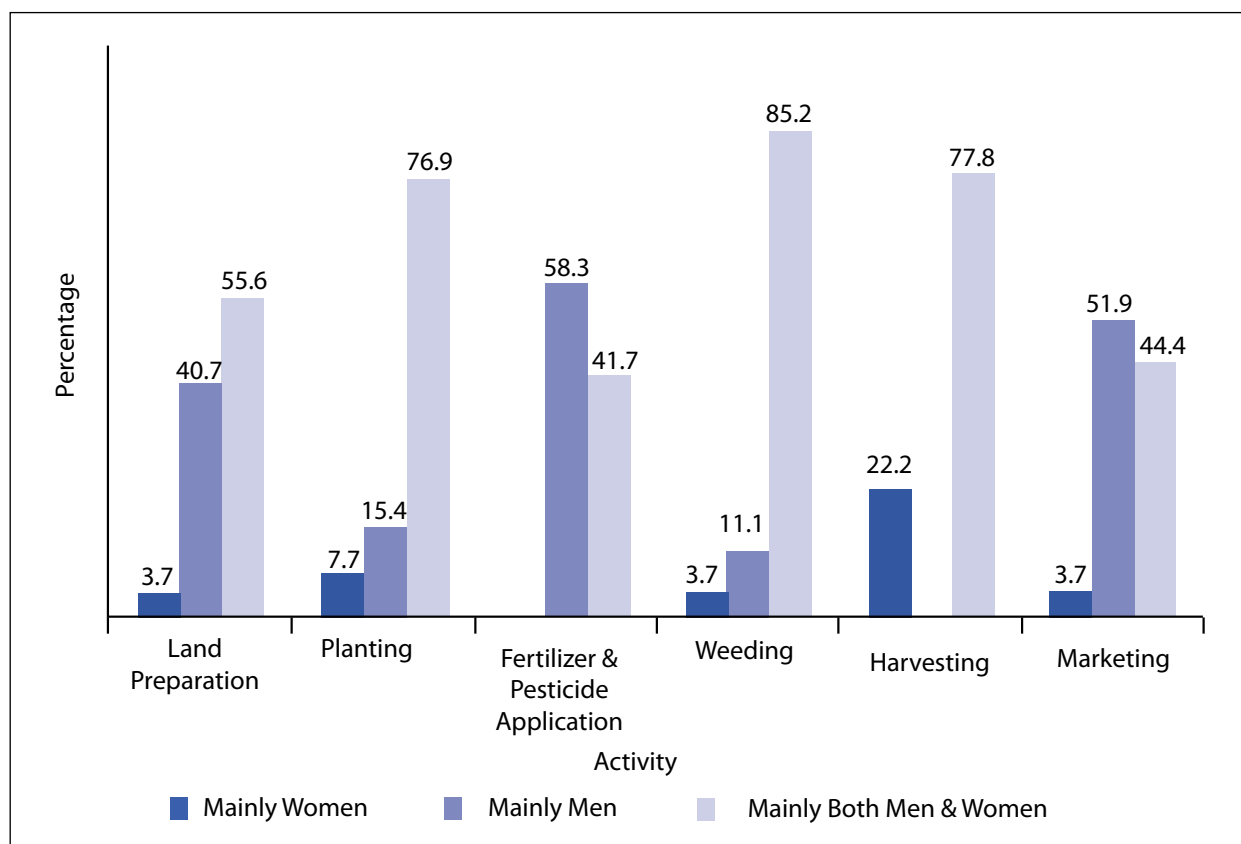


Employment at production level: a total of 250,000 - 300,000 farmers are engaged in rice production (UBOS crop census data, 2010). A farmer group has an average of 187 members comprising of 75 men and 112 women on average. Employment at production level is in form of self employment. Farmer groups were used in the mapping because they are more organized with all of them taking the enterprise as a business.

According to the data collected from the rice growing districts, the rice farmer groups reported that, activities largely carried out by men included chemical (fertilizer and herbicide) application and marketing/trading. The rest of the production activities were reported to be conducted by both men and women (Figure 3.15).

Employment at trading level:

- Rice marketing and trading is dominated by men with a few women acting as casual laborers (Figure 3.15). The study reported that most wholesale rice enterprises employed four casual labourers of which three are men. Casual labourers earn an average monthly pay of UGX 113,900. Management and driver positions are mainly dominated by males earning UGX 363,300 and UGX 102,500 per month respectively. Notably, managers at the stage are the owners of the businesses.
- Profile of employment at retailing level is not significantly different from that of processors. On average, there are 2 men and 1 woman casual employees per business at retailing stage each earning an average monthly salary of UGX 96,670. The average monthly earnings of managers at the retailing stage are UGX 240,000/month.

**Figure 3.15: Workload distribution by gender in rice production****Employment at processing level**

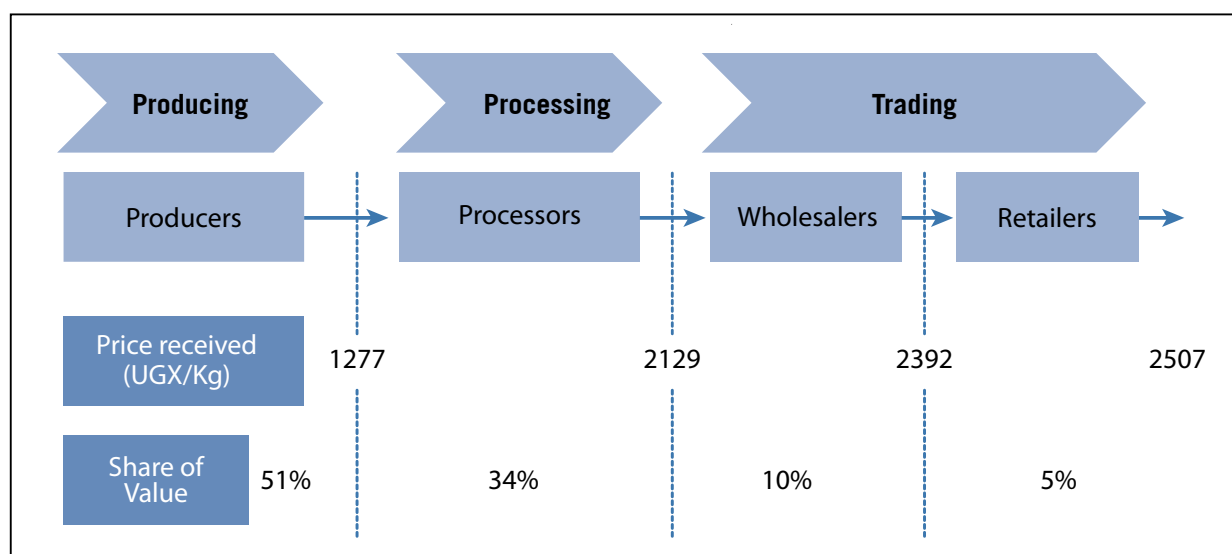
- There are over 591 mills in Uganda. The urban area based mills each employ an average of 3 permanent, 6 temporary and 1 family employees. The rural cluster employs about 3 permanent employees, 2 temporary and 1 family employees (Kijima et al, 2011).
- It was also observed that the processing level of the rice value chain offers more employment opportunity albeit temporarily. However, data on returns to such employment was difficult to gather as such information is considered highly confidential by the rice processors.

**3.5.6 Value Addition and Value Capture along the Rice Value Chain**

The average prices received (UGX/Kg) depict the price at each node of the chain. For example, the above pricing map shows that the processors buy Kaiso rice at a price of UGX 1,277/Kg from the producers and sell at UGX 2,129/Kg to the wholesalers. This means that the processors add a value worth UGX 852/Kg. To get the processors share of value (income distribution along the value chain), the margin obtained by the processor is expressed as a ratio of the end (retail) price. In this case, the processor's share is 34% of the retail price (Figure 3.16). The value capture for middlemen and brokers was not presented in the figure alongside other actors. This was as a result of lack of data from the brokers and middlemen. Poor record keeping could be a reason to the inadequate information.



**Figure 3.16: Price Capture along the Rice Value Chain (Kaiso variety)**



### 3.5.7 Costs and Gross Margins

Both primary and secondary data were used in the computation of gross margins in the rice value chain. However, it should be noted that secondary data was only used where primary data was not obtained due to poor response to some sensitive survey questions concerning costs and margins. The map of rice value chain actors with their respective costs and margins is shown in table 3.17.



**Figure 3.17: Costs and Gross Margins in the Rice Value Chain**

	Producer	Millers	Traders	Wholesalers	Retailer
	<b>Producers GM (UGX/Acre)</b>	<b>Paddy Traders GM (UGX/Kg)</b>	<b>Millers GM (UGX/Kg)</b>	<b>Wholesalers GM (UGX/Kg)</b>	<b>Retailers GM (UGX/Kg)</b>
Revenues	Kg/acre = 1,000–1,500  Selling Price/kg = 700        <b>Total Revenue/Acre = 700,000-1,050,000</b>	Selling Price Per kg = 1,500-1,700           <b>Total Revenue/Kg = 1,500 - 1,700</b>	Selling Price/Kg = 1,450-1,500  Milled Rice Revenue/100kg = 95,000 - 100,500  Bran & Broken = 20-23kg  Bran & Broken Price = 50 - 200  Revenue for Bran & Broken = 1,000 - 4,600  Mark-up = 16,000-28,100  <b>Total Revenue = 96,000 - 105,000</b>	Selling Price/100kg = 80,000           <b>Total Revenue/100kg = 80,000</b>	Selling Price/100kg = 110,000           <b>Total Revenue/100kg = 110,000</b>
Cost	Land Preparation = 30,000 Seeds = 100,000 Planting = 30,000 Weeding = 30,000 Harvesting = 60,000    <b>Total Cost/Acre = 250,000</b>	Raw material/kg = 1,400 - 1,500  Transport & commission = 50 - 70       <b>Total Cost /Kg = 1,450 - 1,570</b>	Raw material Price/100kg = 70,000  Milling = 7,000-10,000  Conversional rate = 65 - 67kg   <b>Total Cost/100Kg = 77,000 - 80,000</b>	Buying Price/100kg = 73,000  Transport = 1,500      <b>Total Cost/100Kg = 74,500</b>	Buying Price/100kg = 75,000  Transport = 500      <b>Total Cost/100Kg = 75,500</b>
Gross Margin	Per acre per season = 450,000-800,000  Kg/Season= 450-533	Per kg = 50-270  Per Kg = 50-270	Per kg = 160-281  Per Kg = 160-281	Per 100k = 5,500  Per Kg = 55	Per 100kg = 26,900  Per Kg = 345

**Producers** – The above gross margins were adopted from USAID (2008). This was so because producers were not willing to give information concerning costs and margins. The highest percentage (40%) of producer costs went to purchasing of seeds with land preparation taking 24% share of the production costs. The gross margin for the producers was between UGX 450,000 and UGX 800,000/season.

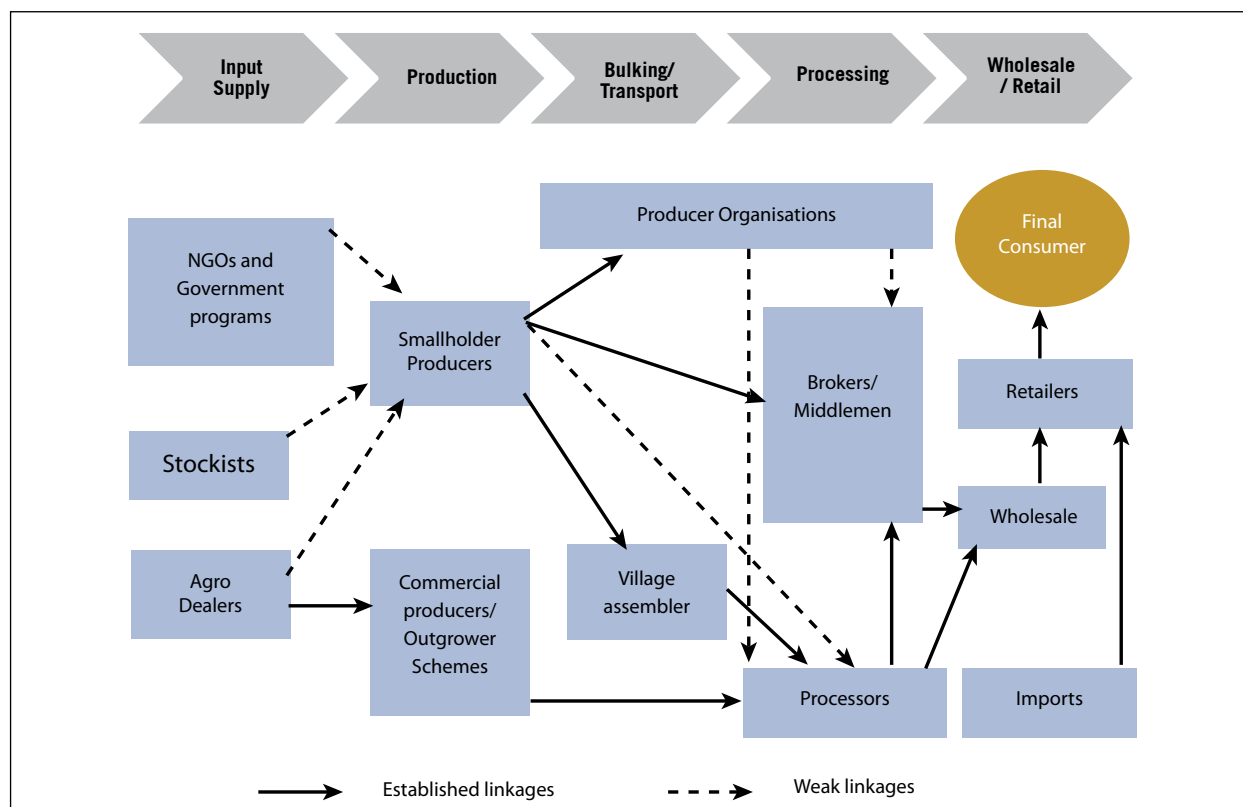
**Millers and Traders** - Paddy rice for millers and milled rice for traders cost UGX 700/Kg and UGX 1,450/Kg respectively. The gross margins for the two groups range between UGX 160/Kg – 281/Kg and UGX 50/Kg – 270/Kg for millers and traders respectively per season.

**Wholesalers and retailers** - The biggest percentage of operation costs for both wholesalers and retailers go to purchasing of milled rice for reselling. Wholesalers spend UGX 730/Kg of rice which is an equivalent of 98% of the total cost. On the other hand, retailers spend UGX 750/kg of milled rice. The margins from wholesalers and retailers of rice (case of Iganga market) was reported as UGX 55/Kg and UGX 345/Kg respectively (FIT Uganda, 2006).

### 3.5.8 Horizontal and Vertical Linkages in the Rice Value Chain

Rice value chain consists of both horizontal and vertical linkages. The linkages begin at the production level which involves two streams; one begins at smallholder producers and the other one at commercial producers (Figure 3.18).

**Figure 3.18: Horizontal and Vertical Linkages in the Rice Value Chain**



The smallholder producers' stream is shaped by established and weak linkages. The established linkages are those between these producers and village assemblers and the producers and brokers/middlemen. Village assemblers buy paddy rice from the producers and sell to processors. Processors, then, mill the paddy and either sell the milled rice to brokers/middlemen or sell directly to wholesalers. The producers also have an option of milling the paddy rice themselves and sell the milled rice straight to the brokers/middlemen. These two linkages have been well established because of the good relationship between the producers, village assemblers and brokers/middlemen. Village assemblers are usually local people who belong to the same community with the producers. Brokers/middlemen are mostly small traders mainly located around millers and undertaking rice marketing. Through networking and trust, the traders develop strong relationship with producers. Some of the ways of establishing the existing relationships is through advancing inputs and/or small loans to producers.

The weak linkages for smallholder producers revolve around bulking paddy rice at Producer Organizations (POs) level for collective marketing to millers or sell the paddy to processors. These linkages are weak because they are usually unreliable and unsustainable. The collective marketing at POs level involves either selling the paddy to processors or milling the paddy and then selling to brokers/middlemen.

Commercial producers' linkage is structured through established linkages only. These producers prefer to sell their rice to processors.

Wholesalers advance rice to retailers, who eventually sell it to the final consumer. It is noted that imported rice also finds its way into the chain through the wholesalers.

### 3.5.9 Existing and Potential Business Linkages with Market Off-takers

The majority of the producer enterprises (89%) did not have contracts with their buyers. Some of the major reasons for not having contracts were: i) unreliable market (29%), ii) price fluctuations for rice (21%) especially when the price on the contract goes below the on-going competitive market prices, iii) lack of knowledge on how to open and operate bank accounts (21%) as some of the buyers prefer making payments directly into the farmers' bank accounts iv) group not practicing collective marketing (7%) yet contract buyers normally prefer farmers selling collectively as it lowers their transaction costs and v) low and unpredictable rice volumes.

The major incentives for farmers to enter into contracts are: i) buyers advancing credit to farmers (67%) hence enabling them to access inputs such as seeds and ii) contracts assures the farmers a ready market for their produce (33%).

The contracts farmers have with their buyers are always formal with the produce quantities delivered by the farmers expected to cover the credit advanced to them (100%), with the contract price used being the on-going market price. All the farmers supplying rice on contract basis indicated that the contract period was seasonal. Of the farmers operating without contracts, 85% were willing to enter into contracts with buyers (appendix 5).

Seventeen percent (17%) of traders had contracts with their suppliers. Of those without contracts (84%), over 60% were willing to enter into contractual arrangements with their suppliers. Of those traders willing to enter into

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**“Most of the rice traded is mainly milled (76.3%) with some traders buying paddy rice (23.7%) which they mill and later sell. About 94.7% of retailers are also trading in milled rice”**

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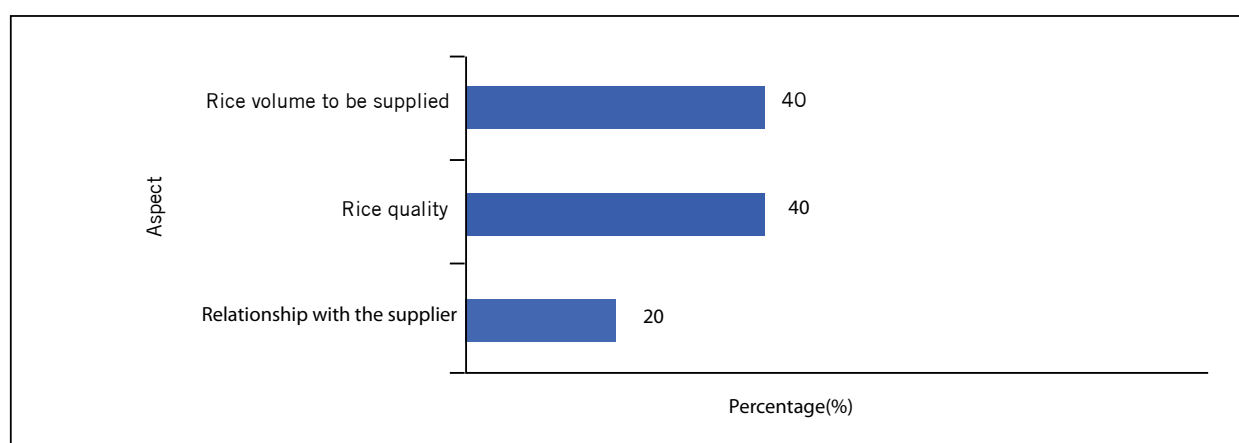




contracts, 86% were willing to provide financial support in form of pre-financing while 14% would sensitise producers on quality and contracting aspects. The main incentive of the traders to enter into contracts with their suppliers was to increase quantity and improve quality of rice supplied. The contribution of the traders towards the increased quantities and improved qualities include: in kind contribution by the different traders in form of participation in farmer based interventions, offering a technical person to help train farmers in agronomy (25%) and formal contracting of selected farmers (25%). About 60% were also willing to provide credit to farmers in form of inputs but cited weak contract enforcement mechanisms as a weakness. Also, 40% of the traders were willing to share market information with other players in the chain.

As shown in the Figure 3.19 below, the main aspects considered when contracting suppliers are the quality and volumes of the rice supplied. The traders also mentioned their relationship with their suppliers as key. The biggest benefit from contractual arrangements, as reported by the traders is reliable supply (67%). Others included; efficient use of time and resources (17%) and creation of good relationships with the supplier (17%)

**Figure 3.19: Aspects considered by traders before awarding contracts to suppliers (DIMAT 2012)**

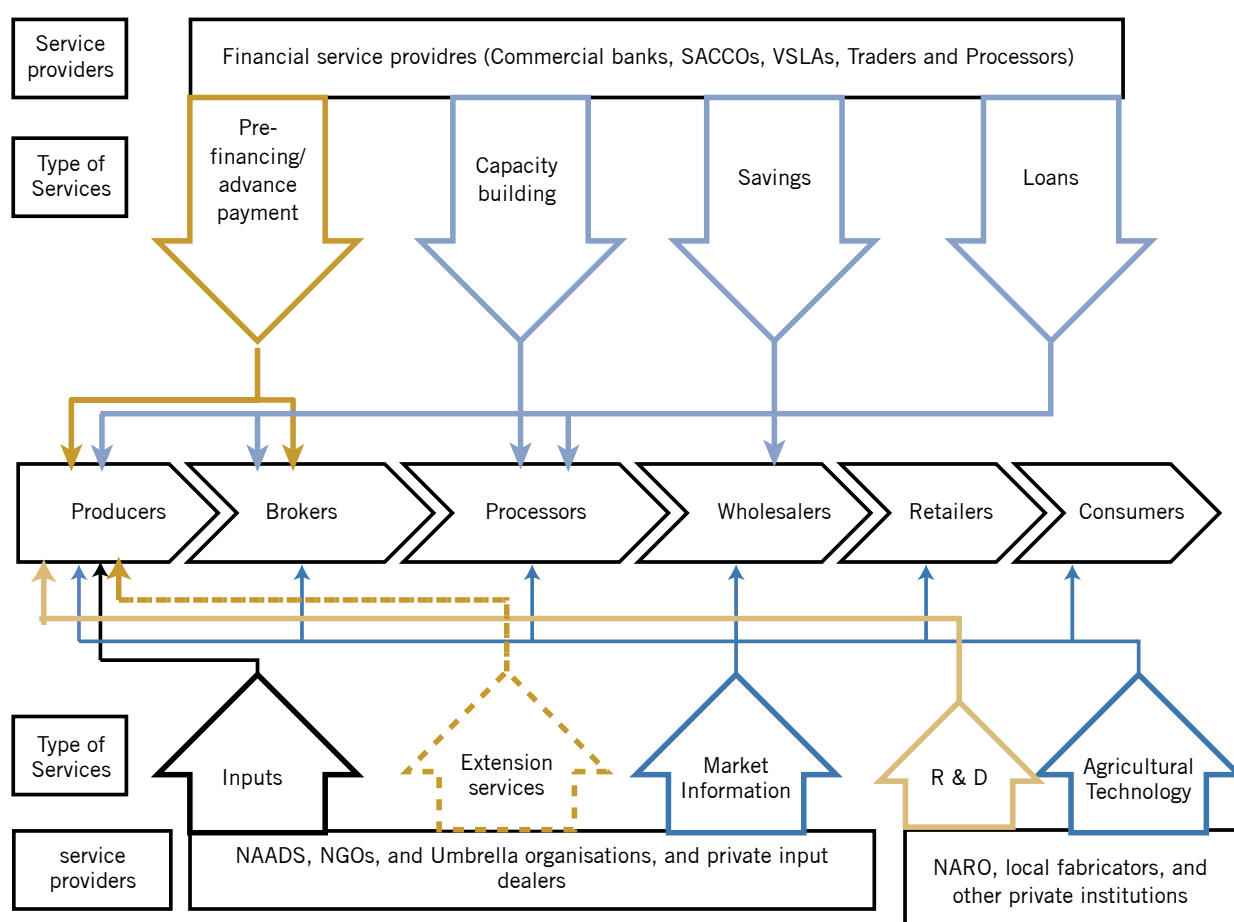


The major challenges identified by the traders who currently have formal arrangements with their suppliers are: i) inadequate trust (67%) as evidenced by the high rate of side selling, ii) farmers not willing to pay the interest rate on advanced funds (22%) and iii) high transaction costs associated with operating contracts (11%). However, price fluctuation is the only factor deterring traders from engaging in contractual arrangements.

Based on the identified short comings, a number of recommendations were suggested by the actors. These include: i) provision of financial support through government loans to farmers (25%), ii) fine those parties that breach contracts (25%), iii) link farmers with banks (13%), iv) avoid long legal processes associated with contracts (13%), v) enter into contracts amicably (13%) and vi) have multiple suppliers (13%) including own supply.

### 3.5.10 Service Providers in the Rice Value Chain

Service providers such as finance, extension, Research & Development, input suppliers and market information providers constitute the meso-level value chain actors (Figure 3.20). The services they provide to micro-level agents are usually critical for the smooth operation of the chain. The roles of these agents in the rice value chain are discussed below.

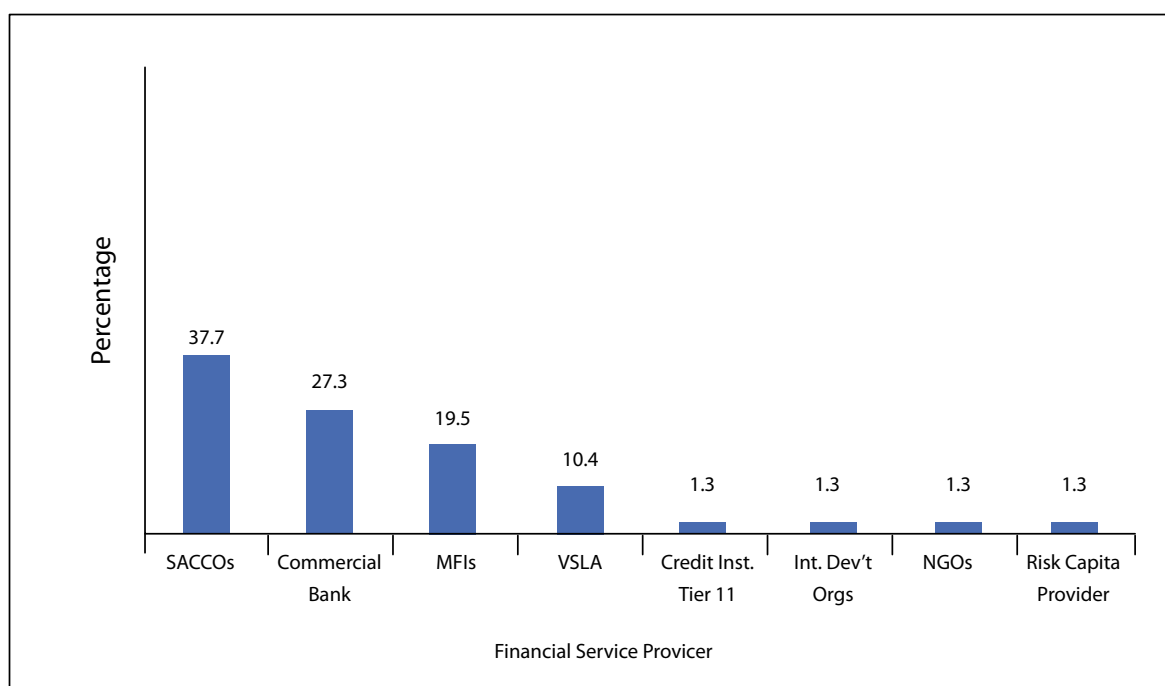
**Figure 3.20: Service Providers in the Rice Value chain**

### 3.5.10.1 Financial service providers

Commercial banks, SACCOs, Microfinance institutions, VSLAs, Credit institutions, International Development Organization (IDO), MDI, NGO and risk capital providers were interviewed. Ninety six percent (96%) of these indicated that they offer financial products and services to the agricultural sector. SACCOs took the lead at 38%, followed by commercial banks at 27%, Microfinance institutions at 20% and VSLAs at 10% (Figure 3.21).

Notably, the financial service providers that are taking the lead in agricultural financing are mainly small and medium sized institutions as opposed to commercial banks.

**Figure 3.21: Nature of financial service providers**

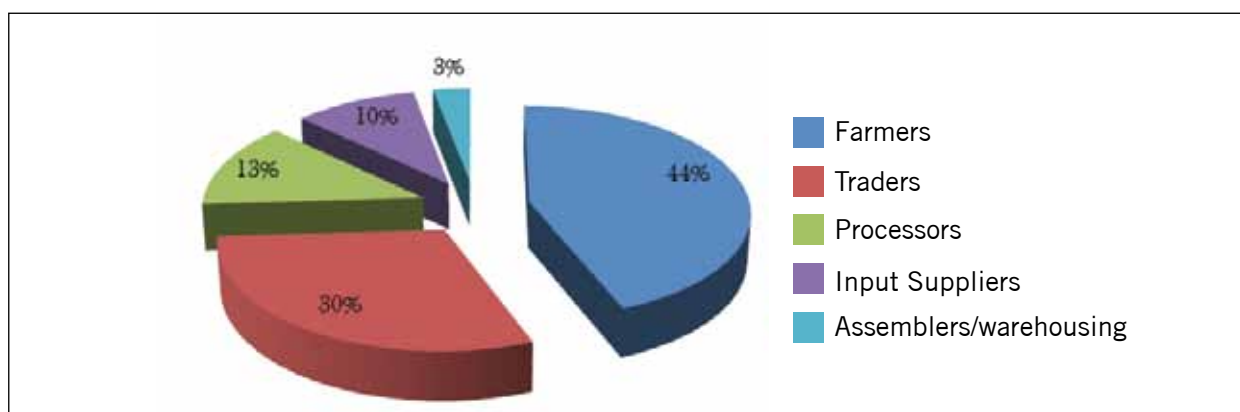


Other sources of finance include: crop financing from processors and traders to producers either in form of cash or in-kind as inputs. Such financing approach is embedded in the cost of rice supplied by the producer to processor/trader (buyer).

The main products and services offered by the financial service providers that were interviewed include: i) loans which are categorized as agricultural, asset, business, microfinance, group, land title processing and animal traction loans, ii) savings accounts, iii) commodity financing and working capital and iv) financing towards agricultural production and livestock production enhancement, input supplies and training in agriculture specifically offered by the VSLAs.

The study also found out that financial service providers mainly offer services and products to all the actors along the value chain. The farmers form the majority (44%) of the actors who access financial products with 30% of traders access financial services (Figure 3.22).

**Figure 3.22: Proportion of actors receiving financial services** (DIMAT Survey, 2012)



### 3.5.10.2 Market information service providers

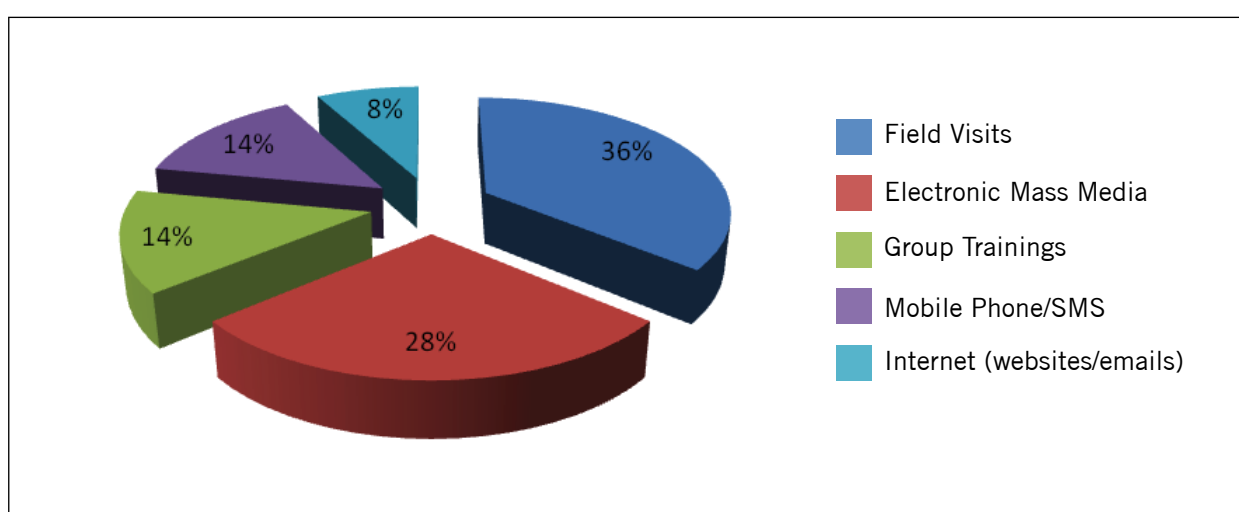
A total of 29 market information service providers were interviewed and the findings showed that, 65.5% are private companies including radio stations. Government agencies and NGOs are also involved and these constituted 34.5% of the providers interviewed.

The most common types of market information provided cover prices, quality requirements, areas of demand both locally and internationally and consumer preferences. The major beneficiaries of the above market information

are producer groups, individual farmers and traders in that order. The market information is packaged in the form of print, posters, fliers, SMS, talk-shows, magazines and audio tapes translated into local languages.

The most popular modes of delivering market information are field visits, pre-recorded radio programs, SMS, Radio/TV talk-shows and group trainings. The SMS system which cost between 50 to 220UGX is handy in delivering information (both local and international) as depicted in Figure 3.23.

**Figure 3.23: Mode of delivery of information**



The major sources of market information include; major markets, the internet, government departments/institutions and other market information providers. Government departments/institutions reported to be sources of information included: NaCCRI, NARO, NAADS, District commercial offices, UEPB and Uganda Investment Authority (UIA). Most of the information from these organizations is obtained from their websites or through the various workshops they organize. Market information providers have contacts in the major markets who update them with the current information on prices, demand and supply.

### 3.5.10.3 Technical & business development service (T&BDS) providers

NGOs dominate the provision of BDS, accounting for 35% of the providers interviewed compared to 17% as government organizations. The focus of services provided by the 52 BDS actors interviewed were R&D, technological advice and extension. Four percent of the BDS providers deal with business development and/or development of structured trade such as Warehouse Receipt System (WRS).

The main services offered under T & BDS focused on the promotion of technologies for rice production such as, fertilizer application, integrated pest management, improved farm equipment, postharvest handling (e.g. warehousing and harvest equipment like threshers) as well as processing machinery.

The main actor in provision of technology related services in Uganda is the National Agricultural Research Organization (NARO), while public universities like Makerere in partnership with the private sector involve students in the development of appropriate technologies.

Other suppliers of technologies include seed companies like NASECO, FICA, Victoria Seeds, East African Seeds, Tonnet Agro-engineering Ltd, Balton, AEATREC in Kawanda Research Institute and JICA.

The private sector is mainly involved in the supply of agricultural machinery imported from China, Vietnam, India, Thailand and Pakistan.



Small and medium enterprises such as Tonnet, JBT and local fabricators (artisans) manufacture, supply and repair agricultural machinery while local artisans in rural areas are mainly involved in the repair of machinery and providing maintenance services to farmers and agro-processors.

## 3.6 Policy and Institutional Environment Underlying the Rice Value Chain

### 3.6.1 MAAIF and Related Organizations

Structurally, MAAIF consists of the headquarters, seven semi-autonomous organizations and departments devolved to district level. The agencies operate at both national and sub-national levels and are responsible for the execution of approved plans and resources in their budgets. This leaves MAAIF HQ to concentrate on Agricultural policy formulation, support and supervision (especially of Local Governments), sector planning, regulation, standard setting, quality assurance and sector monitoring and guidance. The semi-autonomous organization relevant to the rice sector are:

- a) The National Agricultural Research Organisation (NARO)-for generation and dissemination of research technologies.
- b) The National Agricultural Advisory Services (NAADS) for delivery of advisory services.
- c) The Plan for Modernization of Agriculture Secretariat for implementing the Prosperity for All (PFA) Strategy.

The DIMAT project intends to work with all these organizations to leverage the resources they have invested so far. NARO will be key in developing new technologies especially seed and DIMAT would link farmers with NARO with an aim of making research participatory and demand driven. On the other hand the project will work to link NAADS with services providers in the market so that, the private sector can take advantage of the public extension but at the same time NAADS will meet its mandate of reaching as many producers as possible through public private partnership

### 3.6.2 Agriculture Sector Development Strategy and Investment Plan (DSIP)

The DSIP emphasizes the need to transform the agriculture sector from subsistence agriculture to commercialization, listing 17 “priority” commodities rice being one of them. It highlights the importance of introducing measures to improve competitiveness and agriculture market integration, as a way of ensuring sustained economic growth. In pursuance of these growth objectives, measures aimed at encouraging the proactive commercialization of agriculture have been articulated in national and agriculture sector

strategy documents. These include activities aimed at improving market access, encouraging value addition and conformity to international standards and infrastructural development. Other documented needs include improved market information flows, logistics and storage facilities; interventions aimed at bulking production to attain economies of scale, and assistance with certification arrangements. Business Linkages strengthening is recognized, as being a central part of this commercialization strategy.

Through output 1 (build business linkages for the different SMEs in the rice VC), output 2 (Build capacity of rice VC actors) and output 4 (facilitate access to productive assets by actors) the DIMAT project intends to structure rice trade in Uganda through access to markets. This objective of the DIMAT if achieved will have contributed to DSIP mission to commercialize agriculture in Uganda.

### 3.6.3 Uganda National Rice Development Strategy (NRDS)

Apart from DSIP, interventions on the rice sub-sector need to support the realization of the objectives of the strategy through promotion of rice production in Uganda as outlined in the National Rice Development Strategy (NRDS) (2009-2018) (MAAIF, 2009). The NRDS aims at increasing household food security and reduce rural poverty by increasing rice production from 165,000 MT in 2009 to 334,250 MT in 2018 and eventually 499,200 MT by 2013. The NRDS is contextualized within the Coalition of Africa Rice Development (CARD) which envisages to double rice production in Africa in the next 10 years following the Tokyo International Conference on African Development (TICAD IV) declaration.

UNRDS has its objective as to increase rice production and improve value addition in order to have sufficient rice for domestic consumption and export. The important pillars of the NRDS are research and technology dissemination, capacity building, production of certified rice seed, irrigation, water management, postharvest handling, processing and marketing, mechanization, access to agricultural finance and policy development. MAAIF is the key institution in coordinating, monitoring and evaluating of the NRDS through the Rice Development Secretariat. Apart from responding to DSIP's indicators with a bearing on the rice sub-sector, DIMAT should also link to the following specific objectives of NRDS which are:

- a) Minimize post harvest losses through improved post harvest handling and use of processing technologies as well as enhancing mechanization of the rice sub-sector in order to minimize on cost of labour. These will be achieved through output 4 of the DIMAT which addresses access to technologies as part of the productive assets.

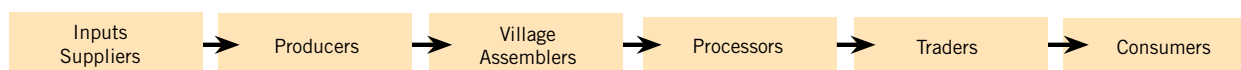
- b) Improve and increase sustainable water use and management in rice producing areas. This will be achieved through output 2 of the DIMAT project which addresses inefficiencies of producers through capacity building.
- c) Increase agricultural finance for rice production. This will be achieved through output 4 of the DIMAT project which addresses access to finance as part of the productive assets.

### 3.7 S.W.O.T Analysis of the Rice Value Chain

127) The actors in the chain have different strengths and weaknesses as presented in Table 3.3 below.

**Table 3.2: S.W.O.T Analysis for the Rice Value Chain**

Strengths					
Knowledge of improved inputs	Collective production and marketing	Strong linkages with the producers	Access to tested technologies	Good relations with farmers, especially where pre-financing is possible	Increased awareness of quality rice
Access to financial services	Most farmers are in farmer groups		Access to financial services	Own trucks reducing transport costs	
Opportunities					
Draft seed and fertilizer policies	Availability of proven, affordable technologies, and practices	Ready and rapidly growing market for rice	Many, but yet underexploited rice products	Available financial services	
Structured seed trade - Existence of Uganda Seed Trade Association	Unexploited land and water resources increasing potential to produce rice Conducive climatic conditions If producers can get involved in minimal rice processing, they could increase their margins significantly	Available financial services	Underutilized capacities  Ready and rapidly growing market for rice  Existence of a processors association in Uganda (UMA)	Ready and rapidly growing market for rice	



Weaknesses					
Inadequate information on input demand	Lack of awareness about improved inputs	Inadequate storage facilities	Inadequate storage facilities	Inadequate bulking and storage facilities	A good number of consumers are still being driven by prices
Inadequate access to improved inputs	Limited access to market information	Limited capacity to pre-finance suppliers	Limited capacity to pre-finance suppliers	Limited business management skills	
	Inadequate postharvest handling equipments		Inadequate drying facilities and technologies		
	Low buying/ negotiation power		Limited access to machine repair and services		
	Low productivity due to inadequate extension				



Threats					
Inappropriate financial products	Pests and diseases and weeds	Unreliable supply due to unstructured trade	High power tariffs and cost of diesel	Unreliable and limited supply from farmer groups	Change in eating habits
Low quality and cheap input in the market	Erratic weather and climatic patterns		Inadequate skills in rice processing	Price fluctuations	
	Soil nutrient depletion		Unreliable rice supplies	High competition with imported rice	
	Poor land tenure policies				

### 3.7.1 Input suppliers

Several challenges affect input suppliers which include: Inadequate information on market size of inputs and inadequate access to quality inputs. Inadequate information on market size for inputs results in market asymmetry resulting to either under or over supply of inputs which in turn causes artificial price fluctuation. The other challenge of the input suppliers is that, they inadequately access quality inputs. To minimize on the weaknesses, the input suppliers should work together with other actors to understand the market they serve and its dynamism. Several strengths could be utilized including: availability of information on new technologies (seed, machinery, and chemicals). In addition, most input suppliers qualify for financial services. These two strengths can be utilized to access and supply quality inputs to producers. With the existence of Uganda Seed Trade Association, input suppliers can easily structure their enterprises to improve their bargaining power within the rice value chain as well accessing vital information on the size of the market for inputs and the specific inputs being demanded.

### 3.7.2. Producers

The producers have the following weaknesses: Limited access to market information, inadequate postharvest handling equipments, low negotiation power and low productivity due to inadequate extension. Working in groups either by strengthening the existing ones or forming new ones would help the farmers undertake their business collectively to access market information, access postharvest handling equipment and extension. This is expected to improve their productivity significantly because collective access to inputs would reduce costs. The producers would also use the groups to improve on their negotiation power placing them in a better position to work with the other actors. By accessing the right inputs especially chemicals, the threat of pests and diseases would be reduced. As a group they would also

lobby more strongly for appropriate land tenure policies. This would put most of the idle land in Uganda in better use one of the uses being to increase production.

Collective action would also help farmers increase their efficiency in rice production and trade by taking advantage of economies of scale. Bulking and selling as a group will reduce transactional costs making it possible for the producers to upgrade their operations into rice processing translating into better incomes. Uganda has conducive climatic conditions for the production of both irrigated and upland rice. Together with the availability of a fertile land, rice producers should focus on increasing production to supply the ready local and regional market which is a big opportunity. Coupled with the strong linkage the producers have with the middlemen, adequate quantities and good quality rice would be supplied.

### 3.7.3. Middlemen

Middlemen do not have adequate storage capacity in addition to not being able to pre-finance the producers. This affects the amount of rice the middlemen bulk at any given time. In-order to address these challenges, they should work towards being members of the existing warehouses in Uganda in the short-term. This would increase the amount of rice they bulk and hence can use the rice as collateral to access finance which they can then use to pre-finance production. This would strengthen their relationship with the producers and consequently reduce the threat of unreliable supply of rice.

On the other hand, the middlemen should take advantage of the existing financial services as well as the strong linkage with the producers to expand their business. Middlemen should play their vital role of bridging the production stage of the chain to the processors and

consequently to the market by assembling the volumes of rice demanded by the processors. This would be made possible by the existing strong linkage and trust between the middlemen and the producers.

### 3.7.4. Processors

Processors experience inadequate storage facilities, limited capacity to pre-finance suppliers, inadequate drying facilities and technologies and limited access to machine repair and services. The processors should work hand in hand with financial providers to develop appropriate financial products for the processors. This way, the processors will be able to access modern technologies as well as maintenance services. Through appropriate access to finance, the processors will be able to pre-finance rice production hence strengthening their relationship with their suppliers. Such equipment will increase efficiency of the processors and the end result would be high conversion rate of paddy to quality milled rice and consequently affordable rice on the shelf.

Several strengths can be utilized by the processors to address their weaknesses as well as taking advantage of the available opportunities. Increasing consumer awareness of different rice products presents an opportunity for the processors to process rice into such products. Some of the products like brown rice present a niche market and the processors would earn premium prices if the product is commercially available and at affordable prices. This niche market has been accelerated by the shift in eating habits towards healthy eating. Membership to Uganda Manufacturers Association would increase the bargaining power of rice millers to lobby for favorable electricity tariffs.

### 3.7.5. Traders

Inadequate access to bulking facility and limited business management skills are the main constraints facing the traders. To address the issue of bulking facility, traders should work towards becoming members of the existing warehouse systems in the Uganda. Such membership will help increase the amount of rice the traders are able to bulk as well as minimizing price fluctuations which are potential threats. Through a planned effort, traders should either form new if none or strengthen the existing trade associations to help them access capacity building services. Training on business management would help stage a healthy competition among the traders such as complementing each other for their strengths.

The biggest opportunity for the traders is the ready rice market. However, the traders especially the small and medium cannot meet the demand due to inadequate investment capital. This calls for the traders to work together to reduce cost of transport. Individual traders should improve their financial management skills to increase their credit worthiness and be able to absorb financial products that are already available in the financial markets.

### 3.7.6. Consumers

Lastly, a big number of consumers are still driven by prices other than quality. This threatens the ability of consumers' access to quality rice. Through creation awareness and by forming consumer platforms, the consumers would be empowered to demand for quality rice at affordable prices and consequently drive the rice value chain in Uganda. However, recent consumption trends show that, consumers have become more informed of healthy foods as well as the products available in the market. This should be the driver of the rice value chain and which all the other value chain actors should take advantage of. The consumers should use this strength to their advantage to demand quality rice in the market.

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**“Most of the rice traded is mainly milled (76.3%) with some traders buying paddy rice (23.7%) which they mill and later sell. About 94.7% of retailers are also trading in milled rice”**

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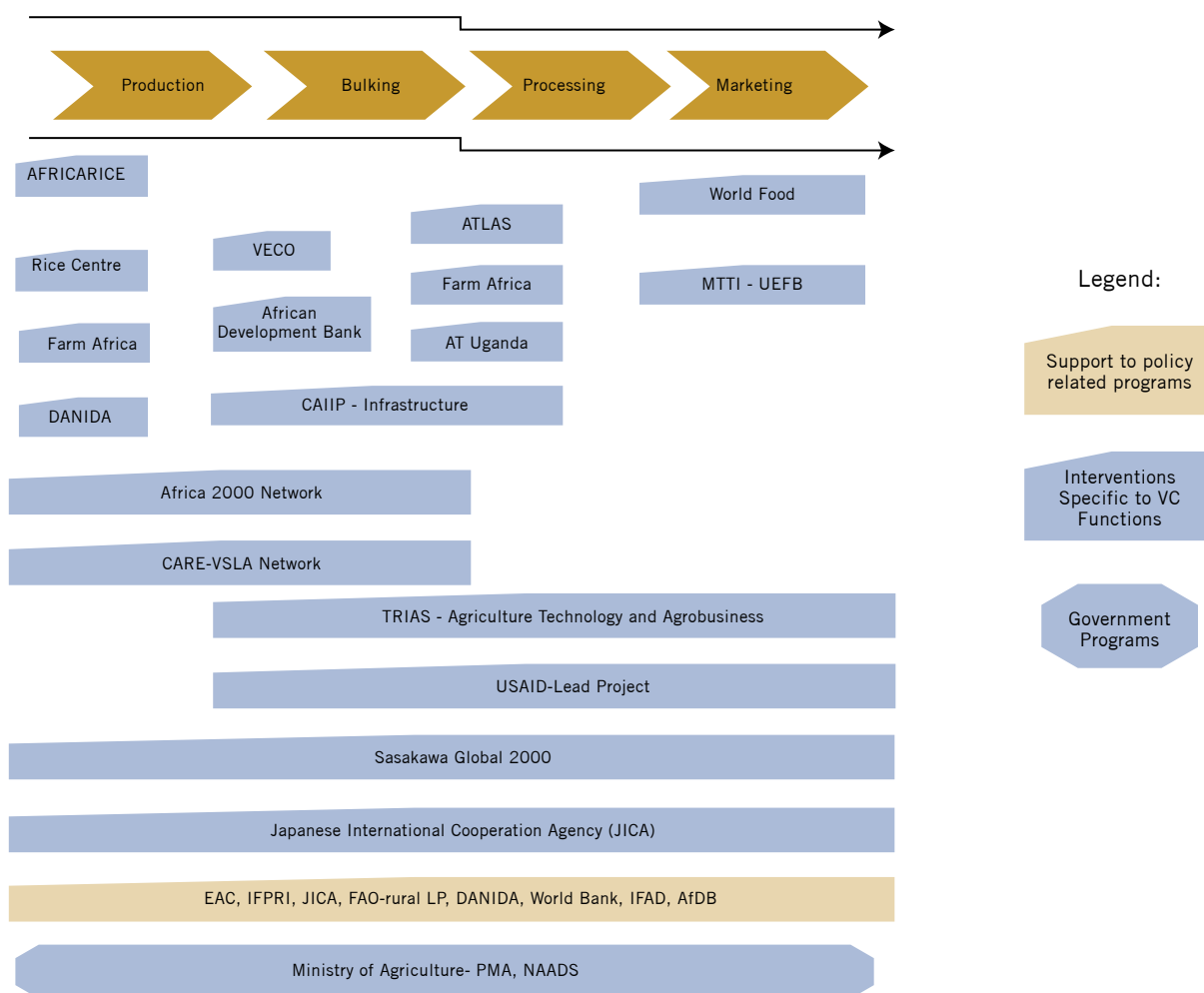




### 3.8 On-going and Previous Interventions in the Rice Value Chain

Besides linkages between micro and meso-level actors, the rice value chain is supported by other organizations at the macro-level. These organizations have different roles and responsibilities right from technology development, dissemination, production, processing, transporting and marketing. These include bilateral partners, NGOs, government ministries and related agencies and private sector organisations including business development service providers (Figure 3.29).

**Figure 3.29: Map of Ongoing and Previous Interventions in the Rice Value Chain**



The above organizations have programs and projects related to the various functions of the rice value chain such as production, bulking, processing and marketing. The roles of these organizations are hereunder discussed starting with bilateral organizations.

### 3.8.1 Bilateral organizations

Bilateral organizations have programs and projects related to the various stages of the value chain such as production, bulking, processing and marketing. Some of them e.g. Rice Centre, AFRICARICE focus on specific functions such as production. Others engage in more than one stage. For instance, WFP focuses on marketing but also provides support in policy related, TRIAS focuses on bulking, processing and marketing while Africa 2000 Network projects are geared towards production, bulking and marketing.

Others such as IFPRI, EAC, JICA, World Bank, DANIDA have been providing support towards formulation of agricultural policies such as the DSIP and PLAN.

The following is a brief description of some of the bilateral organizations and/or their programs:

- a) **CAIIP III - Community Agricultural Infrastructure Improvement Program Phase III**-The project targets to provide one agro-processing or value addition facility per sub-county. Where feasible, these facilities and their housings will be incorporated into designs and construction of the rural markets to ensure integrated marketing and processing in a single market unit where farmers can simultaneously deliver, sell, store and add value to commodities. The list of options for agro-processing includes but is not limited to rice hullers/millers, maize mills, fruit squeezers and grain millers, peanut cracker and peanut paste machines, cassava chipping equipment, honey extractors and milk coolers.
- b) **Agricultural Engineering and Appropriate Technology Research Centre AEATREC**: Currently conducting training to rice millers on modern approaches and extension staff in post harvest handling and processing of rice, adoption and adaptation of motorized and pedal threshers for local conditions. AEATREC carries out Generation, adaptation and dissemination of appropriate agricultural engineering technologies to meet farmer and market demands; training of farmers, agro-processors and other users Training of and provision of back-up services to rural artisans; technicians and private fabricators Advisory and consultancy services in agricultural and rural engineering.
- c) **USAID Feed the Future** – US Global Hunger & Food Security Initiative May 2010, Economic Growth Program in Eastern and Southern Africa and LEAD. Uganda's Feed the Future Strategy rests upon the analysis of the way poverty and nutritional status interact in Uganda. Uganda's FtF Strategy is therefore built on three components. Two of the components, Agriculture and Nutrition, address head on the twin objectives of the global FtF initiative. The third component, Connecting Nutrition to Agriculture, seeks to eliminate the disconnect between improved agriculture and improved nutrition.
- d) **JICA**: Africa Rice Development project whose main objective is to double rice harvest within 10 years, from 14 million MT/year to 28 million MT/year.
- e) **IFAD**: Their project aims to help farmers move from subsistence to market-oriented production, strengthen local level governance, improve rural infrastructure and support rural financial services and risk management.
- f) **World Bank funded projects** of Global Agriculture and Food Security Program (GAFSP) Trust Fund and the **East Africa Agricultural Productivity Project (EAAPP) 2010-2014**. The projects aim at building regional approaches to agricultural research through strengthening and up-scaling agricultural research in East Africa focusing on wheat, Dairy, Cassava and Rice.
- g) **FAO NERICA Project**; aimed at sourcing foundation seed for NERICA rice varieties from Benin for multiplication and distribution in Uganda. The project hosted at NaCRRRI in Namulonge enabled NERICA seed multiplication in Uganda and currently it is reported that NERICA seed is 99.98% pure. In addition, FAO provided funds for the introduction of NERICA rice varieties in 9 districts in Northern Uganda.
- h) **CATALYST Uganda (Catalyzed Accelerated Agricultural Intensification for Social and Environmental Stability)**: To sustainably commercialize smallholder agriculture through improved productivity and market development, resulting in marketable surpluses that raise farm incomes in Uganda, and increase food security for the wider East Africa and Great Lakes Region. The objective main objective is to push production and pull market
- i) **Agricultural productivity Enhancement Programme APEP**: To expand rural economic activity opportunities and increase household income in the agriculture sector by increasing food and cash crop productivity and marketability. As well as Post harvest harvesting, producer group strengthening, education and biotechnology awareness
- j) **Common Fund for Commodities (CFC)**: This project seeks to improve the level of food security and living standards of rice farmers in Eastern Africa by a quantitative increase and quality improvement in rice production, and the simultaneous provision of a sustainable market. To enhance the efficiency of model rice supply chains from primary producers to agro-industrial processors. The CFC intervention will address the issue of low competitiveness of locally produced rice, vis -a vis imported rice in terms of quality and price, that will lead to an incentive for East African farmers to engage in surplus rice production and make the sector competitive, even beyond the currently applicable 75% import tariff imposed on rice imports into the East African Community.
- k) **The European Co-operative for Rural Development (EUCORD)** : EUCORD has successfully implemented value chain projects and is specialized in the fostering of public-private partnerships and has experience in collaborating with CFC.

- l) **The Netherlands Development Organization (SNV):** A multi-cultural international development organization providing capacity development services in terms of capacity development of local organizations through advisory practice and partnering with local capacity builders. SNV works in two impact areas: 1) improving access to and quality of basic services with a focus on water, sanitation & hygiene, on primary education and renewable energy (mainly biogas); and 2) increasing production, income and employment with focus on value chain development in oilseeds, livestock and pro-poor tourism.

### 3.8.2 NGOs

Non-governmental organizations that provide development support in the rice sub-sector include; AGRA, Africa Rice, AFRICARICE, WFP, Sasakawa Global, Africa 2000 Network, TRIAS, VECO, IFPRI, and IRRI.

AGRA funded a project “Agro Dealer Network Strengthening for Uganda” (ANSU) which was implemented by UNADA and AT Uganda. It targeted Uganda Seed Traders Association, Agro Input Dealers, NGOs and Government Programmes offering inputs. The program ended in 2011. It aimed at improving access to capital and business development services by input dealers. AGRA also supported the national inputs policy environment by providing technical assistance for a comprehensive policy advocacy program conducted in collaboration with key stakeholders and it also aimed at sustainably strengthening UNADA’s capacity to provide services to all agro-input dealers in Uganda.

Farm Africa is helping local farmers to increase production levels of crops (upland rice, rice and peanuts) through teaching them new technologies and farming techniques. This has improved incomes, productivity and market access for smallholder farmers in Central Uganda.

### 3.8.3 Public institutions

Public institutions that support rice development include: i) MAAIF which offers overall guidance and policy. In MAAIF, a Rice Industry Secretariat has been established to plan, coordinate and implement the National Rice Development Strategy, ii) NAADS which offers extension, iii) NARO undertaking agricultural research those whose efforts, high-yielding varieties have been developed and iv) UNBS and National Cereals programme which ensure quality of rice in the market.

### 3.8.4 BMOS and their support to rice sector

Most of the actors along the rice value chain are affiliated to business member organizations which act as apex bodies. These BMOs mainly advocate for favorable policy environment for their members. Below is a list of identified BMO’s in the rice sub sector (Table 3.3).

**Table 3.3: BMOS and the support in rice sector**

BMO's	
1) Uganda Cooperative Alliance	2) Uganda small scale industrial association
3) Uganda Manufacturers Association	4) Gulu District Business Community
5) Bugiri Agribusiness Institute Development Association	6) Jowa Progressive Association
7) UNADA	8) Kibuuku Traders Association
9) Amuru District Farmers Association	10) Kisenyi Millers Association
11) Igaanga District Farmers Association	12) Matala Association
13) Namukanaga Akamabala cooperative society	14) Obutasoma Buluma Bukulu Association
15) Namulagwe Area Cooperative Enterprise	16) Uganda Small Scale Industries.
17) Ntalinga Agali Awamu Farmers Association	18) Jowa Progressive Association
19) Bugiri Agro-industry Development Association	20) Kisenyi Millers Association
21) National Seed Certification Services Center	22) Obutasoma Buluma Bukulu Association
23) Kaguma Development Association	24) UNFFE

### 3.8.5 Gaps existing for interventions in the rice value chain

The rice value chain lacks adequate support at the input supply, research, trade and consumption (Table 3.4).

**Table 3.4: Gaps existing for interventions in the rice value chain**

Activity Agency	Research	Inputs	Production	Bulking/storage	Processing	Trading & Brokerage	Quality & Standards	Distributing & Retailing	Consuming
AFRICARE			✓						
DANIDA			✓						
Rice center			✓						
Farm Africa			✓		✓				
CAIIP				✓	✓				
VECO				✓	✓				
AfDB	✓		✓	✓	✓				
AT Uganda					✓				
ATAAS					✓				
TRIAS				✓	✓			✓	✓
USAID				✓	✓			✓	✓
Africa 2000			✓	✓	✓				
CARE			✓	✓	✓				
Sasakawa 2000		✓	✓	✓		✓		✓	✓
JICA	✓	✓	✓	✓		✓	✓	✓	✓
World Bank	✓	✓	✓	✓	✓	✓	✓	✓	✓
IFAD	✓	✓	✓	✓	✓	✓	✓	✓	
EAC		✓	✓		✓	✓	✓	✓	✓
IFPRI	✓		✓	✓	✓				
Ministry of Agric - NAADS	✓	✓	✓	✓	✓	✓	✓	✓	✓

Most services seem to crowd around production with some organizations extending their services to post harvest. The project should support rice seed multipliers and build their capacity to enable them carry out the function after the project phases out. To meet the demanded rice seed within a short period, existing producer groups should be supported to multiply rice seed as well as producing rice for the market. In addition to making rice seed available and subsequently drive the seed rice down, the multipliers will have spread risk by widening their income avenues too.

Traders (wholesalers, retailers) do not receive adequate support for value addition and marketing. Market development as well as penetration is a challenge due to a narrow range of value added rice products available. The project should identify potential traders and support

them to brand several rice products. Promotion of these products should also be supported by the project. The expected result will be a known rice brand(s) in Uganda which are sustainable and live long after the project.

Consumers need awareness about rice and rice products in the market and their contribution to health. The project should endeavour to partner with other stakeholders including the ministry of health to generate accurate information on the importance of consuming local rice in terms of income generation and contribution to good health. Consumers should be empowered through consumer platforms to demand good quality rice and rice products in Uganda.





## 4. CONCLUSIONS

**There is high demand for milled rice** as shown by the general increase in population, rapid urbanization as well as the growth of the middle aged population. With a per capita consumption of 8kg/year, Uganda is still a net importer of rice with a supply deficit of about 70,000 MT per year. This demand should be the driving force of the Value Chain and the DIMAT project has taken this into consideration, through its market-led approach. To meet this demand, the DIMAT project should aim to create sustainable business linkages among the rice value chain actors, which ensure that all activities along the value chain such as production, bulking, and processing are all market driven (meeting the demand both in right quantities and quality. The spillover effect of taking advantage of the available market would be actors complementing each other with possibilities of pre-financing, and sharing of information. The actors would also become supervisors of each other with a single mission for the whole chain to meeting the market demand. The caveat is that, most of the linkages involving small holder producers are weak. This is because such farmers are not organized and the cost of working with them is high hence traders choose not to.

**Rice enterprise in Uganda is highly commercialized.** About 80% of all the rice produced in Uganda is sold. This high level of commercialization indicates that rice is a strategic commodity to achieve trade based food security for the producers in Uganda. As a result, interventions to enable actors in the rice value chain to access the market should be encouraged.

In addition to high level of commercialization of rice, **there is potential for enhancing the performance of the rice value chain in Uganda through traders and brokers.** This is so because, they handle between 40% and 60% of all the rice produced in the country. They bulk, mill, store and transport rice and hence their integration would be important if they are to play their important role in upgrading the chain. Farmers are also important actors in enhancing the performance of the chain for they have shown efforts to improve their incomes by accessing milling services. Approximately, 24% of all the rice produced in Uganda is milled by the farmers.

Rice has been prioritized by the government, which has set a target of doubling rice production by the end of 2013. A National Rice Development Strategy and rice Stakeholder platform are already in place to guide investment in the sector. These offer good opportunities for the DIMAT project to take advantage of, when facilitating structuring of the rice value chain.

**Domestic consumption of rice remains high and above local supply resulting in a deficit that has always been compensated by importing rice.** Considering the production trends in the last five years characterized by low productivity of between 2.5MT/ha and 3MT/ha against a potential of 4MT/ha to 5MT/ha coupled with increasing population growth and rapid urbanization, the deficit will increase in future unless urgent interventions are put in place to reverse the trend translating to more import of rice. Unfortunately, most of the imported rice is less preferred due to its perceived inferior quality although it is cheaper affordable. The implication of such low quality, cheap rice would be negative to the competitiveness of the locally produced rice compromising the role rice can play in Uganda as a trade based food security commodity as the price sensitive consumers –who are the majority– switch to it.

**Although the rice VC has a critical mass of actors along all the stages, it is still highly unstructured.** There is therefore, an opportunity for the DIMAT project to enhance the performance of the chain. The presence of all stages implies that the actors need to be fairly represented in the rice value chain platform to enable them negotiate with each other for appropriate mechanisms of operation with an aim to improve the efficient performance of the chain.

**The processes are currently inefficient.** This is evident by the duplication of roles especially drying and sorting by the actors making the chain unnecessarily long and causing build up of operation costs without necessarily adding value to the rice being handled. The end result is a high consumer price of rice that does not reflect real transformation costs. There is potential of improving efficiency by reducing the number of activities actors have to undertake particularly by exploring available technologies and other options. The other potential to improve the efficiency of the rice value chain is through optimizing labour productivity for the chain is labour intensive. For optimal productivity of labour to be achieved, several issues need to be explored. These include: inclusiveness of human labour, overall inefficiency of labour, conditions of work and working conditions.

**Small millers (2 – 6MT per day) are well distributed across the country making it possible for the smallholder farmers to access milling services at affordable prices.** This indicates that, integrating the small millers is vital for the development of inclusive markets for agriculture and trade in Uganda. The presence of these numerous millers also has increased competition for paddy making

farm-gate prices better meaning that producers are getting better revenues from their paddy but, there is even more potential for producers to make more money if they opted to use big mills. This way, the producers would save upto 10Kg/100 Kg bag of paddy and also enjoy a more efficient throughput process yielding more quality rice. The only challenge is that, the producers should be able to bulk adequate volumes to be able to enjoy economies of scale by minimizing transport and transaction. The better quality rice would attract premium prices in the market.

Currently, **rice production in Uganda is increasing but due to more land being cultivated and not, due to increase in productivity.** The enterprise is also labour intensive implying that more labour will be required to cultivate the extra land translating to high production costs which are already high. On the other hand, the mode of increasing production is not sustainable in the long run because land is a finite resource and is rapidly decreasing with the increase in population and urbanization where a lot of arable land is being converted to commercial buildings. Crop production is also associated with mineral mining and this means that even with large area put under cultivation but with poor soil fertility management, the productivity will reduce as the soil becomes less fertile while the cost of labour among other costs will remain constant or increase. As a result, there is need to increase productivity through intensification of rice production.

**Production calendar of rice in Uganda follows certain natural cycles.** The cycles are influenced by climatic conditions which make the rice producing regions plant rice in intervals. Rice traders need to understand these cycles and procure in a timely manner in order to address the issue of supply fluctuations. However, timely procurement should be accompanied by proper storage of paddy to ensure quality and minimize during storage losses. Optimal procurement will ensure rice is available when demanded and the result will be stable prices of rice with minimal speculation.

Inadequate access to productive assets more specifically appropriate financial products and technologies is a challenge that cuts across the rice VC. The challenge seems to be as a result of inappropriate financial products. As a result, there is inadequate access to the products. The chain reaction of inadequate access to appropriate financial products include: inadequate access to technologies, fluctuation in the amount of rice supplied to the market due to poor low storage capacity as well poor transport arrangements. Working with the financial providers to develop tailored products to fit the different needs of the different actors along the rice VC would part of a solution to other challenges in chain like: inadequate access to storage facilities, inadequate access to improved inputs and inadequate access to market information.

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**“Rice production in Uganda is increasing but due to more land being cultivated and not, due to increase in productivity”**

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## 5. RECOMMENDATIONS

### 5.1 Matrix of Proposed Interventions

168) In this section the results from the SWOT analysis are used to identify potential interventions that DIMAT can initiate on its own or can contribute to if such interventions have already been initiated by other development actors.

**Table 5.1: Matrix of Proposed Interventions**

<div>Factors INTERNAL to the Value Chain –</div> <div>Factors EXTERNAL to the Value Chain</div>	STRENGTHS	WEAKNESSES
	<ul style="list-style-type: none"> <li>• Availability of proven products, affordable technologies, and practices for raising rice productivity and quality of finished products</li> <li>• The sub-sector has a critical mass of actors at each stage of the chain – which gives a very good basis for upgrading the value chain</li> <li>• Already significant number of large off-takers/players in the sub-sector that can facilitate efficient access to markets.</li> </ul>	<ul style="list-style-type: none"> <li>• Unstructured trade e.g. lack of enforcement of standard rules, lack of full-proof quality assurance systems, and low trust</li> <li>• Low quality of vertical integration</li> <li>• Diseconomies of scale</li> <li>• Weak or non-existent value chain institutions; and their numbers are low to cause influence</li> <li>• Low productivity, low quality, and low profitability</li> <li>• The majority of rice consumers are driven by price rather than quality</li> </ul>
<b>OPPORTUNITIES</b> <ul style="list-style-type: none"> <li>• Expanding national, regional, and international markets for rice and its by-products</li> <li>• The high EAC tariff on imported rice plus export restrictions in major producing countries (hence protecting locally produced rice)</li> <li>• Huge availability of agricultural financing looking for investment (FDI, Equity investors, international/regional/development banks)</li> <li>• Unexploited land and water resources with potential to produce rice</li> </ul>	<b>Intervention Plan – Short Term (picking the low-hanging ripe fruits)</b> <ol style="list-style-type: none"> <li>1. Expand the utilization of technologies, products, practices to exploit markets, by-products (starting with demand/market development), current tariff regimes, and attracting investors</li> <li>2. Strengthen the link between producers, processing, and marketing brands</li> </ol>	<b>Intervention Plan – Short - Medium Term (picking the low-hanging but not yet ripe fruits)</b> <ol style="list-style-type: none"> <li>1. Develop structured trade in rice using models such as WRS, Contract farming, out-grower schemes, MEPE, and GAP</li> <li>2. Strengthen value chains institutions including, enhancing the voice of consumers (the relationship between quality-prices) and governance</li> </ol>
<b>THREATS</b> <ul style="list-style-type: none"> <li>• Inadequate infrastructure especially to effectively connect different VC actors located in different geographic areas</li> <li>• Sudden removal of tariff protection plus the easing of restrictions on exportation of rice by leading producers in the world</li> <li>• Reduced availability of water for rice production given competition for fresh water resources for other uses such as urbanization</li> </ul>	<b>Intervention Plan –Medium Term (picking fruits high up the tree)</b> <ol style="list-style-type: none"> <li>1. Evidence and multi-actor platform for advocacy e.g. (for optimal infrastructure investments, tariff regimes, water allocation) linking different VC actors</li> <li>2. Supporting the development of structured trade with decentralized anchors rather than centralized anchors</li> <li>3. Adopt and mainstream water-efficient systems for producing aromatic rice.</li> </ol>	<b>Intervention Plan –LONG Term (grow new fruit tree)</b> <ol style="list-style-type: none"> <li>1. Employing efficient production and processing technologies would increase the quantity and improve the quality of rice. The price of rice would reduce making the whole sector competitive, in the longer term.</li> </ol>

## 5.1 Preliminary Outlines of Potential Interventions

### 5.1.1 Proposed Short Term Interventions

The interventions proposed for the short-term would be designed to enhance and to put into use the identified strengths in the rice value chain in Uganda – so as to fully utilize opportunities available to the sub-sector. There are two such interventions identified in the matrix above.

It is recommended that, the first high priority intervention should focus at “expanding, optimizing and mainstreaming the utilization of the healthy stock of proven technologies, products and practices” so as to fully respond to the expanding markets for main products and by-products of rice. This intervention has to focus at all components of the value chain, while paying more attention to the consumer – through the development of demand and markets for high quality rice as well as its by-products.

The approach will be to facilitate market and profit motivated adoption of the available technologies and practices at all levels of the value chain. The main actions required towards this, include but are not limited to the following:

- a) Adoption by the majority of the value chain actors of a “vision” for the rice sub-sector in Uganda;
- b) Increasing the ability of SMEs of producers and others in the rice value chains to understand the commercial viability and benefits of critical technologies, practices and products available with respect to the rice commodity; and
- c) Enabling those SMEs to integrate those innovative products, technologies and practices to their businesses. Integrating simple but very useful technologies like drying paddy on tarpaulins, drying for 4 hours per day, for 4 days instead of drying for longer periods in fewer days, use of improved mills etc would drastically improve the quality and gains from rice production, processing and marketing.

The second priority intervention, it is recommended to focus on “strengthening the linkages between the production, processing and marketing/trading components of the value chain”. There are three main factors in the way the rice value chain is currently operating, that supports this recommendation. These are:

- a) The extent to which producers are involved in managing processing and trading in milled rice;
- b) The dominance of small scale processing facilities; and
- c) The presence of brands of large scale processors who are currently struggling to obtain enough paddy to mill.

Therefore, the recommendation is to bring the three parts together through a “win-win” partnership that improves the SME processing while expanding market access for the SME through franchise arrangements for use of leading brand names. This will also contribute to the implementation of the BCtA component of the DIMAT Project.

### 5.1.2 Proposed Short - Medium Term Interventions

The interventions proposed for the short to medium term would be designed to remove the identified weaknesses in the rice value chain in Uganda – so as, again, to fully utilize opportunities available to the sub-sector. There are two such interventions identified in the matrix above. These would constitute the third and fourth priority interventions being recommended.

The third priority intervention will involve taking the second intervention a notch higher by focusing at the “development of structured trade for rice in Uganda”. Preliminary work will be required to identify which among the many models for structured trade – contract farming - has been tried but is faced with problems due the high volatility of prices of rice. It is therefore proposed to reduce the problem of mistrust, by trying a hybrid model that brings together the warehouse receipt system (WRS); out-grower schemes built around mini-estates and processing enterprises (MEPE) owned by cooperatives of producers; and the adoption of a private sector driven code of “Good Agricultural Practices for Uganda Rice” (GAPUR).

For the three interventions described above to work well, it is important to also remove the current weakness of inadequate value chain institutions. Therefore, a fourth priority intervention is being recommended to focus at “strengthening value chains institutions including, enhancing the voice of consumers to drive the markets for high quality rice”.

### 5.1.3 Proposed Medium Term Interventions

The interventions proposed for the medium term would be designed to enhance and to put into use the identified strengths in the rice value chain in Uganda – so as to reduce and/or mitigate the effect of the threats to the rice sub-sector. There are three such interventions being recommended as identified in the matrix above:

- a) Advocacy for investments to for example optimize the infrastructure and agricultural water systems to support the rice sub-sector. This will be done through the development of credible evidence and the building/strengthening of influential multi-actor platforms.
- b) Supporting the development of structured trade with decentralized anchors rather than centralized anchors, so as to mitigate the effect of poor



infrastructure for transporting paddy all the way to central processing facilities. This will be part and parcel of the MEPE model described above.

- c) Adopt and mainstream water-efficient systems for producing aromatic rice. This is very important because aromatic rice is the most preferred, yet aromatic varieties require a lot of water to produce using current practices. One good example is the “System of Rice Intensifications – SRI”. Even drip irrigation has now been proven to be incredibly efficient and profitable in rice production.

#### 5.1.4 Proposed Long Term Interventions

The interventions proposed for the long term would be designed to remove the identified weaknesses in the rice value chain in Uganda – so as, again, to reduce and/or mitigate the threats facing the rice sub-sector. There is only one such intervention being recommended as identified in the matrix above: investment to raising productivity in quality and quantity of aromatic rice while lowering the cost of production, processing and marketing - so that Uganda produced rice can compete with the rice by leading producers in Asia. Why is this recommended as a long term intervention? Because, without raising market efficiencies – it is difficult to achieve commercial adoption of productivity-enhancing technologies and practices.

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**“It is recommended to focus on “strengthening the linkages between the production, processing and marketing/ trading components of the value chain”**

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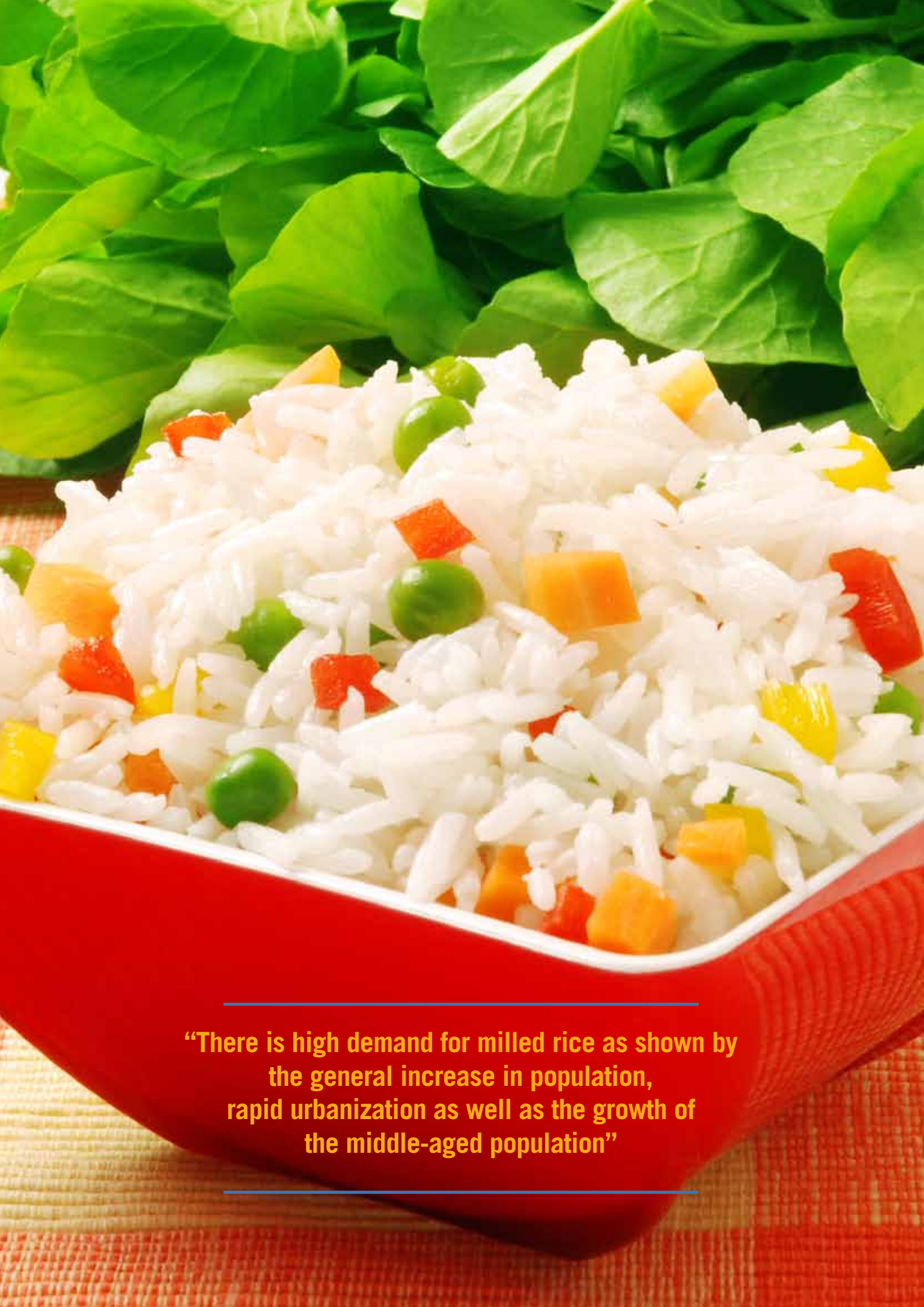


# REFERENCES



1. CAVA 2009. Market Value Chain Analysis Uganda. NRI.
2. Candia.A, Saasa.R, Okurut.S and Oker.T(2008): Survey Report on Rice milling industry in Uganda, JICA /NARO 2008
3. CHEMONICS 2010. Market Assessment and Baseline Study of Staple Foods: Country Report Uganda Chemonics & USAID.
4. CONSULT, C. 2007. Study to Strengthen the Marketing of Rice Based on Building a Strong Value-Chain for the Rice Industry in Uganda. National Planning Authority.
5. FAO 2004. The International Year of Rice 2004. In: FAO (ed.). Rome: FAO.
6. FIT Uganda, 2006. Upland Rice Sub Sector Study Report, Iganga district, Eastern Uganda
7. FIT 2011. Market Analysis Report 2011: Advancing Agribusiness in Uganda Through Knowledge. FIT Uganda.
8. GOU 2005. Focus on Wealth Creating: Sectors' Approach to Growth and Prosperity.
9. KIJIMAL, Y., OTSUKA, K. & FAUTAKUCHI, K. 2008. The Development of Agricultural Markets in Sub-Saharan Africa: The Case of Rice in Uganda.
- 10.MAAIF 2010. The Agricultural Sector Development Strategy and Investment Plan 2010/2011 -2014/15.
- 11.MAAIF. 2009. Uganda National Rice Development Strategy. Entebbe: Ministry of Agriculture, Animal Industry and Fisheries.
- 12.MBEINE, E. & EBONG, J. 2006. Upland Rice Sub-Sector Study Report, Iganga District, Eastern Uganda. FIT and VEDCO.
- 13.MUSIIME, O., TENYWA, M. M., MAJILIWA, M. J. G., LUFAFA, A., NANFUMBA, D., WASIGE, J., WOOMER, P. L. & KYONDA, M. 2005. Constraints to the Production of Rice in Bugiri District. African Crop Science Journal, 7, 1495-1499.
- 14.NAADS 2005. Upland Rice Production Manual. Kampala: NAADS.
- 15.NRI. & FOODNET 2002. Transaction Cost Analysis for Selected Agricultural Commodities: Study for the Plan for Modernisation of Agriculture. PMA.
- 16.ODOGOLA, W. 2006. Final Survey Report on the Status of Rice Production, Processing and Marketing in Uganda. JICA.
- 17.OONYU, J. 2011. Upland Rice Growing: A Potential Solution to Declining Crop Yields and the Degradation of the Doho Wetlands, Butaleja District, Uganda. African Journal of Agricultural Research, 6, 2774-2783.
- 18.OYEE, P. 2008. Upland Rice Value Chain Financial Analysis. In: UGANDA, P. B. O. (ed.) Agriculture Finance Year Book 2008.
- 19.PMA 2009. Rice Value Chains in the Acholi and Lango Sub-Regions. Kampala: Plan for the Modernisation of Agriculture Secretariat.
- 20.PMA 2011. Agricultural Financing Year Book 2010. Plan for the Modernisation of Agriculture & Bank of Uganda.
- 21.TRIAS 2012. Rice Grain and Seed Sub Sector Analysis Report.
- 22.UBOS. & MAAIF. 2010. Uganda Census of Agriculture 2008/2009. Kampala: Uganda Bureau of Statistics and Ministry of Agriculture, Animal Industry and Fisheries.
- 23.UEPB 2008. Cereal and Grain Value Added Products: Product Profile. Uganda Export Promotion Board.
- 24.USAID, 2008. Stabilization-Driven Value Chain Analysis of Rice, Groundnuts and Maize in Northern Uganda





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**“There is high demand for milled rice as shown by the general increase in population, rapid urbanization as well as the growth of the middle-aged population”**

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## APPENDIX 1: SCIENTIFIC NAMES OF THE RICE VARIETIES GROWN IN UGANDA

Local Name	Scientific Name
Super	TDX 305
Kaiso	k85
Superica 2	WAB 450-1-B-P91-HB
Nerica 3	WAB 450-1-B-P91-HB.
Nerica 1	WAB 450-1-B-P-38-HB.
Nerica 10	WAB 450-11-1-1-P41-HB.
Sindano	Sindano
Super America	IR 64
Super China	k98
Nylon	K95
Kibuyu	
“Benenego”	

## APPENDIX 2: DETAILED LIST OF CONSTRAINTS AND OPPORTUNITIES AS IDENTIFIED BY STAKEHOLDERS INTERVIEWED

Opportunities					
Inputs Suppliers	Producers	Village assemblers	Processors	Traders	Consumers
<b>Availability of new technologies</b>	Conducive climatic conditions	Available financial services	Ready and rapidly growing national and regional rice market	Ready and rapidly growing market for rice	
<b>Available financial services</b>	Availability of proven products, affordable technologies, and practices for raising rice productivity and quality of finished products	Ready and rapidly growing market for rice	Available financial services	Good relations with farmers, especially where pre-financing is possible;	
<b>A draft seed policy</b>	Unexploited land and water resources		Many, but yet underexploited rice by-products	Available financial services	
<b>Developed seed trade- Existence of Uganda Seed Trade Association</b>	The producers have a high level of control of the rice products along the chain		Increasing demand for better quality packaged rice	Own trucks to reduce transport costs	
			Available tested technologies and underutilized capacities		



■ VALUE CHAIN ANALYSIS (VCA) OF THE RICE SUB-SECTOR IN UGANDA

Constraints					
Inputs Suppliers	Producers	Village assemblers	Processors	Traders	Consumers
Lack of awareness of farmers about improved inputs	Pests and diseases	Inadequate storage facilities	Inadequate storage facilities	Unreliable and limited supply due to few organized farmer groups	Majority of rice consumers are driven by price, not quality
Unfavorable financial products	Limited access to ready markets	Limited capacity to pre-finance suppliers	Limited capacity to pre-finance suppliers	Price fluctuations	
Adulterated products in the market which are cheap	Inadequate postharvest handling equipments	Unreliable supply-unstructured trade	Inadequate drying facilities and technologies	Poor infrastructure especially roads	
Low commitment to pre-financing	Low buying/negotiation power of the farmers	Inadequate drying facilities and technologies	Poor quality paddy	Poor post harvest handling (poor storage facilities and collection centres)	
	Use of faulty weighing scales	Poor quality rice	Low volumes supplied	High transport costs	
	Price fluctuation for rice	Limited capacity to pre-finance suppliers		High competition with imported rice	
	High transport costs for delivery to better buyers/markets	Limited collective marketing		Limited business management skills,	
	Poor road infrastructure				
	Poor farming methods leading to low productivity				
	Erratic weather Conditions				
	Poor water management				

## APPENDIX 3: RECOMMENDATIONS AND SUGGESTED INTERVENTIONS MADE BY VALUE CHAIN ACTORS

### Producers

The major recommendations suggested by farmers to address the constraints they are facing included:

- a) Linking of farmers to good and reliable markets for their rice
- b) Linking of farmers to financial or credit institutions in order for them to be able to meet the necessary costs of production,
- c) Supporting farmers to access modern equipment for production,
- d) Capacity building for collective marketing of farmers' rice produce, in order to increase the bargaining power,
- e) Facilitating access to improved seeds and agrochemicals at a free or subsidized cost in an attempt to increase rice productivity,
- f) Training and capacity building of the farmers in agronomic practices,
- g) Facilitating access to postharvest equipment for drying such as tarpaulins,
- h) Support by research institutions on the control of pests and diseases as well as the new rice varieties that are high yielding and more tolerable to the local farming conditions,
- i) Supporting of farmers with storage facilities as this would also aid in lowering the postharvest losses incurred by the farmers,
- j) government should intervene in the pricing of agriculture produce to ensure that farmers are not cheated by the traders,
- k) Enable farmers to access extension services throughout the growing season of rice,
- l) Promote upland rice varieties which are higher yielding,
- m) Ensure longer term access to markets through formal agreements with reliable buyers,
- n) Facilitate access to irrigation facilities.

### Traders

The following recommendations were suggested by the traders

- a) Sensitization of farmers on quality control,
- b) Contract arrangements with farmers to ensure stable supply,
- c) Proper post harvest management i.e provision of tarpaulins and building drying slabs,
- d) Provision of more yielding varieties to farmers, to boost their supplies.
- e) Avoid giving advances,
- f) Building collection centers for bulking,
- g) Farmers should be trained in business skills and ethics
- h) Setting a standard buying price for rice and
- i) Proper quality checks of supplied rice before any payments are made.

### Processors

The majority of rice processors highly suggested that;

- a) There is a need for continuous improvement of the quality of rice produced by both individual farmers and groups,
- b) Facilitate millers (especially small-scale millers who mill 95% of all paddy rice) to access and utilize better machines like milltop milling machines and additional devices like moisture meters, dryers, cleaners and de-stoners,
- c) Increase production volumes of paddy rice,
- d) Facilitate access to improved quality seed as well as best production practices and post harvest handling technologies at producer level and
- e) Formal contractual relationships and training of farmers to meet these contracts.

## Pearl Rice Ltd

Pearl Rice Ltd is still willing and ready to contract farmer groups as suppliers under the following terms;

- a) The company would still work through the leaders of the farmer groups and associations,
- b) The leaders MUST understand how the outgrowing/contract farming system works,
- c) The leaders and farmers must understand the nature of the benefits and costs involved in working under such a system (especially the longer-term benefits like higher yields as a result of implementation of what they are trained to practice. For example, those that use the seed supplied by the company harvest up to twice the amount harvested by those that re-cycle their seed,
- d) Farmers must be taught how to be trust-worthy,
- e) The leaders must understand how Pearl Rice operates, the kind of costs it incurs, the nature of targets it sets, and the impact of the lack of commitment to contracts by the farmers,
- f) With the target of expanding the out growers to a number that can cultivate up to 3000ha, and supply over 50% of the rice to the company, Pearl rice would need support to build the capacity of all these out-growers to practice good agricultural and post-harvest practices.

## Tilda

- a) Farmer groups must be well established and able to supply the minimum quantities of paddy required; 10MT and above. The higher the volumes the better,
- b) The paddy must be of the highest quality in terms of good milling quality, no debris and well dried,
- c) Price of the paddy is determined competitively depending on prevailing market prices. The company cannot give a contractual price,
- d) If the group could supply between 30 – 40MT, the company can negotiate on transportation of the paddy to the plant in Bugiri depending on how far the farmer group is from the plant,
- e) The group has to be willing to sometimes supply paddy on credit in case cash flow at the factory is not enough to pay cash for all the deliveries on spot,
- f) The farmers must supply mostly the lowland rice varieties, upland varieties are only demanded by Tilda when the lowland varieties are off season and
- g) The groups must be willing to be known by Tilda i.e how many members do they have, what acreage do they have collectively, where are they located, how far is it to the factory e.t.c.
- h) Before contracts are signed, there must be a kick-off session where the farmer groups meet with the management of Tilda to know each other.

## PYMC

- a) With the new 60 ton per day mill which the company has recently acquired, PMYC will need its capacity build to acquire bigger volumes of paddy from farmers in the region. Because these farmers have to be paid in cash upon delivery, PMYC will have to access affordable working capital for this. This will also ensure that the company can buy in bulk during the seasons and still have plenty to mill and market throughout the year. This would lead to better prices which would translate to better incomes from the farmers.
- b) In addition, because Peyero was previously only offering a milling service to the traders, now that it will start directly buying from farmers, its capacity to brand and package its milled/processed products will have to be enhanced.
- c) In order to increase volumes supplied and quality assurance of this supply, the company will require support with formation of organized farmer groups or associations within the Rice growing areas, through forging partnerships with service providers, are already working with rural community groups.

## APPENDIX 4: RECOMMENDATIONS AND SUGGESTED INTERVENTIONS MADE BY STAKE HOLDERS DURING VALIDATION WORKSHOP

### 1) Processors

- a) Support access to small mills with de-stoners and graders
- b) Build institutional capacity of small millers
- c) Formalize relationship between farmers and millers
- d) Large millers need to champion the relationship between themselves and the farmers
- e) Upgrade the value chain uniformly
- f) Better technologies are indeed required to increase production to meet demand
- g) Large storage infrastructure such as warehouse need to be put in place to cater for price fluctuations

### 2) Consumers

- a) Sensitize consumers about their rights to quality products
- b) Establish a lobby and advocacy group for consumer rights

### 3) Policy

- a) Build capacity of relevant government organs and bodies to play their rightful roles
- b) Rice steering committee in Uganda exists and it must make its work known to the public
- c) The committee can take the role of lobbying government for appropriate infrastructure development
- d) Government should decentralize machinery testing centres to different districts. Partners for this include would include: MAAIF, private sector, development partners, URA and Ministry of Trade
- e) There should be opportunities for various actors in the rice value chain to be represented on the rice committee
- f) All types of rice need to be included in the interventions instead of focusing on aromatic rice only
- g) Private Public Partnerships need to be promoted especially in development of irrigation facilities

### 4) Traders

- a) Financing mechanisms need to be appropriate for various actors
- b) Financial institutions need to enable access to finances
- c) Tax breaks incentives are crucial for investments
- d) New products from research centres need to be tailor made to suit needs of the traders.

### 5) Producers

- a) Institutional development is important especially at farmer level
- b) Out-grower schemes can work especially if the producers are clustered around the processor
- c) MEPE model can work since all actors have a stake
- d) The GAP model is good since it leads to increase in productivity
- e) Establish a lobby and advocacy coalition
- f) Strengthen the link between producers, processing and marketing brands.
- g) Invest in Irrigation infrastructure for all farmer typology
- h) Invest in Energy (electricity, fuel, solar, wind etc) for operating irrigation
- i) Water harvesting through valley dams
- j) Put in place insurance against Excessive rains or drought
- k) Use Public-Private sector approach to develop and maintain the irrigation infrastructure
- l) Promote individual owner-ship development of the irrigation infrastructure through good policies



- m) Government should put in place all the relevant policies i.e. i) water for production, ii) land reforms iii) financing
- n) Develop adequate human resource capacity (upstream and downstream)
- o) Invest in machinery for production and processing
- p) Deploy adapted rice varieties for all ecologies
- q) Carry out continuous research and research infrastructure
- r) Invest in business support services

## APPENDIX 5: EXISTENCE AND WILLINGNESS OF PRODUCER ENTERPRISES TO ENTER INTO CONTRACTUAL AGREEMENTS

**Table 3.1: Producer entities willing to enter into contractual agreements with buyers**

Name Of Producer Entity	Location District	Members In Group	Women In The Group	Average Volumes Produced Annually (Kg/Acre)
Abendowaza Farmer Group,	Namutumba	30	14	2,500
Aketo Muanga,	Gulu	30	19	1,100
Amuru Joint Production and Marketing Group,	Amuru	330	114	1,000
Amuruzek Farmer Field School,	Amuru	30	16	
Bakusekamajja Farmer Group,	Namutumba	30	20	1,500
Balinedo Farmer Group,	Iganga	30	22	800
Bufutula Farmer Groups,	Iganga	50	30	1,500
Bukende Magezi Farmer Group,	Namutumba	38	18	1,000
Buyofa Farmer Group,	Namutumba	30	10	1,500
Can Mitodico Farmer Group,	Amuru	29	13	
Cinderibe Farmer Group,	Amuru	30	13	1,000
Gema Kumwino Farmer Group,	Iganga	30	25	500
Kamukamu Farmer Group,	Namutumba	22	7	800
Kwopirezek Women Group,	Amuru	28	22	600
Namagero Kyotasobola Farmer Group,	Namutumba	20	1	800
Namutumba District Farmers Association,	Namutumba	4,000	1,500	2,400
Nkaiza Rice Farmer Group,	Bugiri	15	2	2,500
Ntalinga Farmer Group,	Namutumba	30	14	1,500
Okwero Pwony,	Gulu	30	13	1,000
Ripe Aye Kilolonyo Farmer Group,	Gulu	20	8	
Sanyu Farmer Group	Iganga	70	50	1,200
Tukolere Walala Farmer Group.	Iganga	30	20	1,500

## APPENDIX 6: EXISTENCE AND WILLINGNESS OF TRADER AND PROCESSOR COMPANIES TO ENTER INTO CONTRACTUAL AGREEMENTS

**Table 4.1: Trader and processor Companies willing to enter into contractual agreements with their suppliers**

Company willing to formally engage suppliers	Location (District)	Volumes traded in 2011 (MT)	Projected volumes 2012 (MT)	Current Suppliers
Tilda	Bugiri	25,000	40,000	Farmers And Traders
Pearl Rice Ltd	Namutumba	2,000	20,000	Nucleus Estate, Out Growers
Pe Yero	Gulu	1,699	11,400	Farmers And Traders
Upland Rice Millers	Jinja	720	1,450	Farmers And Traders
Camtici Produce Dealers & Co Ltd	Gulu	100		
Cereleno Traders	Gulu	30	35	Open Markets
Cike Parwot Trader	Gulu	65	75	Open Markets
Jusiper Emina & Sons	Lira	280	350	Farmer Groups And Open Markets
Kaima & Brothers Wholesalers	Jinja	40	80	Middlemen
Kakare & Sons	Iganga	200	290	Open Market
Kwikiliza Traders Association	Namutumba	60		
Maganjo Grain Millers Ltd	Wakiso	200	330	Farmer Groups
NEK-IMWODI	Gulu	150	25	Open Market
Oceng Food supplies	Gulu	55	100	Middlemen And Processors
Odany & Sons Traders	Lira	310	400	Farmer Groups And Brokers
Opit Traders	Gulu	45	50	Farmer Groups And Open Markets
Tam Gin Ginmakonyi	Gulu	22	25	Individual Farmers
Tya Allah	Gulu	50	60	
Zion Agro Millers	Soroti	300	400	

## APPENDIX 7: CASE STUDIES OF OFF-TAKERS' WILLINGNESS TO FORMALLY ENGAGE THEIR SUPPLIERS

### Pearl Rice Ltd – Namutumba

Pearl Rice Ltd was incorporated in Uganda on 15th January 2009. The company registered under the companies act (cap 85) to handle the Rice production, milling, importation and retail business. Pearl Rice Ltd has embarked on growing of rice in Iganga, Bugiri and Namutumba Districts as the pilot scheme in the production and milling of rice in the country. Naigombwa Rice Irrigation Project is an investment venture for Pearl Rice (U) Ltd in partnership with the Government of Uganda under the Public Private sector Partnership Act. Its main purpose is the establishment of commercialised production of lowland rice (paddy rice) in Naigombwa wetland in Iganga district. Pearl Rice Ltd grows, mills, grades, packs and sells rice to the Uganda market, and is now in its third season. In addition to this, the company also imports rice and various merchandise for local consumption.

### Procurement and stocking

Pearl Rice Ltd is in touch with rice farmers and at the moment the company is procuring directly from the farmers. It is currently producing and trading in about 2 metric tones of rice annually. The company also has suppliers for the imported rice and the general merchandise from Dubai. Pearl rice has so far put about 1000 ha under rice production on the nucleus estate and is being supported by some out growers, who should boost the utilization capacity of the milling equipment from the current 30 - 40% to at least 60%. In order to achieve this, Pearl Rice Ltd is aiming to engage 10,000 households, who will cultivate about 3000ha of rice within the next 3 years. This land is already available to the out growers. The total rice production from both the nucleus and the out-grower scheme should reach nearly 60,000MT by the end of 2014, being sold locally and internationally.

### Channels of distribution

The company imports rice from Asia and stores it in warehouses. The rice grown from Iganga and Bugiri is collected stored and milled in a warehouse at Busembatya town along Tirinyi Road.

### Nature of the current linkage with suppliers

Previously, Pearl Rice Ltd leased land to rice farmers to cultivate rice and all the farmers were obliged to sell at least 50% of the rice to the company. Contracts were signed with the farmers to this effect. The company offered and still offers seed to the farmers on credit, sometimes assists in weeding and other practices on the farm, albeit on credit. However, after the harvesting, many of the farmers have not been honoring their

contracts. The company reported that only 40 – 50% of the expected produce/supply is supplied to the company while the rest is usually sold to other traders. Some farmers prefer to mill their own rice, which they then sell to the traders. These local mills produce about 50% to 60% of broken rice, with stones (unsorted). The price of this broken rice is UGX 2,200 – 2,400 per Kilo, compared to the price of less broken rice (10%-15%) which is sold at UGX 3,000 – 4,000 per kilo. The main reasons cited for this side selling and poor commitment to contracts were:

- a) The occasional higher prices offered by the traders. The company reported that these traders, especially new traders, always offer better prices to kill their competitor's market. Pearl Rice often struggles to offer such temporary high prices to farmers because the company will not break-even (especially having supplied inputs to the farmers on credit). Pearl Rice Ltd has however learnt to stick to its price offers and the farmers, after having been over-promised by some traders who do not deliver on their promises, find their way back to Pearl Rice Ltd.
- b) Some out-growers are reluctant to have the company deduct from their sales to the company, the costs of the inputs and any other services that were offered by the company. A few of the out-growers only return what is owed to the company, and sell the rest to traders.
- c) The unexplainable un-trustworthiness of the out-growers and their leaders. When a contract is signed, it is witnessed by the leadership of the farmer group and the LC Chairpersons, most of whom are also out-growers. These especially play the role of monitoring farmers' production and harvesting to ensure that rice is sold to the company. However, the company reported that many of the "trusted" leaders the ones who harvest their produce at night and sell it to other traders.
- d) Farmers do not seem to understand the value of working under formal agreements, and the benefits given to them. Most of them seem to be "short-sighted" in their dealings and do not consider the longer-term benefits of honoring such agreements

### Proposed Recommendations

Pearl Rice Ltd is still willing and ready to contract farmer groups as suppliers under the following terms;

- a) The company would still work through the leaders of the farmer groups and associations
- b) The leaders MUST understand how the outgrowing/ contract farming system works

- c) The leaders and farmers must understand the nature of the benefits and costs involved in working under such a system (especially the longer-term benefits like higher yields as a result of implementation of what they are trained to practice. For example, those that use the seed supplied by the company harvest up to twice the amount harvested by those that re-cycle their seed.
- d) Farmers must be taught how to be trust-worthy
- e) The leaders must understand how Pearl Rice operates, the kind of costs it incurs, the nature of targets it sets, and the impact of the lack of commitment to contracts by the farmers.
- f) With the target of expanding the out growers to a number that can cultivate upto 3000ha, and supply over 50% of the rice to the company, Pearl rice would need support to build the capacity of all these out-growers to practice good agricultural and post-harvest practices.

### Tilda – Bugiri District

Tilda Uganda is a multi-national company with sister companies in India, USA and UK. Tilda is involved in farming, processing, import, export, sales and distribution of rice in Uganda.

Tilda Uganda processes 50MT of milled rice per day and requires 40,000MT of paddy annually but is currently only accessing 25,000MT. Tilda processes 20% of total rice for the Ugandan domestic market. The demand supply gap is 15,000MT of paddy per annum. The company receives paddy from an estimated 2,000 individual farmers and about 50 agents who supply the company with 5,000MT of paddy per annum. The farmers and traders don't have contractual arrangements with the company but are considered regular suppliers by the company.

Major problems with the “loose” linkage between farmers and traders and Tilda include; supply of wet paddy by farmers and traders, supply of paddy mixed with foreign materials such as stones, dusts, leaves and other debris. It is not clear why the company does not have formal contractual arrangements with the individual farmers and traders who supply it with paddy regularly. The company is willing to enter formal contractual agreements with its suppliers of paddy on the following terms;

- a) Farmer groups must be well established and able to supply the minimum quantities of paddy required; 10MT and above. The higher the volumes the better.
- b) The paddy must be of the highest quality in terms of good milling quality, no debris and well dried.
- c) Price of the paddy is determined competitively depending on prevailing market prices. The company cannot give a contractual price.

- d) If the group could supply between 30 – 40MT, the company can negotiate on transportation of the paddy to the plant in Bugiri depending on how far the farmer group is from the plant.
- e) The group has to be willing to sometimes supply paddy on credit in case cash flow at the factory is not enough to pay cash for all the deliveries on spot.
- f) The farmers must supply mostly the lowland rice varieties, upland varieties are only demanded by Tilda when the lowland varieties are off season.
- g) The groups must be willing to be known by Tilda i.e how many members do they have, what acreage do they have collectively, where are they located, how far is it to the factory e.t.c.

NB: Before contracts are signed, there must be a kick-off session where the farmer group(s) meet with the management of Tilda to understand each other.

### Pe yero Rice Millers Co. Ltd (PYMC) – Gulu

Pe Yero Millers Co. Ltd (PYMC) is a legally established business which was incorporated in July 6th 2004. The company has recently acquired an ultra modern rice processing unit imported from China with a capacity to produce up to 2,500 tons per hour (60 tons per day). The mill is located at Kabalega Road Plot 2 Gulu District.

PYMC is engaged in the purchase and processing of rice grown mainly in Northern Uganda. Products and services provided include; the sale of wholesale rice, milling for third party enterprises and sale of rice husks and rice bran to enterprises using bio-diesel fuel and animal feeds.

PYMC is situated in Gulu district. It has the biggest modern rice-milling factory in the whole of the Northern region with a capacity of 60 tons of rice per day and is one of the top millers in the country. PYMC is private limited liability company registered on 6th July 2004. The company is owned by Ms. Harriet Aber. The company has an ultra modern rice processing unit imported from China with a capacity to produce up to 2.5 tons an hour. PYMC is currently engaged in the purchase and processing of rice grown mainly in Northern Uganda. Products and services provided include; the sale of wholesale rice under the company's name, milling for third party enterprises and sale of rice husks and rice bran to enterprises for use in bio-diesel fuel and animal feeds production.



### **PYMC's opportunity to formally engage its suppliers (farmers)**

Land availability in Gulu is an average of 4 acres per family and 18% of paddy is cultivated in this area. Major varieties of rice grown in this area are Sindano and Supa upland rice varieties. Investments in upland rice productivity have increased by 150% since the peace talks began in this previously war-torn region of Uganda.

PYMC has successfully marketed itself among traders and farmers in the Northern region for toll milling. Demand for the company's services has increased due to its technological advantage over other millers. The plan is to take advantage of the existing clientele to expand PYMC's operations. The Company is currently toll milling for the farmers and traders using 2 locally fabricated machines with a combined capacity of 11 tons per day. But recently, the company signed a contract with Akiba Foods to supply 100MT of rice per annum. Other existing clients include SWT tanner – Kampala, Namirembe Rice buyers - Kampala, schools, health centres and supermarkets, all of whose demands are on the increase.

### **Capacity needed by PYMC in order to effectively operate with higher volumes**

Rice is a seasonal crop with January to March being the high season during which PYMC mills over half of its annual rice volumes. During the second season (October to December) less rice is milled. June to August is the lowest milling season.

With the new 60 ton per day mill which the company has recently acquired, PMYC will need need its capacity build to acquire bigger volumes of paddy from farmers in the region. Because these farmers have to be paid in cash upon delivery, PMYC will have to access affordable working capital for this. This will also ensure that the company can buy in bulk during the seasons and still have plenty to mill and market throughout the year. This would lead to better prices which would translate to better incomes to the farmers.

In addition, because Peyero was previously only offering a milling service to the traders, now that it will start directly buying from farmers, its capacity to brand and package its milled/processed products will have to be enhanced.

In order to increase volumes supplied and quality assurance of this supply, the company will require support with formation of organized farmer groups or associations within the Rice growing areas, through forging partnerships with service providers, are already working with rural community groups.

### **Envisaged benefits**

If PYMC formally engages a substantial number of farmers as its suppliers, this could assure jobs both for the current 9 workers who are employed by the company, and the projected 23, employees within 3 – 5 years. Moreover, employee wages are projected to grow from Ush. 24,350 million to Ush 65,593 million in these years.

It should be noted that the percentage of women employees is expected to be higher than that of men since the cleaning and sorting processes will remain manual and these traditionally are tasks done by women.

Improved standard of living for the over 1,000 farmers in Northern Uganda who supply PYMC with paddy. Average income per smallholder farming household is expected to grow from UGX 680,000 to Ush. 1,200,000 in the 5th year of the project.

## APPENDIX 8: LIST OF PARTICIPANTS IN THE RICE VALIDATION WORKSHOP

### List of Participants – Rice Stakeholders

	NAMES	ORGANIZATION	ADDRESS	TELEPHONE	EMAIL
1	Moses Waiswa	Org: BUMUFAS Position: Chairperson	BUBAGO – NAMUTUMBA DISTRICT	+256 782 978445	waiswamosesrobert@gmail.com
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3	Paul Laboke	Org: MAAIF Position: Senior Agriculture Officer	Legacy Tower, Kyadondo Road, MAAIF P.O.BOX 456718, Kampala	+256 772 669 451	plaboke@yahoo.com
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5	Wilson Kwamya	Org: UNDP Position: Team Leader	P.O. Box 7184 Kampala	+256 772744186 / 772 510839	Wilson.kwamya@undp.org
6	Alphonse Candia	Org: NARO Position: Research Officer	P.O. Box 7065, Kampala	+256 772328519	hugoscand@yahoo.com
7	Lucy Asiimwe	Org: PRICON Position: BDM	Fortportal	+256 774536061	Smw-lucy@yahoo.com; smwlucy@gmail.com
8	Patrick Opobo	Org: Acholi Private Sector Position: FAM	APSEDEC	+256 782 525 228	Opobo2003@yahoo.co.uk
9	Moses Muwanguzi	Org: Idhatujje Agencies Ltd Position: Managing Director	P.O. BOX 152, Bugiri	+256 392 301454/ 702 726706	idhatujje@gmail.com
10	Nelson Kyagera	Org: EPSEDEC Position: Chief Executive Officer	P.O. BOX 306, Mbale	256 772619706	Kyagera2000@yahoo.com
11	Godfrey Katwere	Org: NASECO 1996 Position: Marketing Manager	P.O. BOX 25416, Kampala	+256 776618007	nasecoseeds@yahoo.com
12	Deo Twinomuhangi	Org: APROCEC Position: Chief Executive Officer	P.O. BOX 322 Bushenyi	+256 772463443	twinomuhangid@yahoo.com
13	Brenda Anyango	Org: UDET Position: Program Officer	P.O. BOX 7713 Kampala	+256 752598117	brendak@udet.co.ug
14	Stephen Kirunda	Org: Namutumba Self Help Farmers Association Position: Manager	Namutumba Town Council P.O. BOX 53 Busembatia	+256 772/753-857750	joshuamagoola@gmail.com

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**“At trading level, local traders (popularly known as middlemen and/or assemblers) purchase rice from individual farmers and farmer groups”**

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*Empowered lives.  
Resilient nations.*

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