

Rice Value Chain Report

1.0 INTRODUCTION

1.1 Value chain definition

The agricultural commodity value chain concept has been used since the beginning of the millennium, primarily by those working in agricultural development in developing countries. Although there is no universally accepted definition of the term, it normally refers to the whole range of goods and services necessary for an agricultural product to move from the farm to the final customer or consumer.

At the heart of the agricultural commodity value chain concept is the idea of actors connected along a chain producing and delivering goods to consumers through a sequence of activities. However, this “vertical” chain cannot function in isolation and an important aspect of the value chain approach is that it also considers “horizontal” impacts on the chain, such as input and finance provision, extension support and the general enabling environment. The approach has been found useful, particularly by development actors, in that it has resulted in a consideration of all those factors impacting on the ability of farmers to access markets profitably, leading to a broader range of chain interventions. It is used both for upgrading existing chains and for development actors to identify market opportunities for small farmers

1.2 Contexts of the Rice value chain

Value Chains are found at the core of high-impact and sustainable initiatives focused on improving productivity, competitiveness, entrepreneurship, and Small-Medium Enterprises (SME) growth. Value Chain approaches are revolutionizing agriculture and the food industry. Focus has shifted from agricultural production to consumer demand, marketing and the coordination of product flows from producers to consumers. The Value Chain concept acknowledges that production must be linked to demand and the critical role of organizing the flow from farmer to consumer opportunities.

Since the introduction of upland rice in 2002, the number of farmers deriving livelihood from rice farming has increased from 4,000 to over 96,000 farmers in less than 10 years (Ngambeki *et al.*, 2010 and MAAIF, 2012). In 2011, the harvested area for rice in Uganda was about 90,000 hectares producing a total of about 233,000 MTs (UBOS, 2012).

Rice is one of the emerging food and cash crops in Uganda. Demand for rice exceeds its production locally thus importing. Like other Organisations EADEN identified Rice as a critical crop that needs attention for local development. Thus need to Identify its major constraints and growth opportunities.

Rice is a steadily emerging crop in eastern Uganda. Two types of rice are grown in eastern Uganda a) Lowland or wetland rice (about 60%) b) Upland rice (about 40%)

- Smallholder producers
 - Independent rice producers
 - Out growers who scattered in the swamps and uplands of the districts of Tororo, Mbale, Bugiri, Luwuka and Iganga
- Large-scale producers
 - Kibimba (Now Tilda Uganda Limited) in Bugiri
 - Doho in Tororo

1.3 Study purpose and objectives

To undertake a comprehensive study and value chain analysis by EADEN for Coffee, Cassava, Rice and Maize in the districts of Tororo, Mbale, Bugiri, Luwuka and Iganga and come up with practical recommendations.

2.0 METHODOLOGY

2.1 Study Scope and Coverage

This study was conducted between December 2014 and February 2015. Four value chains were analysed: that of maize, rice, cassava, coffee, in the-regions of eastern Uganda and Busoga. The Value Chain Analysis is based on the case studies undertaken with specific stakeholders within the value chain especially cooperative societies visited specifically in Eastern Uganda in the districts of Mbale, Tororo, Luwuka, Bugiri, Iganga that work closely with EADEN. In this particular report, emphasis has been put on rice .

2.2 Study methods and tools

A value chain analysis was done for each of the following four crop commodities: maize, rice, cassava and coffee. This included mapping of the value chains, detailed descriptions of the main actors involved in the value chains (from farmers to end consumers) and lastly, analysis of how the value is distributed across the different actors. The methodology involved collection of information and documentary review of secondary literature, collection of primary information from the field through focus group discussions and semi structured interviews using purposive sampling. The study focused quite closely on the cooperative societies EADEN works with. Lastly, data was compiled and analyzed to generate gross margins obtained by different actors along the value chains.

3.0 General Findings

Most farmers were smallholders cultivating a wide range of crops for household consumption and food security purposes, which is prominent in the districts of Luwuka, Iganga, Tororo, Mbale and Bugiri especially for marketing purposes. Part of the farmers land is also utilized for growing crops that are later sold on the market and generate revenues for farmers. This study focused on the latter group of crops, known as “cash crops”.

All value chains were similar particularly at the upstream stages of the chain, right after harvest. Once farmers harvested their crops, they either sold directly at the farm gate level or dried especially rice processed to remove the husks for home use and for selling to retailers, middlemen and big stores in big towns such as Mbale. The uniqueness on rice is that whether for home use or for sale, it has to through the hands of processors. Selling at farm gate level was not preferred by farmers but was often done out of necessity (e.g. immediate need for cash) or simply due to very limited access to markets (e.g. no means of transportation).

Farmer bargaining power was diminished and the selling prices of their crops were often very low. Another marketing strategy as earlier mentioned was to sell under cooperative societies in those districts under study.

The local traders were farmers' first link to the market. These local traders at times through use of agents travel to remote and difficult to access areas to collect harvests from farm gates, collection points (storage facilities) and small rural markets until they accumulate a sufficient quantity e.g. one or more truckloads.

Subsequently, local traders transport the commodity to Rice processing units located in the vicinity for processing where it is sold to processors who are often exporters to regional markets including in east Africa.

The final market destination differs according to crop type; some of which are destined for export markets. Crops that need secondary processing like rice, and have slightly different value chains, Processors have a central role to play in these value chains and are usually located in urban trading centres such as Mbale and Tororo and even other parts like Kampala. Most of the time even the processing centres serve as marketing centers where sellers and buyers meet: local traders deliver the crop and sell it directly to wholesalers while processors take a fee for processing the crop commodity. Farmers also bring their crop directly to processors and thus directly bear the transport cost.

4.0 THE FINDINGS

4.1 Structure of the findings

The findings are structured based on the levels of production, processing, marketing and consumption.

5.0 PRODUCTION

5.1 Production actors and players

Farmers, input dealers, research institutes such as the National Crop Resources Research Institute and support organizations such as EADEN that have supported farmers with inputs are some of the players in the coffee value chain. Then we have NAADS as a government arm supposed to provide seedlings and technical extension services.

Rice is a steadily emerging crop in eastern Uganda

- Two types of rice grown
 - Lowland or wetland rice (about 60%)
 - Upland rice (about 40%)
- Smallholder producers
 - Independent
 - Out growers

Small scale farmers with less than 0.4 ha sell their unhulled rice to either rural traders or agents who collect it from their farms. Rural farmers with large holdings transport the rice to millers and mill it prior to actual sale. This is common in Eastern Uganda.

- Large-scale producers
 - Kibimba (Now Tilda Uganda Limited) in Bugiri
 - Doho in Tororo

5.2 Production capacities

Uganda produces mainly three varieties of the New Rice for Africa (NERICA), namely NERICA 1, 4 and 10. NERICA 4 is popularly known as Upland rice. A variety known as NERIC 3 which is not only high yielding, producing yields of 1,250 to 1,500 kg/acre but also early maturing (90 to 110 days) has been developed by local breeders. Normally, local varieties take more than 120 days to mature with yields hardly about 800 kg/acre. In addition, NERIC 3 which has an attractive aroma, is less susceptible to birds, and yields heavier grains (MAAIF, 2008). The wastage is also less than 25% compared to 40% for the local varieties. As a result of the upsurge in Upland rice growing, Uganda's total area under rice cultivation is now threefold (180,000 ha) of what it was 10 years ago (60,000 ha).

5.3 Production systems

Upland rice yields can be as high as 2,000 kg/acre and the few farmers who have taken it up in the area have experienced very good results. However, it is important to note that even the yields of Upland rice could decline if the farmers do not pay attention to good agronomic practices including the application of fertilizers

5.4 Opportunities

Some of the opportunities for rice production include favorable climate, Rich and fertile soils, presence of good and improved rice seedlings mainly from the NAADS and other related programs, cheap and abundant labour. Fairly good rural feeder road network and the presence of many actors in the liberalized industry mainly the private sector. In fact rice growing here was described as a low cost input venture requiring minimal external inputs.

High quality processing unit are available even at local level, Market for coffee exports, High returns and growth of the company, Transfer of entrepreneurial skills to farmers, Growth of membership base from the current 17, Growth and expansion of the company, Improved household incomes for farmers and Improved skills and production

5.5 Challenges and constraints

One of the key constraints in rice production include Lack of capital to scale up production

- Limited use of improved technologies
- Notorious weeds such as red rice
- Vermin, birds and rodents
- Limited market information among primary producers
- NEMA restrictions on farmers use of wetlands, because most of the rice in areas were EADEN operates such as Mbale, Iganga and Bugiri is grown in wetlands and even the big rice schemes like Tilda grow rice in wetlands.

However some of the challenges are attributed to a dysfunctional extension and advisory services, which EADEN is trying to offset with its initiatives. Although NAADS is present in the region and was reported as one of the key actors in the rice value chain, their staff concentrates on only selected crop enterprises leaving the rest of the crops unattended to. NGOs in the area have attempted to bridge this gap but have worked with only crops of their choice and often focus on postharvest handling and marketing aspects, leaving out production

Other constraints at the farmer level are limited access to and high cost of finance, progressively smaller average farm sizes, Low levels of farmer organization, Low Yields at farm level, Ageing trees (and farmers), High cost of farm inputs and very limited usage of inputs, and very limited access to on-farm extension services.

High post-harvest losses, especially using the crude methods of drying and removing the husks and using old crop rather than good rice seeds, lack of modern storage facilities, high bank lending rates, and poor market access roads among others.

Poor crop protection practices that has resulted into a high disease and pest burdens and lastly fluctuating prices yet labor intensive crop which discourage farmers from growing it.

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Farmers face great difficulty accessing rice seeds in terms of quantity and quality because of availability limitations. Production is also limited by a lack of capital and access to rural credit; the majority of farmers lack access to formal financial services. When farmers manage to contract a loan, the interest rates are high, around 20- 35% per year. Another option is to get affiliation to a co-operative or similar group where they can get access to group loans via SACCO schemes. Donors and other aid projects for agriculture also often prefer to lend to co-operatives and similar farmer groups. Commercial bank lending rates in November 2012 were about 24% while SACCOs seem to lend amount in the range of up to 10% per annum.

Other factors affecting yields include: use of rudimentary tools and equipment (e.g. hand hoe); farmers' lack of agronomic knowledge; incidence of pests, weeds, vermin and diseases. Some areas are affected by soil exhaustion; most of these lands were previously occupied and over cultivated. Weather is also a crucial issue, with rainfall patterns becoming more and more unpredictable for farmers.

Fluctuating prices

Rice especially upland is a crop that has been grown seasonally during the rainy seasons of Mid-February or March to June, and second rains from Mid-August to December. As a result, the prices fluctuate significantly with low prices just after the

traditional harvest season and high prices during “off seasons”. These fluctuating prices are also a result of market inefficiencies where there is lack of information on more suitable prices (for example export markets especially the dried one).

2. Drought

Climate change has resulted in less than predictable rains, even in Uganda which has traditionally had known seasons.

3. Access to financing

The cost of agriculture capital equipment like threshers, water reservoir, ploughs and tractors is high. In addition as maize takes about 3 months to mature, it means for at least that time the farmer will have to finance the crop growth without any expected income.

It is however pretty difficult to get agriculture loans in Uganda (well not just agriculture but credit in general) but hopefully with the WRS mentioned above, it should be easier for the farmer to use their produce as security for a loan. Furthermore there are some organizations that are increasingly seeking to help the agriculture sector.

We would recommend that in order for the farmer to have higher chances of accessing loans, they keep records of their agriculture produce to show that they do not have high incidences of crop failure (which is one of the factors that makes the sector high risk to lend to).

6.0 PROCESSING/VALUE ADDITION

5.1 Processing actors and players

Mills are located in trading centres of the main rice growing districts such as Mbale, Bugiri and Iganga. However, the major rice schemes at Olweny, Doho and Kibimba (now Tilda Uganda Limited) have milling plants and are key actors in the chain. By 2001, Uganda had over 150 rice mills with an average milling capacity of one tonne per

hour, working 8 hours a day for 220 days per year. The total rice milling capacity is therefore 264,000 metric tonnes per year, roughly 2.5 times the volume of rice produced.

Mills at times act as marketing centres where farmers/rural traders, millers and urban traders conclude deals at this stage. Hulled rice is assembled and sold by large scale farmers, rural traders and processors to the urban traders. Large scale farmers often absorb transport costs to milling centres and pay for milling charges prior to selling the rice.

- Rice processing starts at the harvesting level where there is:
 - Winnowing
 - Drying
 - Milling / Hulling
- Small Rice mills are dominant and are mainly located in trading centres
- Large milling plants are at rice schemes
- Existence of overcapacity in milling
- Mills act as marketing centres

5.2 Processing capacities

Processing capacities of coffee is still monopolized by a few rich people who can own processing facilities and then cooperative enterprises such as Gumutindo and may be Bugishu Cooperative societies who even export to outside markets.

Constraints in rice processing

Some of the constraints as pointed out by key informants include

- Seasonality in supply of un-milled rice
- Lack of grading equipment and standards
- High costs of collection of un-hulled rice
- Inadequate storage facilities
- Erratic power supply

- High Cost of electricity to run processing machines / equipment
- High bank interest rates ranging from 18-25% p.a.)
- High costs of processing equipment
- Processing of wet coffee again reduces quality,
- Poor infrastructure especially the roads in most rural
- Processing stops at selling coffee beans
- Traceability of coffee from farm to final product say Nescafe
- Government policies in agriculture
- Failure of cooperatives

7.0 TRADING/MARKETING

7.1 Trading actors and players

Urban traders are key actors in the marketing of rice primarily wholesalers and exporters who either purchase hulled rice from the millers and farmers and export to other countries. These are prominent in most towns in eastern Uganda. Urban traders are mainly based in Kampala with a few of them living in other centres. Actual purchase of rice may also be accompanied by cleaning, consolidation and bulking. Key actors in the value chain are big supermarkets such as Tuskys, Uchumi, Nakumatt, Shoprites, Capital Shoppers, can be good outlets for farmers to sell their rice.

- Village Brokers / vendors
- Urban traders
 - Wholesalers
 - Importers
- Purchase hulled rice from millers and farmers
- Import it from other countries : Kenya / Tanzania / Pakistan
- Tilda exports rice to regional markets

Challenges at marketing level

Some of the challenges at marketing level are highlighted below;

- Limited access to affordable credit facilities
- Lack of grading equipment and uniform standards ;
- Affecting prices
- Consumer satisfaction
- High costs of collection of un-hulled rice; transportation
- Storage risks; Theft, fire, mould
- Losses which result from market (price) fluctuations, foreign exchange variations, and failure by traders advanced money to meet their obligations.
- Adulteration of rice e.g. some traders mix rice brands, addition of extraneous materials such as sand/pebbles and metal chippings
- Competition amongst the rice buyers/processors which has led to unethical practices such as buying low grade rice in order to meet the demand obligations, mixing of rice with extraneous materials including rejected rice and white sand. This leads to low quality rice and loss of premium prices and hence loss of business.

Others are: high cost of finance / credit; Insufficient volumes of coffee to generate sufficient profits; Frequent defaults on deliveries; Exchange rate volatility; Lack of access to hedging tools and price risk management knowledge and, finally, for bigger firms, difficulties securing sufficient volumes of high quality rice.

Competition: there are several plants both in the towns and, lately, in the rural areas following the extension of electricity there even in small towns in eastern Uganda. Hulling rice that is not properly dried, Machine break downs, Power outages and transformer breakdowns, Lack of skilled manpower to maintain the plants and Irregular supply of rice are some of the challenges processors in the districts under study face

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Transportation

- Rice companies have company lorries or hired private ones to transport the rice from the farmers to processing plant for the cleaning, drying and packing centres before the rice is either processed or exported.
- It was reported that rice transporters relied mainly on their own capital to finance the coffee transportation business. Due to this reason the transporters pass on this cost to their customers through the prices.
- Rice transporters face a number of challenges such as break down of the lorries which necessitated loading and offloading and exposing the rice in transit to insecurity and theft. As a coping mechanism the rice transporters respond to these challenges by using mechanically sound lorries, cutting the price to attract customers and escorting the coffee to the final buyers and exporter.
- Rice transporters reported that they have to ensure quality of rice so that the quality is not lowered by re-wetting of rice during transportation e.g. by rain.

Marketing constraints faced by producers (farmers)

Financial constraints that manifest themselves in form of; inadequate financial resources for investment, too high interest rates on borrowed funds, unfavorable terms of borrowing usually a grace period of one month. Most farmers depend on own savings (77%), family or personal friends (23 %) to engage in their farming activities. When borrowing is done under prevailing terms provided (loan repayment period of 6 months and grace period of 1 month) by commercial banks and micro-finance institutions, farmers' properties have often been sold. One farmer observed that: *"borrowing these days is a recipe for loss of my property and am not ready for that."* small scale farmers require financial assistance to buy farm inputs- seeds and fertilizers; storage/safety houses; purchase of harvesting materials; land preparation

weeding; guarding the gardens during the ripening of rice, drying , training and transport.

Limited participation of farmers in the marketing chain. - Transactions are dominated by spot markets, lack of trust and opportunism, with very few contracts or long-term business relationships. This situation breeds speculation and opportunism, leading to distortions and loss of interest on the part of the producers.

Lack of information on market requirements; quality, volumes, prices and location has resulted in quality ignorance among the farmers and sometimes sustained an attitude of 'impatience' or hasty sales reducing the quality of farm gate produce put on the market and ultimately their incomes. The main source of information for the farmers are the middle men and may big companies such as Tilda.

Limited skills and knowledge of improved agricultural technologies resulting in a slow rate of technology adoption, high post harvest losses, poor quality products and generally low production levels. The poor harvesting practices are attributed to ignorance and sometimes "greed for money' that reduces the quality of output which reduces the price bargaining power of farmers and ultimately their incomes. Agricultural extension services are not readily accessible to the farmers.

Inefficient and costly transport systems. Roads at all levels in production areas are impassable especially considering a lot of rice is grown in wetlands leading to isolation of farmers in the rural areas. Modern transport methods do no work in these rural areas making accessibility to markets impossible.

Trading levels and systems

Rural agents mostly planted by big buyers are the main buyers of all coffee traded in the sub-counties (smaller administrative units in the districts). Their main function is to buy and/or assemble rice from the numerous scattered farmers, often located in

inaccessible rural areas. They find market for the rice (often the urban traders and processors) when they have accumulated sufficient quantities. The urban traders and processors arrange transport to collect the coffee either directly from the farmers whom they pay on a cash basis, or from the collection points/stores of the agents. Since the agents live in the rural areas, they are a reliable linkage between the farmers and urban traders and processors/millers.

Urban traders are found in major urban centers in producing districts. Their main activities include networking with rural agents, serving as a market outlet for farmers, and collecting coffee before selling it to the various clients, including processors, located in the districts. Urban traders are also sources of bagging materials (sacks) used by farmers as well as market information in their areas of operation.

Marketing constraints of Traders and processors

Poor transport networks, limited communication infrastructure increase transaction costs for bulking affecting profit margins and the prices given to farmers by traders. Poor storage facilities reduces the quality and undermines faster bulking and consolidation of surplus in the supply chain. This was pointed by the staff of cooperatives interviewed.

Lack of valid and reliable market information and requirements. Traders rely on radio and newspaper news and commentaries for market information. Such information is often inaccurate, not targeted, not update and usually has no information about exports.

Limited business skills and competences. The key areas where shortages were highest are: knowledge of premiums available for better quality; regional/international quality standards; knowledge of improved packaging options; current international prices and markets, sources of finance, and knowledge of better/improved technologies

for use. The others which were also severely in short supply were: knowledge of value-adding and (further) processing opportunities and business planning.

Limited knowledge by traders about market requirements/specifications has resulted in the mixing of crops from different locations and grades, which further reduces quality. The lack of knowledge of premiums for better quality has resulted in the failure to pay premium prices for quality produce, which demotivates farmers in their efforts to improve produce quality. Quite often rice is dried on the ground where it gets mixed with sand.

Limited knowledge of technology options by processors has resulted in a slow rate at which new technology is adopted which in turn has limited processing efficiency and the production of new and improved products.

High trade taxes, fees and dues all along the produce marketing chain. Currently traders face a minimum of six taxes, fees and dues in the process of transporting and marketing rice to the main buyers in Kampala. These include: License tax, Weighing scale fee, income tax, loading fees, produce tax and different types of product tax.

Unreliable and costly Hydro-electric power (HEP) and there are no alternative energy options. Energy costs accounted for up to 73percent of milling costs in 2002 (PSFU, 2002). By 2006, all indications are that this proportion has increased further to over 85percent following the general increase in energy prices countrywide. Energy is a very significant consideration in the profitability of a milling business. Recent tariff hikes have hit the milling industry particularly hard, resulting in some wholly or partial closures. Although tariffs are high, poor energy efficiency of machines and operations tend to expound this particular problem.

Inadequate enforcement of quality standards, weights and measures and lack of premium prices has undermined crop quality improvements in the supply chain and the

failure to enforce quality standards by government designated institutions such as Uganda Bureau of Standards.

8.0 SUPPLY CHAIN INTERACTORS

8.1 Actors interactions

There are two areas for continued work to help redress the supply issue especially on the part of farmers. First, it has been identified that improvements in good agricultural practices could lead to relatively short-term increases in yields on smallholder farms. Therefore support needs to continue to assist farmers in improving their yields.

Changes in the informal supply environment have accompanied changes in the broader industry. The entry of large, private, companies in coffee growing calls for informal suppliers to consolidate and formalize, the way EADEN is doing it. To meet supply requirements arising from changing demands, rice buyers shall often prefer to source through lead farmers or farmer cooperatives as opposed directly from individual farmers. When sourcing directly from farmers, processors have little quality control, face uncertainties in supply and price, and lose the ability to trace products (which consumers especially those in developing countries increasingly demand). The following actors therefore need to work together in the supply chain with the help of EADEN and other actors to maintain quality supply

- Processors and manufacturers (like Tilda and Doho and those based in Mbale, Jinja and other bigger towns)
- Input suppliers who produce and supply fertilizer, seeds, pesticide, irrigation equipment, and farm machinery (especially those that are based were EADEN operates).
- Producers/farmers that are organized in cooperative societies such as
- Other intermediaries in a supply chain that connect processors to producers (e.g Rural agents).
- NAADS that provide technical support

8.2 Institutional interactions

There is need for organizations supporting farmers such as EADEN to interact with finance institutions to agree on a moderate interest rate for farmers, Uganda consumers associations to understand the needs of consumers. Also organizations providing market information such as FIT, input dealers like UNADA, and then government institutions and frameworks such as NAADS that provide extension support and policy direction are key players in the value chain to ensure better returns to the farmers.

8.3 Policy and legal frame works

A Rice Production and Marketing Enhancement (RPM) Program” has been developed under the national Rice Development Strategy (NRDS) which EADEN can take advantage of to promote rice growing through its partners in Eastern Uganda . It will be implemented over the next 5 years. The RPM program will contribute to the DSIP development objective of increasing household food and nutrition security and income through increased production and marketing of high quality rice. Specific objectives are to: a) increase rice production and productivity through provision of improved seed, fertilizers, mechanization, and extension services; b) reduce rice post-harvest losses by promotion and distribution of appropriate post-harvest technologies; c) increase access to credit by rice farmers, traders and processors through the provision of agricultural finance; d) enhance the marketing of rice by promotion of collective marketing of high quality rice; and e) support the establishment of a rice technology and policy platform for the rice sub-sector development.

8.4 Cost analysis and profitability

The investment in the growing of Rice in eastern Uganda entails having land- owned , which is somewhat wetlands especially if one is growing paddy rice, rice seeds, farm labor and at times other inputs such as fertilizers. Depending on the cost of investment is what will determine the profit.

Profitability depends on the rice variety and management practices on the farm

- Iganga Farmers:
 - ▣ UCOP = Ush 600/kg
 - ▣ FGP = Ushs 700
 - ▣ Approximate profit = Ush 30,000/acre
- USAID study: (Dec 2012)
 - ▣ UCOP varied from US\$ 400-750/kg – Upland rice

Profitability of lowland rice (K5 Variety) farmers in Iganga District was computed as shown in the crop budget below (Table 6). To obtain average profit the following assumptions were made following informal interviews with farmers and millers:

Rice takes 7 months to produce, starting from the time of land preparation to marketing stage. Average yields of 10 bags (1000 kg) are obtained.

- Rice is sold as soon as it is dried and farmers usually sell milled rice.
 - Rice by-products do not have any value.
 - Conversion rate of unmilled to milled rice is 70%.
 - Average selling price of milled rice is US\$ 700/kg.
 - Hired labor includes ploughing and bird scaring costs, totaling US\$ 120,000.
 - Family labor includes planting, weeding, harvesting, and drying, totaling US\$ 185,000.
 - Machinery requirements include:
 - o 2 hoes, each at US\$ 7000, totaling US\$ 14,000.
 - o 2 sickles, each at US\$ 5,000, totaling US\$ 10,000.
 - o Total cost of machinery is US\$ 24,000. However, these items can last for 3 years, and thus, US\$ 5,000/year is used.
- Most Farmers own land.

9.0 OPPORTUNITIES

9.1 Opportunities at production

- There is a large number of actors and hence competition which can ensure better prices for the farmers, almost all the farmers in eastern Uganda can grow rice.
- Willingness of the widely spread financial institutions to extend banking services and loans to the rice buyers;
- Availability of a fair supply of rice
- Support from development partners.

Longer-term opportunities for rice-based products have been identified in sectors such as making rice for human consumption.

- Local consumption is steady especially for super markets and other retail outlets all over the country where customers can get rice for home consumption
- Export market is growing especially the regional market. Kenya being the neighboring country to the east a lot of maize can be sold there
- Improvements in agro input supply standards
- Growing urbanization and consumer population
- Growing local industry (
- Expert support for example SIDA is blessed to have a retired extension worker from Serere Agricultural center who has been very helpful to the association.

1. Free or cheap Technical support

Considering that rice is one of the key food and now cash crops in Uganda, there is a significant amount of technical support available right from research institutions such as NARO, NAADS government programmes as well as NGO support. We would however recommend if possible identifying a suitable technical officer who is readily available to advise the farmers on aspects like pests and diseases, soil fertility et al.

We recommend that the farmer get more organized and affiliate themselves as in addition to the technical support, they could get access to get cheap credit (or a grant).

3. Good Return on Investment (ROI)

Some rice varieties are more profitable like paddy rice. If well maintained can be more profitable. So farmers can be encouraged by EADEN to take up such and maintain the gardens well..

9.2 Opportunities at processing

The opportunities at processing; High quality processing units, Market for rice exports, High returns and growth to companies involved, Transfer of entrepreneurial skills to farmers, Improved household incomes for farmers, Improved skills and production
Futher still demand for Rice is on the increase; locally and internationally, Financial institutions are beginning to prioritize rice trade as a safe business, New varieties are being introduced to Uganda and technology in processing is improving and beginning to be accessible

9.3 Opportunities at trading/Marketing

- Uganda produces what is generally considered by the market one of the best rice like 'Kaiso' with a good scent, supper which is even sold to local traders in towns like Mbale, Soroti, Busembatya, Iganga and others
- The farm gate price covers both farmers' costs and his/her profits. Though it may not be satisfactory
- Farmers have the potential to double their incomes if they improved on production and handling practices
- Value addition opportunities
- Global marketing with Government support

10.0 CONCLUSION AND WAYFORWARD

10.1 Conclusion

Rice has a great potential for expansion as a cash crop in the districts of Luwuka, Bugiri, Mbale, Tororo and Iganga since the soil is most fertile, improved varieties such as paddy rice are available, and its production is profitable and there is ready market for it. The rice market is open and there is an expanding demand for the crop in urban areas and the region.

EADEN could continue providing Training, Provision of pesticides and hand pumps, Market linkages, Processing equipments for value addition, Formation of more cooperative societies and Provision of transport facilities

Some of the recommendations given by the key informants talked to for the rice value chain as way forward include Adequate supply of seedlings, Advocacy and market linkage, Continued partnership with EADEN, Provision of storage facilities, Provision of drying racks, Training in agronomic practices and post harvest handling, Processing plant for value addition

Other recommendations include;

-Proper post harvesting technologies and practices are necessary for the improvement of rice quality. This should be promoted among all stakeholders namely farmers, millers and traders. This would enable the payment of higher prices and the realization of better incomes for all value chain participants.

-Given the increasing importance of rice as a cash crop in Uganda and the region, and its role in poverty alleviation, the promotion of upland varieties is an important step in getting alternative sources of income for farmers and a saving to Uganda's wetlands.

-To reduce milling losses and increase quality of rice output, the private sector should be encouraged and supported by government to adopt modern rice milling methods. There has been a proliferation of small mills, producing milled rice without destining and proper dust removal.

-The crop should continue to be among the priority crops in the country in terms of research funding.

-Owing to its increasing importance, rice need to be regarded as one of the priority crops in the country in terms of research funding. Research aimed at generating short maturity period upland rice varieties by NARO in collaboration with other stakeholders.

-Improvement of the feeder roads in rural areas and in urban areas to ease access to suppliers and markets, Increased multiplication of improved coffee varieties by NARO coupled with robust extension and advisory services from NAADs would boost production .The government should consider subsidizing electricity to encourage more ventures in to value addition of coffee including processing in to high quality coffee products.

Other Recommendations

- Lowering prices for milling and offering the best customer care to ensure they out compete each other
- Plants employ resident engineers to ensure the breakdowns are fixed as fast as possible.
- Drying rice before processing on bare ground, cemented floor or tarpaulins be it green or even Fair Average Quality.
- Advancing cash to the suppliers
- Delivering on contracts in time and honestly – e.g. in the use of good scales.
- Reducing costs of operation by keeping salaries of workers low but nevertheless paying them promptly on time and ensuring the workers were well motivated by matching workers' jobs with their abilities.

10.2 Way forward for EADEN and partners

In an effort to improve the competitiveness of rice produced in Eastern Uganda, and destined for both local and export markets, EADEN and organizations supporting farmers there like Africa 2000, VEDCO, Action Aid should enhance/facilitate collaboration with all the actors from the farm to the last consumer to develop specific commodity value chains further. The overall objective of such a programme would be to identify and remove all major constraints to achieving competitiveness, and to also ensure equitable returns for producer cooperatives that EADEN works with and those who operate within the local and export food distribution systems. The system can cover two phases, starting with technical analysis and support to rice farmers, processors, nursery owners and other input dealers, and followed by an action-oriented dialogue phase wherein chain stakeholders seek to arrive at agreed strategies for implementation.

EADEN and farmer support organizations should continue organizing training programs to enable smallholders to develop more effective marketing strategies and to negotiate more effectively with traders, in order to raise the prices that they receive for their rice.

EADEN and farmer support organisations should advocate for increased public investment in, rice processing technologies, storage road, rail, and port infrastructure to reduce marketing costs as well as the cost of modern inputs such as fertilizer to the farm gate. Rehabilitating the Ugandan railway system would be a key priority.

There is a need to have a definitive national rice policy document that guides the strategy for the industry in Uganda in which the roles of the private and public actors in the sector are clearly set out; and all industry strategies are developed with a focus of fulfilling the set policy objectives which EADEN can advocate for.