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Assessing the impact of Gikonko Joint Venture Farming on rice famer's income and access to market. Case of UCORIBU farmers, 2011-2015

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Huye, July 2016

DECLARATION

I, **Clarisse NSHIMIYIMANA**, hereby declare that this thesis entitled "Assessing the impact of Gikonko Joint Venture farming on farmer's income and access to market. Case of UCORIBU farmers". Is the results of my own original work .This thesis has not otherwise been submitted to any other University for consideration.

Name of the student: Clarisse NSHIMIYIMANA

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CERTIFICATE

This is to certify that this thesis entitled ‘’**Assessing the impact of Gikonko Joint venture farming on farmers’ income and access to market. Case of UCORIBU farmers, 2011-2015**” is a work done by Mrs. Clarisse NSHIMIYIMANA under my supervision. I confirm that this is an original work done by her, and has never been submitted to any other institution for the sake of any degree or award.

Supervisor: Dr.Celestin MUSEKURA

Signature: ……..

Date: …….

DEDICATION

To the Almighty God.

To my husband,

To my Children

To my sisters, relatives, friends and colleagues,

And to the memory of my late parents.

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LIST OF ABBREVIATIONS AND ACRONYMS

%:	Percentage
COCOBOD:	Cocoa Board (Ghana)
CPA:	Community Property Association
FAO:	Food and Agricultural Organization of the United Nations
Frw :	Rwanda Franc
FUCORIRWA :	Fédération des Union des Coopératives de Riz au Rwanda
GDP:	Gross Domestic Product
Hr:	Hour
ICM:	Inter City Mills Rwanda Ltd.
ISAR:	Rwanda Institute of Agricultural Sciences
JVF:	Joint Venture Farming
Kg:	Kilogram
MINAGRI:	Ministry of Agricultural and Animal Resources
MINECIFIN:	Ministry of Finance and Economic Planning
MINICOM:	Ministry of Commerce and industries
NGOs:	Non -Governmental Organizations
NISR:	National Institute of Statistics of Rwanda
RBS :	Rwanda Bureau of Standards
$:	Dollar
SPSS:	Statistical Package for social sciences

T :	Ton
UNDP:	United Nations Development Program
USA:	United State of America
USD:	United States Dollar(s)

ABSTRACT

This study assess the impact of joint venture farming on farmers' incomes and market access in Rwanda by using a case study of UCIBU (Union of rice cooperatives owner of 40% of Gikonko Rice Limited acquired through joint venture partnership with ICM owner of the remaining 60% of the factory). The study uses secondary data from UCORIBU and primary data solicited from 63 rice farmers and key informants, through the administration of a structured questionnaire and interview. The study findings show that in addition to increased prices of paddy rice paid on time, the Joint venture provides access to the necessary resources that contributes to increased output and quality which were the main constraints of paddy rice marketability and profitability. Some of these resources include extension services, credit on free interest, inputs, and guaranteed markets for their produce among others. Paddy rice Production has increased by (40%) from 2011 to 2015 and this increase enabled farmers to earn sufficient income to cover production cost and remain with an estimated annual minimum net income of 215000Rwf and annual maximum net income of 1850000Rwf.

In addition, joint ventures farmers are provided bonus for meeting paddy rice delivery target. Per unit production a farmer gets Rwf 5 to 20 more than the market price. The joint venture paid dividends to farmers amounting to 57,791,46857Rwf.Thus the study concludes that joint venture can help small farmers raise their incomes through ready access to market as long as production and quality is increased. However, despite the achievements realized so far; there are a number of challenges affecting rice growers, among others, inadequate seed that is currently being used, insufficient technical assistance and shortage of water supply, necessity for rice growing. Therefore, the study recommends that, farmers should be given a valley dam to insure constant water supply in the area. Technical difficulties associated with production process should be addressed to reduce losses and keep increasing paddy production and quality.

TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE: GENERAL INTRODUCTION

1.1 Back ground of study

Rice has been identified and promoted as an important ant staple food because it allows better use of existing additional land in the marshlands and reduce pressure on land located in the hillside (Word bank, 2011). Rice offers numerous advantages to the Rwandan people over the existing staple foods which currently include bananas, sorghum, cassava and maize. There is therefore a need to utilize the chances that exist in rice growing as research shows that Rwanda has viable soils that suit rice growing.

National needs for rice consumption are not yet met. Subsequently the Ministry of Agriculture and Animal Resources has invested tremendous amount of resources into the development of rice sub-sector and in country (Kathiresan, 2010). The Rwanda government, in its strategic plan was to transform rice not only as a cash crop but also as a subsistence crop by 2010. Among the strategies being pursued to achieve this goal is increase production, productivity and income through the use modern farming and processing techniques, and availability of profitable market (MINECOFIN, 2011). According to (Kathiresan,2013) a farmer must produce something of value to have competitive advantage in his market and this needs strong farmer's organizations and private entrepreneurship to drive value chain improvements including farmer advisory services, input provision, and quality control and value addition. Increasing value-added activities will certainly increase consumption, commercial production, and specialization and surely increase the income for all actors in the value chain (Ajeigbe et al., 2010).

Recent years have witnessed a renewed interest in public and private –sector investment in agriculture (Vermeulen and Cotula, 2010).Developing countries, particularly in Africa, are making strenuous efforts to attract private investors and reap some of the benefits such deals might produce (Hallam, 2011). Attention has more recently been paid to identifying alternative ways of structuring agricultural investments where outside investment is needed to sustain agriculture and improve productivity and livelihoods. Such alternative forms of investments may include a variety of collaborative arrangements between large-scale investors and local smallholders, including contract farming schemes, joint ventures, management contracts and new supply chain relationships (Hallam, 2011 and Liversage, 2010). The main focus of this study is

joint venture farming which is regarded as a strategy for agricultural transformation in developing countries because it has the potential to solve agricultural income and marketing problems (Vermeulen and Cotula, 2010). It is defined as "the bringing together of land, capital and skilled management in an agreement between two or more parties, each running their own business, rather than forming a new partnership. Central processing or exporting unit purchases the harvest of independent farmers and the terms of production and purchase are arranged in advance through contract (ADAS, 2007).

From a theoretical point of view, Joint venture farming is one of the ways used to solve some marketing and rural income problems. Studies have confirmed improvement in farmers' income as a result of participation in joint venture farming (Mayson, 2003). (Vermeulen and Cotula, 2010) welcomed joint as a bearer of new livelihood opportunities in lower- and middle-income countries. Critics, however, see it as strategy for agribusiness firms to pass production risk to farmers, taking advantage of an unequal bargaining relationship (Lahiff et al., 2012). There is also evidence that show situations where farmers received limited gains from participating in joint venture (Lahiff et al., 2012). Joint venture farming is taken as one of the strategies for enhancing production efficiency and enhancing marketing access for small farming business; however, not much research has been undertaken in Rwanda to assess its impact on the income of small scale farmers .The government of Rwanda promoted joint venture farming in 2006 through privatization mechanism aimed at reviving the national economy so as to address the deteriorating situation of public enterprises (Kathiresan, 2013). In that process the ICM acquired 3 rice mills (Gikonko,Rwamagana and Bugarama) through 60/40 joint venture partnership with Rice cooperatives including UCORIBU jointly operates under Joint venture with ICM at Gikonko Rice Limited(Striker,2010).However, little rigorous work has been undertaken to quantitatively study and assess whether farmers' participation in rice joint venture production is beneficial to farmers or not .Evidence of implication of joint venture on joint venture farmers 'income and market access are important for the design and implementation of policies and strategies that aim to create sustainable and profitable markets for rice producers, hence this study.

1.2 Problem statement

Linking small primary producers with markets has been identified as one of the major issues in both policy and practice for improving livelihoods of millions of poor in the developing countries (Singla et al., 2011). These challenges are particularly important in sub-Saharan Africa, where proponents suggest that the proportion of farmers engaged in subsistence agriculture remains very high and those that participate in markets often do so only at the margins because of high risks and costs associated (Jayne et al.,2006, drown from Bernard and al.,2008)

In Rwanda like in much of the developing world, agriculture is the main economic activity for the people and farming system is dominated by small-scale subsistence farmers producing most of the agricultural output. In order to assure sustainability in agricultural development, the government encourages transformation of the agricultural sector from subsistence to a profitable market-oriented business by promoting staple food crops such maize, wheat, cassava etc. Rice is one of the crops that were recently given special attention as it was characterized by low production, productivity and low incomes while it is the primary food grain consumed by almost half of the world's population (Dowling, 1998).

The rice sub sector is characterized by a high percentage of small farmers cultivating, with minimal financial means, farming and processing techniques and an inability to sell as major constraints on increased paddy production and farm income (Kathiresan, 2013). Without links of farmers to markets, increment in output, increased rural incomes and improved livelihoods cannot be sustained .Most of the farmers now days cannot achieve the economics of scale from their produces because they are unable to reach the market at the right time and at the right place (Saddique, 2015). It estimated that over 50% of paddy production is not marketed through the cooperatives. It is either consumed at home or sold through unorganized local market characterized by low prices and delay in getting farmers' payments. Consequently, limits farmers' access to capital, decrease farming income, and farmers' capabilities to meet their needs (Kathiresan, 2011). Regarding these issues, the government decided in its National Agricultural Policy to assist in transformation and modernization of agriculture, trough promotion of competitiveness for agricultural products, improved market and linkages with emphasize on private sector. The private sector is best positioned to be the driver of improved efficiencies, increased investment, and economic growth (Bizima et al., 2012). Public and private partnerships

which is known as joint venture or contract farming is a major agrarian strategy that has been widely applied in developed and developing countries at different times for improved coordination and performance of the agricultural market and for addressing different types of market failures in general(Olomola,2010). Many studies see the promotion of agricultural investments through business models that provide opportunities for smallholders as a promising strategy for countries aimed at improving product quality in the value chain, improve technical efficiency in production and providing assured income and market for small-holders (Vermeulen and Cotula, 2010).

Besides increased coordination of primary cooperatives the government of Rwanda considers the establishment of joint venture as a key intervention measure for enhancing production efficiency and enhancing marketing access for small farming business and increased private investment in agricultural sector. Thus, the number of linkages through joint venture has recently grown due to the encouragement and assistance by the government. According to (Kathiresan, 2013) in 2005 the government invited ICM an Australian Company to investigate how it might assist the people of Rwanda to build an internationally competitive rice industry from its existing domestic base.

After an extensive review, ICM decided to participate in the Government's Asset Privatization Program and acquired three rice mills in different regions across the country. The mills were acquired in joint ventures with the co-operatives representing the many thousands of farmers in the three rice grower's cooperatives. However, (Stryker ,2010) noticed that, after the establishment of new mills through joint –equity share farmers continued to sell their produce to private traders, only about 10% of total production flowing through the mills. This was largely because they could get cash for their produce easily and the prices the mills offered to farmers were substantially lower than those offered by private traders. The issue is relevant to food, product quality, marketing and farm income policy decisions because if joint venture is not a pro-poor impact, then policies and programs to support joint venture farming could be in vain thus, the policymakers would be better allocating resources to other agricultural development strategies(Miyata et al.,2008) .The present study therefore, aims at assessing the impact of joint venture on farmers 'income and access to market among farmers by using UCORIBU (Union des cooperatives de riz de Butare) one of rice cooperatives given the chance of being the shareholder of Gikonko rice factory with 40% shares.

1.3 Research objectives

- The main objective of this study is to know the impact of Joint venture farming participation, in improving farmers 'income and market access in Rwanda. The following are the specific objectives of the study

1.3.1. Specific objectives

- To evaluate whether the joint venture farming has improved farmers' income and market accessibility.
- To identify challenges that joint venture farmers are facing and suggest appropriate recommendations

1.4 Research questions

In order to reach the above research objectives, this study addresses the following
Research questions:

- Does Joint venture improve the income and market access of participating farmers?
- What are the problems facing joint venture famers and what are the possible corrective measures?

1.5 Research hypothesis

The study is based on the following hypothesis,

Gikonko Rice Limited joint venture has improved joint venture farmers 'income and access to market.

1.6 Rationale of the research

One of the main challenges to the government of Rwanda is transformation and innovation of agriculture to move the economic growth path from one that is dominated by public investment to one that is fully driven by the private sector so as to attain food security and market oriented production. Modernized agriculture leads to improved crop marketing thereby increases farm productivity, quality, and value addition and farm incomes. Recent information regarding Joint venture farming and its contribution to solve the issues of rural farmers' incomes and marketing is scanty. Thus rigorous research to shed light on what works where, and under what conditions is needed to know whether smallholder farmers are reached or not by joint venture benefits.

The information and knowledge that will be generated from this study will be used to show the current status of joint venture and recommend appropriate measures to meet farmer's expectations with special attention on product marketing and farmer's financial situation. In addition, it is expected that the adoption of the recommendations from the present study will help policy makers, Rice farmer's organizations to address documented challenges and to design the improvement plan of the future performance of Joint venture. At the same time, it will improve the existing literature on Joint venture in Rwanda and thus be the source of information for other researchers.

1.7 Scope of the research

This study is limited to assessing impact of JV farming in promoting famer's incomes and market access and their livelihood. The study targets rice union cooperatives UCORIBU (Union des cooperatives de riz de Butare).

In addition, UCORIBU is currently engaged in Joint venture which is operational for almost 10years now, thus documenting and understating its experience will be useful for showing if the model is replicable or not. The researcher will use primary data that will be collected from Farmers and secondary data from various writings such as UCORIBU reports, books, journals and any other research related to this study.

1.8 Organization of the study

The study is divided into 5 chapters.

Chapter one includes introduction Background and statement of the study Objectives research question, justification of the study significance of the study and scope of the study. The second chapter presents the review of literature. Chapter three describes methodology and techniques used in study. The fourth chapter summarizes the findings from secondary data and primary data.

Then last one is chapter five which draws the overall Conclusion and recommendations for improving the performance of Joint venture at Gikonko and in the country in General.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

It is important to investigate the performance of joint venture to insure that local farmers benefit or not from agricultural investments. This literature discusses on small farmers and their constraints with special attention on marketing and incomes it also documents government efforts and contribution to the problem among others primary cooperatives formation and joint venture.

2.1Definitions of key concepts

2.1.1 Small holder farmers

Agriculture in Africa is dominated by smallholder farmers who occupy the bulk of the cultivatable land and produce most the crop and livestock products. In Rwanda agriculture is the backbone of Rwandan economy and it is dominated by smallholder farmers who occupy the majority of land with relatively low levels of manufacturing and value addition of the commodities produced. The livelihood of farmers in the rural areas of Rwanda, like in other developing countries, rely on subsistence agricultural (MINAGRI, 2004). But who are small holder farmers and how are they positioned in terms of access to various agricultural services. There is no universal definition of who a small holder farmer is; however, a number of studies done in Africa in general and East Africa in particular suggest the following parameters of description for smallholder farmers (Salami et al., 2010): Smallholder farming is often referred to as family farming, subsistence farming and low-income farming, bellow are common characteristics of small holder farmers:

- They usually cultivate less than one hectare of land;
- Often produce crops, fish or farm animals for family consumption (subsistence farming) with little surplus for the market;
- Farming is labour intensive, done using rudimentary technologies, especially the hoe;
- All farming is done by the family, with limited hire of farm labour.
- They usually lack transport means to take the surplus produce to the market centers. Hence they sell their produce to local traders who pay them low prices.

2.1.2 Rice

Rice is a Small white or brown grain. It is the most important cereal crop in the developing world and is the staple food of over half the world's population (Grist, 1986). It cultivated in a warm climate and grown for food (consumption) and for sale. Historically, rice was cultivated l0000 years ago in the river valleys of South and Southeast Asia and China since it served as the most important food for people. Although Asia is the main place of rice cultivation but it was harvested in other continents like Latin America, Europe, some parts of Africa and even USA (Zibaee, 2013).

Rice cultivation is well-suited to countries and regions with low labor costs and high rainfall, as it is labor-intensive to cultivate and requires ample water. However, rice can be grown practically anywhere, even on a steep hill or mountain area with the use of water-controlling terrace systems. Although its parent species are native to Asia and certain parts of Africa, centuries of trade and exportation have made it commonplace in many cultures worldwide.

There are only two major species of cultivated1 rice: Oryza sativa, or Asian rice, and Oryza glaberrima(O.G),or African rice. The rice varieties grown across the world belong overwhelmingly to the *O. Sativa* (O.S) species, while cultivation of the O.G is confined to Africa. Even in that region, however, O.G varieties are fast being replaced by the O.S, which displays much higher yields than the O.G (FAO, 2006).

2.1.3 Marketing

As defined by the National Association of Marketing Teachers, "Marketing consists of those business activities involved in the flow of goods and services from the point of production to the point of consumption (Brunswick, 2014).

(Maynard and Beckman, 1952) defined marketing from two viewpoints. From the seller's viewpoint, marketing is the ability of the marketing system to transfer everything produced from the producer to the consumer, with minimum hindrances for the highest possible return and wages. On the other hand, from the consumer's viewpoint, marketing is simply the ability to transfer goods in which he is interested, in the form and the manner he desires, and at the lowest price to him. (Mathur, 1971) defined agricultural Marketing as the process that an agricultural product goes through, starting well before the first seed is planted in the field and on until they

reach the consumer. Marketing is not just about selling. It a process requires a clear and astute understanding of what consumers want and the ability to deliver it to them through the most appropriate channels for a profit. The process covers numerous interconnected activities involved in doing this, such as planning production, growing and harvesting, processing, grading, packing, advertising, distribution of products and services for consumers.

2.1.4 Income

Income is the consumption and savings opportunity gained by an entity within a specified timeframe, which is generally expressed in monetary terms (FAO, 2006). It is also the amount received by households in payment for the services of factors of production. For households and individuals, "income is the sum of all the wages, salaries, profits, interests' payments, rents, and other forms of earnings received in a given period of time. And income levels are heavily associated to the well-being as it provides information on the capabilities of households and individuals to meet their needs (Cotula and leornard, 2010)

2.1.5 Joint ventures

Joint venture is 'collaborative business models ". The term business model describes the way in which a company structures its resources, partnerships and customer relationships in order to create and capture value – in other words, a business model is what enables a company to make money (Vermeulen and Cotula, 2010). Within the context of agricultural investments, collaborative business models are those that involve a partnership between an investor, on the one hand, and family farmers, on the other, and that genuinely share value between the parties (Cotula and Leonard, 2010). This Study focuses on a specific aspect of a business model called "Joint venture farming "as an agricultural business model namely means the relationship between agribusiness, on the one hand, and local farmers on the other. Joint Venture Farming is defined as "the bringing together of land, capital and skilled management in an agreement between two or more parties, each running their own business, rather than forming a new partnership". JVF farmers run their own businesses; they do not share overall profits (as in a partnership) but bear their own risks and derive profit from their own venture. However, they work with another business (or more) jointly to provide all the resources needed for farm production (ADAS, 2007). A JV differs from other collaborative ventures or business models (Contract farming, Management contracts, Tenant farming and share cropping, Farmer owned

business, and upstream/Downstream links) in that the two companies jointly form a third entity, namely the joint venture company (JVC), through which all business activities relating to the venture are managed (Soni and kachieng ,2003). This study focuses on the way in which the joint venture guarantees better marker for famers to gain income and how outcome (profits) from it are shared and how they improve farmers financial obligations. The researcher intends to use the union of rice cooperatives (UCORIBU) jointly working with a private investor as owners of Gikonko rice factory. Through farmer's interactions and information from UCORBU the researcher will be able to know whether the joint venture has really enhanced rice marketing and farmers lives in general.

2.2 Overview of rice farming

2.2.1 Rice in world

Cereals are one of the important foods for growing population of human. Approximately 50% of consumed calories by the whole population of humans depend on wheat, Rice and maize (Zibaee, 2013).

Rice Industry is one of the most important staple foods in the world. It has become the second most important cereal in the world after wheat in terms of production, due to a recent decline in maize production, (Jones, 1995). Rice is of special importance for the nutrition of large reaches of the population in Asia parts of Latin America and the Caribbean and, increasingly so, in Africa. As a result, it plays a pivotal role for the food security of over half the world population. It is also a central component of the culture of a number of communities. For those reasons, rice is considered as a "strategic" commodity in many countries, both developed and developing, and has consequently remained subject to a wide range of government controls and interventions to insure sustainable productivity marketability and profitability of this economical crop worldwide (FAO, 2006).

2.2.2 Rice farming in Rwanda

Rwanda is a relative newcomer to rice. Traditionally, its staple foods have been rain fed crops such as sweet potato, cassava, beans and maize, which are grown primarily on the steep hillsides using relatively labor-intensive techniques to keep the soil in place and to preserve its fertility.

However, beginning in the 1950s, Rwanda began to import rice as a convenience food, especially for urban consumers.

2.2.2.1 Introduction of rice in Rwanda

Rice has been grown in Africa for some 350 years but was only introduced in Rwanda in the 1950s, later turning out to be among Rwanda's staple foods like it is in more than half the world's population (Kathiresan, 2010).Rice is almost exclusively grown in marshlands at an altitude of 800 to 1200 m above the mean sea levels over two seasons; wet (A; March–August) and dry seasons (B; September–January) and it is mainly cultivated by resource-poor smallholder's farmers who grow the crop through farmer-cooperative schemes set up by the Government (Kathiresn, 2013).

2.2.2.2 Rice producers

Since the introduction of rice cultivation in 1950s, rice has become one of the important crops grown in Rwanda. Rural producers are largely organized into product specific cooperatives, at sector level or cell level. These product specific cooperatives are aggregated into commodity unions (7 unions currently), mostly at a district level. The unions are eventually represented in commodity federations at national level. At present there are only one functioning rice producer's federation 'FUCORIRWA'' (MINAGRI, 2011).

2.2.2.3 Rice production

Rice is a major food staple and a mainstay for the rural population and for household food security. It is almost exclusively grown in marshlands. The fertile soil, favorable weather, natural water resources, and efficient manpower make Rwanda highly suitable for rice cultivation (Cathiresen, 2010). Owing to a considerable demographic pressure, it is mainly cultivated by small holder farmers in holdings of about 5 acres where the scope for raising productivity is often limited. Owing to the advantages of rice grains such as long shelf-life, ease of cooking and transportation, and less requirement of cooking fuel (compared to traditional food such as potato), rice has become a popular choice of food in schools, homes, restaurants, and public programs in Rwanda. The rising incomes, growing urban population, and changing lifestyles have further aggravated the demand for rice (Kathiresan, 2010).

In response to this growing demand, Government of Rwanda has identified rice as a priority crop since 2002. Subsequently the Ministry of Agriculture and Animal Resources has invested tremendous amount of resources into the development of rice sub-sector in the country. In more recent years the Government's investment efforts have been directed towards the reclamation of vast areas of inland valleys swamps (marshlands), construction of several small dams in the valleys, organization of farmers' co-operatives, and facilitation of the supply of inputs such as seeds, fertilizers, and pesticides. As a result, the total area under rice cultivation has increased dramatically in parallel the total domestic rice production. However, despite the significant efforts employed by the government the production is still very low. Rice self-sufficiency and quality has been one of the challenges faced by the country (Kathiresan, 2013). The local production lags behind the consumption needs of national market, and the deficit is met through importation of milled rice from elsewhere mainly from countries such as Tanzania, Pakistan, Uganda and Vietnam (Kathiresan, 2013). The distribution of area under rice cultivation, supply and imported rice is stated in the table 2.1.

Table 1: Trends in rice production (tons), area under rice cultivation and imports value (000 $) in Rwanda.

Item	Year	ha	Production (Tons)	Imports (Tons)	Import value (000 USD)
Rice	2000	4,266	11,654	1,700	450
Rice	2001	5,090	15,610	25,238	12,195
Rice	2002	6,423	20,976	13,062	4,052
Rice	2003	7,607	27,891	12,119	3,162
Rice	2004	12,167	46,191	3,011	800
Rice	2005	13,922	62,194	14,507	4,409
Rice	2006	14,034	62,932	16,673	6,170
Rice	2007	15,005	62,000	18,715	7,486
Rice	2008	18,455	82,000	12,714	5,018
Rice	2009	14,433	81,081	32,274	11,816
Rice	2010	12,975	67,253	44,619	16,384
Rice	2011	14,592	80,541	39,522	16,608
Rice	2012	14,701	84,079	57,204	20,878
Rice	2013	17,568	93,746	63,349	27,636
Rice	2014	16,000	90,000	-	-

Source: FAOSTAT; 2016: http://faostat3.fao.org/download/Q/QC/E

The distribution of imported rice is mainly concentrated in the mainstream markets where the locally produced rice grains suffer from poor marketability. The locally produced grains are mostly used for subsistence living of farmers themselves and/or sold through the local markets. Due to differences in quality of the produce, the price of locally produced rice endures lower prices (up to 25%) than that of imported rice. According to (Kathiresan,2010) the rice sub-sector in Rwanda faces three challenges – insufficiency (volume) and inappropriateness (value) and low productivity and these are recognized among main constraints that hamper profitability and marketability of locally produced rice (Kathiresan,2013).

2.2.2.4 Rice marketing

Smallholder farmers in East African countries have limited access to markets of both agricultural inputs and outputs, with markets not adequately equipped to serve the needs of the poor farmers. In recent years, Cooperatives have reappeared on the international development agenda as a potentially important means of linking farmers to markets, increasing agricultural productivity and ultimately reducing rural poverty (Bernard and al., 2010).

In Rwanda Cooperatives have tremendously increased after 1994 and many farmers were expecting to be assisted in farming activities and produce marketing so as to increase their competitiveness and obtain higher profits than is possible by way of individual marketing. Although many of these have received support and training from NGOs and government to perform well their responsibilities, support in the form of regular visits from extension agents is limited. The sector faces a number of challenges. Small farmer's financial problems were aggravated by inefficiency of farmer's cooperatives which failed to provide sustainable and profitable market of the locally produce (MINAGRI, 2004). It is important to note that commodity markets are inherently risky, difficult, and impede farmers from producing more, getting sufficient income and thus affect their family's wellbeing (MINAGRI, 2011).

In Rice sub- sector Paddy marketing is one of the major economic constraints to improving farmer's economic position. Rice produced in Rwanda is largely sold in unorganized rural markets, whereas the mainstream urban markets largely sell imported rice. This is mainly because the locally produced rice grains suffer higher breakages upon milling. The implication of this low quality is that lower farm gate prices are offered for the locally produced rice hence making the sector less profitable and Keep farmers in vicious cycle of poverty (MINAGRI,

2011). Most of the rice producers are price takers rather than setters and this is due to their urgent liquidity needs therefore they are usually offered the lowest farm gate prices for their produce. The leading constraints that impede small farmers from enjoying marketing potentials are poor organization of producer and, limited access to finance refrain farmers from using fertilizers and thus reduce production and productivity (Jagwe et al., 2003) and lack of farming skills, processing techniques and equipment's that makes local produce less competitive than neighboring countries (MINAGRI, 2011).consequently , the sector become risky and limits the involvement of private sector which recently received special attention as its was found out to be the best positioned to be the driver of improved farmers competitiveness, increased investments and economic growth (Kathiresan,2013)

2.2.2.5 Strategies of promoting rice marketing and farmers' incomes in Rwanda

It is envisaged that Rwanda will attain self-sufficiency in rice production by 2018, and will be well-positioned to compete local and regional markets with significant improvements in quality and quantity and value. Indeed, there are undoubted opportunities to increase productivity and production in Rwandan agriculture, but the full benefits of those efforts cannot be realized unless new farming skills are adopted and the outcomes, are linked to the markets from which higher farmers returns are obtained(MINAGRI,2009).Crop marketability and profitability have been a matter of concern and the role of private sector is highly needed in production and processing to drive the desired transformations of the sector (Kathiresan,2013).In responding to above situation, the government developed various marketing supports programmes to minimize or eliminate agricultural market access constraints identified as one of the impediments the development of the sector, to farmers increased incomes .

1. **Strengthening agricultural cooperatives**

The Government of Rwanda considers the cooperatives as full partners in efforts for improving marketing and incomes of agricultural product. To harmonize and coordinate the interventions in that sector, it has been decided to design a national policy for promoting the cooperatives and to gather in a single document the strategies chosen and the priority activities retained for the years 2006-2008. The MINICOM sector strategy sets out many goals for strengthening the cooperative among others to facilitate the structuring of cooperatives in the intermediary organizations (unions, federations and confederations) and their membership to the international cooperative

movement; these organizations will serve efficiently the members' interests and will allow cooperatives to accomplish collectively what they could not achieve individually (MINAGRI,2009). Unions should target effective delivery of inputs considered as limiting factor in rising productivity from their rice crop (Kathiresan, 2010). More importantly it was found that ineffectiveness and inefficiency of primary cooperatives were one of the reasons that made the sector risky and fueled the reluctance of investors to put their capital in the agricultural sector. Therefore, joining farmer's cooperatives in a union cooperative can help to perform well and give them greater power and good image in the ears of investors.

2. Agricultural marketing information

Through these farmer's organizations the government enhanced the accessibility of the agricultural marketing information to all farmers and other role players. In coordination with MINECOFIN and farmer's representatives, and traders. MINAGRI release reliable marketing information to farmers. Agricultural market information is essential for farmers who wish to become fully market orientated and ensure that their production is in line with market demand. The availability of reliable market information can help farmers to reduce the risks associated with marketing, decide where to sell their produce, check whether or not the prices they are offered are in line with market prices. Reliable market information also improves market transparency and farmers' bargaining power.

3. Agricultural marketing infrastructure

Agricultural marketing infrastructure is generally defined as any facility or tool that can be used by farmers and traders to facilitate trade transform raw agricultural products into value-added products through processing and packaging, store agricultural products to smooth out supply and fulfill demand, transport agricultural products to satisfy demand.

According to (Kathiresan, 20110) the value and hence the competitiveness of rice grains produced in Rwanda will greatly depend on how the grains are handled from harvest through milling stages. Intervention made by the government was to guide investment in critical agricultural marketing infrastructure, particularly infrastructure that facilitates value addition and processing to raise the standards of milling operations and thereby improve the quality and

competitiveness of locally produced rice grains (Kathiresan, 2013). The government supported the private sector to invest in strengthening the competitiveness and delivery of the staple crop to the market thereby promoted joint venture trough privatization policy.

2.3 Policy surrounding joint venture in Rwanda rice sub -sector

In Rwanda, joint venture farming has been the results of government willingness to promote the agricultural sector and rural development with focus on private sector which is best positioned to be the driver of farmers and product competitiveness and economic growth as well through increased investment (Cathiresan, 2011).

Several years ago, the Government of Rwanda decided to give high priority to the production of rice in the country's marshlands, where, with adequate investment in irrigation infrastructure, the crop is capable of yielding up to 7 t/ha during each of two growing seasons (MINAGRI, 2005). The government provided this investment and farmers responded by growing rice largely as a cash crop. However, as production increased there was a growing need to expand facilities for processing and marketing. At first, much of this processing was done with small hullers, which produced rice with substantial impurities and little uniformity of grain color and size. This was similar to much of the rice being produced and processed for home consumption or the local market in West Africa. In addition to the hullers, the government earlier invested in a number of medium-sized mills of 1–3 t/hour capacity. By the time that the National Rice Program was going into effect, these mills were old and required substantial upgrading or replacement with more modern equipment. The government responded by privatizing these mills, turning them over to co-operatives or selling them to private investors. Often this was done as part of a joint venture arrangement between the co-operatives and the investors. The government sold 60% shares of these mills to private investors; and the remaining 40% shares were provided to rice cooperatives (among others UCORIBU Union des cooperatives de riz de Butare Gisagara Districts, in Southern Rwanda, Rwamagana and Bugarama) in the respective marshlands (Kathiresan, 2013).

The aim of private and farmer's partnerships promotion was to help farmers better to plan their production and marketing activities in accordance with market needs, as well as to participate effectively in the markets. Additionally, joint venture was expected to give farmers an alternative

marketing channel for their produce and reduce costs by shortening the marketing chain (Kathiresan, 2013).However according to ICM Rwanda Agribusiness, JV such Rwamagana and Bugarama was declared as non-performing with accumulated losses. In fact the ICM claimed that in the past rice Unions like Twibumbe (Rwamagana) had failed to supply the quality and quantity of rice paddy agreed in pre-season farming agreements while the Gikonko joint venture had successful honored the JV agreements and made profit each year but, little study has been conducted to identify whether farmers have been reached by these profit .Thus, the aim of this study is to explore whether the mentioned JV impacted or not farmers. The impact will assessed in terms improved access to market and farm income

2.4 Brief description of joint venture

Joint venture farming is a business model that has been in existence for many years as a means of making money. However, business models are considered as more inclusive if they involve close working partnerships with local landholders and operators, and if they share value among the partners (Vermeulen and Cotula, 2010).Attempts by governments of involving private investor in agricultural sector have tended to emphasize the identification of "income generation" activities for rural people. Various international institutions, recognizing the need for increased private investments in agriculture as a strategy that allow rural populations to both maximize opportunities and minimize the risks trough commercial manner farming. Similarly, it also provides investors with the opportunity to guarantee a reliable source of supply, from the perspectives of both quantity and quality (Cotula and Leonard, 2010).

Joint venture business models aim to include poor people into value chains as producers, employees or consumers, in ways that are both equitable and sustainable (UNDP, 2010).Community partnership with private investors in agriculture can therefore be motivated from a policy perspective in developing countries as a means of increasing farm output and productivity in order to address food and nutrition insecurity, product market and raise incomes in farming households (Cotula and Leornard,2010).

Agricultural joint-venture model is intrinsically attractive because it includes smallholders as full business partners in agribusiness activities, granting them shares of realized profits (rather than just one-off compensation, land rent or farm gate crop prices) and, in most cases, a legally recognized decision-making role in the business Profits made by the joint venture are expected to

be paid as dividends to shareholders according to their shares, or reinvested in the operating company(Vermeulen and Cotula,2010). In addition, communities may benefit from preferential employment opportunities in the joint company and a range of training opportunities for both employees and members of the wider community (Lahiff et al., 2012). Although the operating company is jointly owned, day-to-day management of the farms is generally in the hands of the commercial partner who, in terms of the shareholders' and management agreements, has control of financial and operational matters (Mayson, 2003). Most ventures discussed on by many authors are Land-based ventures, where smallholders' asset contribution is their land, and they do exist in many countries.

For example, in South Africa, Joint venture with commercial operators have been widely promoted as a means of maintaining productivity and facilitating access to high-value markets for South African communities under the restitution programme. Ghana, Joint venture was established as a way to improve the livelihoods of smallholder farmers through a network of smallholder-owned business. In Malawi, the project sought to improve smallholder access to agricultural inputs and provide better returns on agricultural sales (Cotula and Leonard, 2010). Malaysia experienced a three-way Joint venture, which means a joint venture approach involving 3 partners mostly, local farmers' association, the government and the private investor company. Popularly known joint ventures in Malaysia are 2 largest plantation of oil in Sabah to help local people "develop the land for agriculture and reap lucrative income to boost their social and economic standards and in Sarawak as the main means of bringing development and opportunities to rural communities (Vermeulen and Cotula, 2010).

2.5 Prevalence of joint venture

Because of their versatility, joint ventures between agribusinesses and smallholders are now fairly widespread and well established globally. They occur in both temperate and tropical regions and in high-, middle- and low-income countries. These kinds of models have become more prevalent in recent decades as governments have enacted legislation and policy to provide economic opportunities for rural communities (Vermeulen and Cotula, 2010).

Joint venture experience in agriculture is growing, some ventures failed and others have achieved significant profile and success (Cotula and Leonard, 2010). For instance, Divine Chocolate Company is a joint venture between the Kuapa Kokoo cocoa Farmers' Union in Ghana (owner of 45% of shares) in the UK-based chocolate production and marketing company Divine Chocolate

Ltd, and 33% of the shares in this company's newly established US branch. Kuapa Kokoo sits on Divine Chocolate's board and receives dividends, and they have biggest say in the business and influence management decision (Vermeulen and Cotula, 2010).

In Mali, a union of local farmers in Koulikoro, Union Locale des Sociétés Coopératives des Producteurs de Pourghère à Koulikoro (ULSPP), owns 20% of the shares of the Joint venture company with Mali Biocarburant SA (MBSA) a private company that works with more than 4,000 small-scale jatropha farmers. Thus farmers have voice in the management of the company, and benefit from any increases in share value and from any dividends (Cotula and Leonard, 2010).

In South Africa Between 1994 and 2002, 50 joint-venture schemes were established with the help of government grants, of which 20 were in the Western Cape Province, the area of greatest potential for high-value export horticulture. A further 11were developed between 2002 and 2010in Limpopo province, in the north-east of South Africa. However, findings from some case studies showed that joint ventures have struggled to get off the ground and some have already collapsed with major losses (Lahiff and al., 2012). In Malaysia to date, 26 joint ventures have been signed in the largest plantation of oil palm in east of Malaysia. Findings from two Malaysian largest oil plantations documented some of the benefits provided by the JV but there has been some dissatisfaction with the size of dividends (Cook et al., 2011). Cases are provided for each of these countries supplemented by further case study from Kenya.

2.6 Empirical studies on joint venture in different countries

2.6.1 Moletele joint venture in South Africa

Moletele is a, large areas of high-value irrigated land which is today the center of a large subtropical fruit economy, restored to relatively poor communities (New Dawn, Batau, Richmond, and Dinaledi) whose later have entered into joint venture with four local former land owners(Strategic Farm Management (Pty) Ltd, Chestnet (Pty) Ltdb ,African Realty Trust and Boyes Group)commercial private operator in order to maintain the productivity of commercial farming enterprises, and to maximize long-term benefits for their members. Expect the fourth joint venture between Boyes Group and Dinaledi other communities in joint venture stood to benefit, in theory, from both rental and dividend income through the joint ventures. In these 3 joint ventures CPA owns 52% shares of the operating company and the partner owns 42.8% Due

to ongoing financial and operational difficulties the tree joint companies have never made a profit, production and incomes on the farms effectively decreased and so neither dividend nor annual rental has been paid out to the community.

The fourth venture, with the Boyes group – a larger commercial company – seems to have done somewhat better. The land in question comprises 746 hectares in five portions. The farm is engaged almost exclusively in citrus production, with substantial orchards of oranges, grapefruit and lemons. Ownership of the Dinaledi joint venture was described as 50:50 partnerships between the CPA and the Boyes Group. According to community informants, granting the commercial partner a full half-share (as opposed to the 48% minority share more widely applied) was necessary in order to allow the Boyes Group to engage effectively with financial institutions and be able to make day-to-day decisions on their own, without having to consult a majority shareholder. Boyes is seen as an attractive partner as it managed to pay a total of ZAR 622,000 (USD 90,000) in rent to the CPA, making it the second biggest contributor to the community.

According to community leaders, the Dinaledi partnership has also shown a strong commitment to skills development and training. The Boyes group donated 16 computers for basic computer literacy training of young people. The training courses run over ten days and trainees receive a certificate of attendance upon completion. Additionally, the Boyes group has invested money to improve the CPA offices which is now boasting a few fully equipped offices, a reception area and a boardroom. Source: (Lahiff et al., 2012)

2.6.2 Kuapa kokoo joint venture in Ghana

Kuapa Kokoo is a farmer-owned cooperative in Ghana. The cooperative is made up of about 68,000 cocoa farmers. Cocoa purchasing was done by only one company owned by the Government of Ghana, called Produce Buying Company (PBC). During this period, the system for buying cocoa from farmers was not effective. Farmers were not paid well and a lot of cocoa was left in the bush these and other internal problems led to organize cocoa farmers to form a union so they could do their own trading. Kuapa Kokoo's desire to increase profits from the sales of its beans to the Western market led it to make an investment in Divine Chocolate Company Ltd. Divine is a UK-based company that manufactures and distributes chocolate. Kuapa Kokoo owns 45% of the shares in Divine Ltd. Following a recent expansion into the US market, Kuapa Kokoo now also owns 33% of the shares in the US branch of Divine. Kuapa Kokoo sits on Divine Chocolate's board and receives dividends. In 2000; about 8,000 Union members also

established another cooperative, the Kuapa Kokoo Credit Union. The Credit Union facilitates access to credit to its members, through "no frills" loans to members and through redeeming members' cocoa farms that have been mortgaged to money lenders Cocoa prices are paid to the farmers. The setting of the price for a bag of cocoa is determined by the COCOBOD at the beginning of each season. Economic benefits and profits generated by Kuapa Kokoo Ltd go to the Union the farmers approve the use of finances at their Annual Delegates Conference. Based on their financial standing, farmers decide on the amount to pay as bonus per bag. Source: (Cotula and Leonard, 2010)

2.6.3 Bio carburant joint venture in Mali

With IFAD's support, smallholder farmers are partnering with Mali Biocarburant SA (MBSA). MBSA is a private company that works in a combination of a joint venture and contract farming with more than 4,000 small-scale jatropha farmers in three regions of Mali (and two regions in Burkina Faso). MBSA provides technical assistance to farmers through a network of field staff to improve their agricultural practices. Jatropha is integrated into existing farming systems, for example through intercropping. The main innovative feature of MBSA is that a union of local farmers in Koulikoro, Union Locale des Sociétés Coopératives des Producteurs de Pourghère à Koulikoro (ULSPP), owns 20% of the shares of the company. Thus farmers have direct benefits through the sales of products and they also share in the increased value of the shares as well as dividends that are foreseen. MBSA promotes a pro poor carbon offset scheme and reinvested 75% of its 2007 carbon credit income in strengthening the capacities of its farmers. Source: (Cotula and Leonard, 2010).

2.6.4 Boustead pelita kanowit joint venture in Malaysia

The Malaysian government introduced the Konsep Baru (New Concept) scheme in the mid-1990s as a strategy for rural land development on land under Native Customary Rights (NCR) in the non-mainland areas of Malaysia (Sabah and Sarawak).

A Konsep Baru arrangement is a three-way joint venture. Involves A private plantation company Boustead Holding Berhad (BHK) as the investor, selected by the government, with profit-sharing of 60%, the plantation company does not need to buy land; it provides financial capital for landowners to develop the land for palm oil production. NCR landowners in Kanowit District awarded a 30% share in the joint venture, representing their contributing land into the project,

finally, and the remaining 10% to Pelita, the government-owned holding company of the Land Custody Development Authority (LCDA).

LCDA/Pelita acts as a trustee for the landowner's. In the agreement the JVC becomes the registered proprietor of the plantation and NCR landowners are not expected to have direct involvement with the investor. The standard agreement requires them to pledge that they will not interfere with the use and development of the land It is also stated that 65 percent of the profits earned from the plantation project shall be distributed to the shareholders in proportion to their shareholdings, but this is subject to the availability of sufficient funds including funds for future expansion, loan repayments and capital investment requirements and other lawful deductions. Its major investment in palm oil production is the Boustead Pelita Kanowit plantation in Sarawak, considered one of the most successful palm oil joint ventures under the Konsep Baru scheme in Malaysia. As the pioneering project for the new three-way concept, there were high expectations of success.

However, media sources and annual reports suggest that the project had underperformed in terms of both commercial viability and improvements to local livelihoods. Among native shareholders, discontent reportedly began to emerge by the fourth year (2001), when no dividends were received. Local participants believed that returns from the venture would secure their household needs and the assurance of secure tenure would make the sacrifice worthwhile. Many regard themselves as being worse off than if they had never participated in the scheme at all. Source: (Vermeulen and Cotula, 2010).

2.6.5 Mwean rice irrigation in Kenya

The Mwean Rice Irrigation Scheme is the largest rice irrigation scheme in Kenya, involving about 3,400 farmers. The scheme was established in 1955, and is managed since 1966 by a parastatal under the control of the ministry for agriculture – the National Irrigation Board (NIB).

Local farmers are registered tenants on public land, and are expected to abide by the rules set by the NIB. The NIB has annual contracts with farmers concerning the provision of services and inputs (such as seeds and fertilizers), which are provided on credit. Water is also provided on credit. Debt repayment is ensured by deductions from the purchase price at harvest. No financial credit is provided. For purposes of rice milling, the Mwean Rice Mill was established as a joint venture between NIB (55%) and the Mwean Farmers Multipurpose Cooperative Society Ltd (45%), the latter is a cooperative established by local farmers.

The cooperative also plays an important role in facilitating farmers' access to financial credit. Farmers feel they have no say in decisions concerning prices for inputs, services and water use, and purchase prices. Although they own a 45% equity stake in the milling plant, this does not translate into significant leverage vis-à-vis the NIB. Also, long delays exist between crop delivery and payment of purchase prices. Since price and marketing controls were removed in 1993, a large number of rice mills have started to operate in the immediate surroundings of the irrigation scheme. This has offered new options to the farmers, who can now divert rice paddy to the private mills, but also raised questions as to the regularity of supplies to the NIB. Source: from (Vermeulen and Cotula, 2010).

2.7 Why is joint venture important?

It was recognized that JV would lead to changes in production, marketing process and in quality of life of farmers. In many countries the decision of joint venture promotion was the seek to increase the participation of smallholder farmers in the more profitable activities of the agricultural sector (i.e. highly-profitable supply chains). In fact, well-managed Joint venture farming is an effective way to coordinate and promote production and marketing in agriculture and become very powerful when they are organized, empowered and given the chance to perform (Cotula and Leonard, 2010).There are many compelling motivators for companies to enter into JVs with other companies, such as organizational learning skills, risk sharing, and infrastructure improvement, gain financial benefits (ADAS, 2007).

2.8 Advantages of joint venture on smallholder farmers

The prime advantage of joint venture farming agreement for farmers is that the ventures will normally undertake to purchase all produce grown, within specified quality and quantity parameters. The venture can also provide farmers with access to a wide range of managerial, technical and extension services that otherwise may be unobtainable. According to (Cotula and Leonard, 2010), the main potential advantages for farmers are many but they differ according to the venture agreements:Ownership,Provision of inputs and production services, Access to credit, introduction of appropriate technology, skill transfer, Guaranteed and fixed pricing structures, ready market and income

1. Ownership

Joint ventures enable smallholders to have co-ownership of the project. Board representation enables them to have a say in business decisions and have access to valuable corporate information (Vermeulen and Cotula, 2010).

2. Provision of inputs and production services

In order to ensure that proper farming practices are followed and projected yields and required qualities are achieved. Joint ventures provide considerable production support in addition to the supply of basic inputs such as seed and fertilizer. More importantly it provides free training on land preparation, field cultivation and harvesting (Mayson, 2004).

3. Access to credit

The majority of smallholder producers experience difficulties in obtaining credit for production inputs and harvesting. Joint venture usually allows farmers access to some form of credit to finance farming activities. In most cases it is the partner who advances credit through farmer's managers. Farmers agree to provide a certain quality and quantity of output, perhaps by an agreed date. In exchange, the partner provides required money to be charged against the final purchase price (Mayson, 2003).

4. Introduction of appropriate technology

New techniques are often required to upgrade agricultural commodities for markets that demand high quality standards. New production techniques are often necessary to increase productivity as well as to ensure that the commodity meets market demands. Therefore, Private agribusiness will usually offer technical assistance through promoting farmer training programmes and organizing field days to demonstrate the latest product production methods to farmers (Mayson, 2003).

5. Skill transfer

The skills the farmer learns through Joint venture farming may include record keeping, the efficient use of farm resources, improved methods of applying chemicals and fertilizers, knowledge of the importance of quality. Farmers can gain experience in carrying out field activities following a strict timetable imposed by the extension service (Cotula and Leonard, 2010)

6. **Guaranteed and fixed pricing structures**

The returns farmers receive for their crops on the open market depend on the prevailing market prices as well as on their ability to negotiate with buyers. This can create considerable uncertainty which, to a certain extent, joint venture farming can overcome. Frequently, the partner indicates in advance the price(s) to be paid and these are specified in the agreement (Vermeulen and Cotula, 2010).

7. **Access to reliable markets**

Access to market of both inputs and output is one of the major economic constraints that limit farmers from gaining decent income. It is quite difficult for farmers to cultivate with no hope to sell their produce. Joint venture offers a potential solution to this situation by providing market guarantees to the farmers at an agreed price (Mayson, 2003).

8. **Income**

An increase in smallholders' incomes is observed in many cases but not in all. In some cases, this increase is only temporary. Ongoing improvement of smallholders' income depends on the form of venture agreements and the efforts employed by both partners to fulfill them and the efficiency of the company. Increase in income may derive from:

- **Dividends,** share equity schemes are promised on providing a return on investment, enabling the shareholders to build their capital share in the company, or withdraw dividends (Mayson, 2003).
- **Bonus** when the sales of the company had gone well, based on financial standing, management committee of the venture company decide on the amount to pay as bonus per bag sold by the farmer (Cotula and Leornard,2010).

In addition, to key elements encouraging smallholders to respect their contract: the company provides access to finish product to small farmers at a lower price than the market price and remuneration arrangements allowing smallholders to overcome their financial constraints even before harvest.

2.9 Disadvantages of joint venture

Joint ventures may address various needs of farmers but should be treated with caution. Joint ventures are generally agreements of unequal parties, thus relationship between the partners is

unequal and the dominant partners will seek to ensure that their interests are promoted. It is important for small farmers and their facilitators to understand this and to seek ways to protect farmer's interests (Mayson, 2004). As discussed in case studies there are a number of factors that impact on joint ventures which make them complex investment for small farmers. It has as indicated that such arrangements contribute significantly to household income but they do not take the family out of poverty because of limited land. More importantly

- Shareholders must wait a long time before they can expect dividends of any sort. . In many cases it requires more than five years. It is difficult, therefore, to provide immediate benefits (Mayson, 2003). More importantly individual dividends can be very low due to the large number within the scheme (Vermeulen and Cotula, 2010).
- Delay in payment of sold produce
- Inadequate inputs /Capital
- In most ventures commercial partners don't see the project as having to build the expertise of the farmers, allow them to participate in decision-making and understand their investment; for them, it is a means to generate profit. Consequently, there has been little capacity building (Cotula and Leonard, 2010).
- If the joint venture is successful, additional financing may be required for expansion. This may involve new shareholders coming on board, existing one ones contributing more. If smallholders /shareholders are not able to pay for additional capital requirements, they may see their equity shares decrease (Vermeulen and Cotula, 2010).

2.10 Literature assessment

Recent years have witnessed a renewed interest in agricultural investment involving partnership between large-scale investors and local small-scale farmers and communities, such as diverse types of contract farming schemes, joint ventures, management contracts and new supply chain relationships (Vermeulen and cotula, 2010). However, (Cotula and Leonard, 2010) argued that while models like contract farming have been implemented and studied for a long time, Joint vent are more recent and evidence of their inclusiveness is less well documented. Joint venture farming arrangements provide farmers with access to a wide range of services that otherwise may be unattainable (Mayson, 2003).Pessimistic see joint venture as means to incorporate small farmers into growing market because it often involve the provision of seed and fertilizer on credit, technical assistance, and a guaranteed price at harvest to poor farners'mostly lack access

to the necessary resources. Studies have confirmed improvement in farmers' income as a result of participation in joint venture farming (Mayson, 2003).However, criticisms were also noticed where joint venture seemed to be more theoretical than practical.

Despite the potential benefits of Joint venture farming, there is limited evidence that the smallholders' market opportunities and farmers in the business decisions have been promoted from such collaboration (Lahiff et al., 2011). Although Farmers own equity stake in the joint company, this does not translate into significant leverage vis-à-vis the partners. An analysis of joint ventures in South Africa found that many only include basic details that are unlikely to promote the interests of small farmers (Lahiff et al., 2012).In Rwanda the government promoted 3 joint venture between ICM and three rice cooperatives but two of them were declared non performing and little research has been conducted to know the reason behind failure and success of these ventures and the extent to which benefits for farmers from joint venture are meet. Reason why, an inside view from this initiative is important to make sure that farmers are satisfied or not. This study will contribute to this gap by assessing the impact of joint venture on farmers; income and access to market.

CHAPTER THREE: METHODOLOGY

3.0 Introduction

This chapter presents the methods used in the process of sample selection, data collection, data processing and data analysis. The study employed both qualitative and quantitative data.

3.1 Study design

To meet the purpose of the present study the researcher used primary and secondary data to collect quantitative and qualitative data which were both party of this study.

The qualitative data are subjective, describes or characterizes but does not measure a thing or a phenomenon. Such data complemented findings from quantitative data. These data were collected through questionnaires and structured interview.

Quantitative data defines and deal with measuring phenomena. Quantified and verified data are needed to explain and to support conclusions that made on the study with tangible facts. In this study quantitative data were extracted in questionnaires addressed to rice farmers and in secondary data on production trends and values of benefits shared.

Data collected were entered into a computer system in order to be coded, counted and analyzed and the results were summarized in tables, and figures.

3.2 Population of the study

A population is the total of all the individuals who have certain characteristics and are of interest to a researcher source. Targeted population was farmers working under joint venture and for this reason the study used UCORIBU farmer's one of the rice unions that offered by the government the opportunity of being shareholder of Gikonko Rice factory through joint venture partnership with ICM .

- **Case study selection**

ICM acquired three rice mills in different regions across the country. The mills were acquired in joint ventures with rice co-operatives representing the many thousands of farmers in Bugarama, Rwamagana and Gikonko .But, these JV faced many challenges and some of them failed to meet joint venture agreements. Due to lack of partnership between JV partners resulted in poor

working relationship and inconsistent of supply of paddy rice,Rwamagana and Bugarama JV were declared as non performing with many losses because rice growers union failed to supply the quantity and quality of rice paddy agreed in pre-season farming agreements .However Gikonko JV (between ICM and UCORIBU) was declared successful and it is still operating under joint venture agreements .Therefore the researcher used UCORIBU farmers as the case study because it is the only one that managed to continue working with the ICM under joint venture agreements' and can help to assess whether farmers have benefited or not from being member of joint venture .

- **Brief description of UCORIBU**

UCORIBU is rice union located in Gikonko sector, Gisagara district in southern province. The union is made by 10 cooperatives of more 8000 rice growers operating in different waters shade located far from each other (Nyanza,Huye and Gisagara). However, these cooperatives are shareholders of Gikonko Rice ltd joint venture with almost the same opportunities from the union and the venture. The researcher used only one of randomly and the results gave (Cooproriz Nyiramageni).

- **Brief description of Cooproriz Nyiramageni**

Cooproriz Nyiramageni is a cooperative of 801 rice grower's .It started in 1992 and operating in Nyiramageni marshland on around 180 hectares located in Gisagara district, southern province.

With support from UCORIBU and Gikonko Rice Company, Cooperative helps famers to acquire inputs such as fertilizers, and seeds and marshland management. It offers also technical assistance, collect and sale paddy to factory and mobilize farmers in savings and credit facilities. While selecting the sample; Alain Bouchard formula was used to know the exact number of the sample size.

3.3 Sample size and sampling

3.3.1 Simple size

According to (Kakinda, 1990), a sample is the part of the population that is deliberately selected for the purpose of investigating the properties of the parent's population. The choice of sample size from the targeted population was guided by number of farmers obtained through sample calculations.

$$n = \frac{n_0}{1+\left(n_0 / N\right)} \qquad \text{n=no/1+(no/N)}$$

Where,

N is the size of the population, n_o is the sample size of a defined population, d is the error term that is estimated 5%, p is the estimated frequency of the sample with size N, while t is the figure obtained from the t-student's table.

$n_o = t^2 (p) (1-p)/d^2$

Therefore, basing on the above formula, 95% was the confidence level. Thus, p=0.5, N= 801, d= 10% = 0.10, t=1.65

$n_o = (1.65)^2(0.5)(0.5)/(0.10)^2 = 68$ thus $n = \frac{68}{1+\frac{68}{801}} = 63$

Therefore, the study sample size was 63 farmers

3.3.2 Sampling

Sampling is the process of selecting the number of individuals for a study in a way that the individuals represent the larger group from which they were selected. Therefore the selection of 63 farmers was based on simple random technique. From a list provided by Cooproriz-Nyiramageni, members were assigned a random number and randomly 63 farmers were selected.

3.4 Source of data

For the purpose of the study both primary and secondary data were used. Primary data were obtained from selected respondents through face to face interview with respondents and key informants at field. On the other hand, secondary data was collected from UCORIBU reports,

library books, articles, journals, published annual reports, and other researches that have been done before.

3.5 Data collection instruments

There are several number of research instruments available to researchers to collect information. As mentioned before this study used the survey method and among instruments of survey research it is important to note: Questionnaire and interview. In addition to this the researcher used secondary data collected from UCORIBU.

3.5.1 Questionnaires

A questionnaire is a technique used by the researcher to collect respondent's information. The information was obtained from small farmers of Cooproriz Nyiramageni through a structured questionnaire. The questionnaire contains both close-ended and open-ended questions and respondent were guided to fill the questionnaire.

3.5.2 Interviews

An interview can be defined as face to face conversation between an interviewer and respondent conducted for the purpose of obtaining information (Kakinda, 1990). Structured and unstructured interviews were engaged with key informants to know whether the joint venture is achieving its objective.

3.6 Data analysis methods

Data analysis techniques help to quantify the data from research and to represent them as tables or graphics which give a good image to readers. The Microsoft word, Microsoft Excel programs and SPSS Program for windows were used in data treatment, presentation, interpretations and conclusions.

CHAPTER FOUR: ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter presents analysis of the data collected both primary and secondary data. It gives narratives about genesis and functioning of joint venture farming in the study area. Another part of analysis concerns primary data and secondary data which show the impact of joint venture on farmer's income and market facilities.

4.2 Overview of joint venture farming at Gikonko

Joint venture farming at Gikonko is a partnership between ICM and UCORIBU owner of Gikonko Rice Ltd.

- UCORIBU is Rice Union located in Gisagara district, Gikonko sector. It was created in 2002 and accredited in 2003. It has 10 cooperatives operating in three districts namely, Nyanza, Huye and Gisagara.
- ICM Rwanda Agribusiness is located in Remera, Gasabo District and incorporated on 17th October 2006, is a firm established by Australian investors who were initially invited by the Government of Rwanda to assess how it could assist the people of Rwanda to build an internationally competitive rice industry from its existing domestic base

4.2.1 Establishment of joint venture

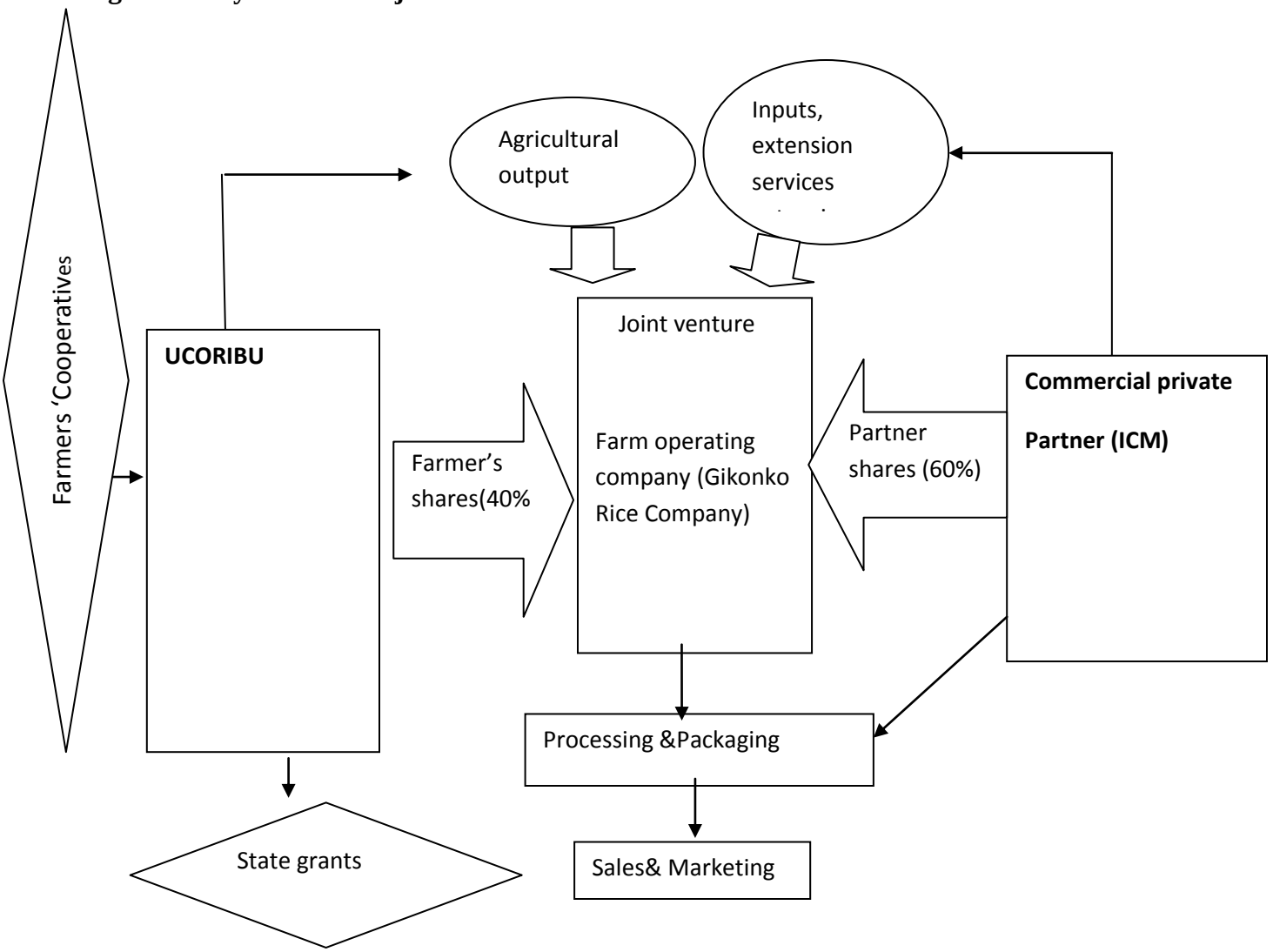
In 2006, the Government of Rwanda promoted joint venture farming through privatization mechanism aimed at reviving the national economy so as to address the deteriorating situation of public enterprises (Kathiresan, 2013).

ICM decided to participate in the Government's Asset Privatization Program and acquired three rice mills on 60% of the total shares of each mills in different regions across the country (Striker, 2013). ICM's shares in three mills were acquired through joint ventures with rice cooperatives union which acquired the remaining 40%.Gikonko Rice factory which was managed by UCORIBU was also among privatized enterprises. Thus Gikonko Rice factory was owned by UCORIBU rice union through joint venture with ICM.UCORIBU farmers are shareholders of with 40% of Gikonko Rice Limited which increases their level of ownership and, thus motivates them to work closely with ICM management to make Gikonko Rice more profitable and gain more dividends accordingly. ICM initially had invested up to Rwf159, 000,000 to acquire 60

percent of Gikonko, while cooperatives invested Rwf100, 000,000 to attain the remaining 40 percent.

4.2.2 Nature of arrangement between ICM and UCORIBU

Figure 1: Key elements of joint venture at Gikonko



Source: UCORIBU, 2016

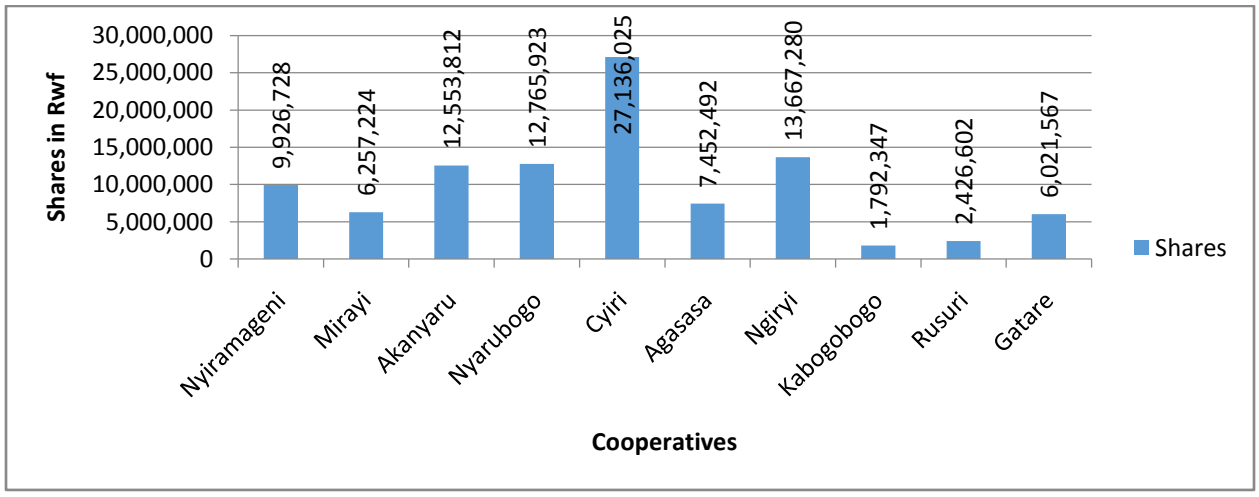
The figure 4.1 highlights obligations of UCORIBU and ICM in Gikonko joint venture. According to joint venture agreements UCORIBU would bring land, buildings and supply the quality and the quantity of rice paddy agreed in pre season farming agreements. While ICM

would provide new equipment and refurbishment of factory building. In addition to this ICM would buy all paddy supplied by joint farmers, improve rice farming activities and local rice competitiveness. The ICM would insure that famer's salaries are paid on time and other incentives such as dividends, bonus and advance.

4.2.3 Structure share holdings within UCORIBU cooperatives

The share value is different between cooperatives. At the outset farmers were consulted and sensitized to buy shares in the joint venture. The value of a share was fixed at 18,000frw and all cooperatives contributions paid only Rwf83, 000,000 of the debt acquired to own 40% of the factory. Farmers were allowed to pay the purchased share in three installments. However, some farmers were reluctant to buy shares and this affected the share value each cooperative owns in the venture. The figure 4.2 indicates, the share values owned by each cooperative.

Figure 2: Shares distribution among UCORIBU Cooperatives



Source: UCORIBU, 2016

From the figure 4.2; Cyiri is the largest shareholder among the cooperative that make UCORIBU with 27% (27,136,025 Frw) While Kabogobogo is the least with2%, (792,347 Frw).

However, in terms of cooperative membership Cyiri is the third with 1412 members behind Akanyaru which has 1716 and Rusuri with 1719. On other hand Agasasa cooperative has the smallest number of membership but still it holds large shares in the Union equivalent to 7%(7,452,492 Frw). The amount of shares owned by each cooperative is not related to

cooperative ‘memberships but to shares registered by members. It is also possible that farmers were not fully sensitized and facilitated to buy shares when the venture farming started. There is need to increase sensitization so that more farmers are aware about the importance of buying shares.

4.3 Market access

Access to market of both inputs and output is one of the major economic constraints that limit farmers from gaining decent income. Access to improved seed and to the appropriate technology to increase output to labour and to reduce drudgery is limited (Salami et al., 2010). Lack of credit to access inputs at reasonable prices limits farmers from using improved seeds and the required amount of fertilizers consequently reduce the productivity, the quality of product and its marketability. According to (Katherisan, 2011) the increased production and farm income in Rwanda has been weakened due to several factors including low use of improved inputs and limited access of output market. This section discusses the contribution of joint venture farming on joint venture farmers marketing issues.

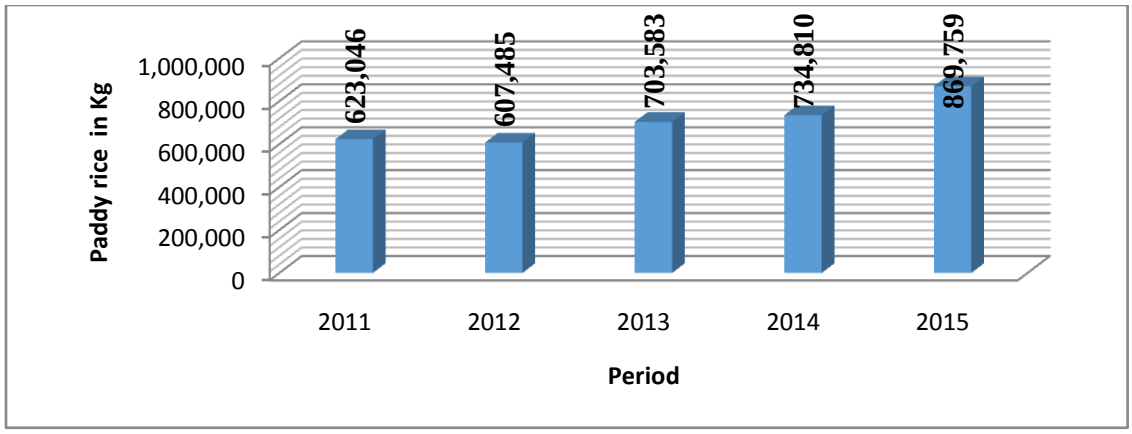
4.3.1 Fertilizers and seeds market

Improved access to inputs markets is the key precondition for the transformation of the agricultural sector from subsistence to commercial production. Small holder farmers often find organizing these resources difficult and perceive it as a constraint in raising the productivity and profitability (Kathiresan, 2013). Proponents suggest that promotion of JV farming enhances farmers; access to market and increased incomes.(Cotula and Leornard,2010).According to UCORIBU coordinator, before joint venture it was difficult for farmers to access sufficient amounts of good quality rice seeds and fertilizers. In old marshlands where rice has been grown over the past few years; marketability and the productivity was hampered by the low quality of seeds. Thus, in order to increase the rice production and to ensure a harvest-quality product the ICM conducted variety trials in collaboration with RAB to improve different varieties of rice to Rwandan farmers.Gkonko Rice Ltd joint venture signs with rice growers farming before season starts so that farmers can be provided with quality seeds and other facilities required to meet the demand of paddy rice like loan to buy fertilizers.

4.3.2Access to agricultural knowledge

According to the president of Cooproriz Nyiramageni the divergent production techniques practiced by individual farmers in Nyiramageni marshland caused the pool of paddy heterogeneity .Thus the quality of paddy lots was not uniform enough to ensure homogeneity in finished products (processed rice) and affect seriously the value of the commodity .With entry of ICM in rice production, joint famers are also provided technical assistance. This assistance tends to focus on the correct use of inputs and the management practices needed to meet the quality and food safety standards of consumers. In addition, basic business skills and techniques for managing smallholder cooperatives were taught, with the aim of enhancing links along the rice value chain. The government supported in rehabilitation of old marshlands with improved irrigation infrastructure (Kathiresan, 2013).Although rice farmer cooperatives hire the agronomist by themselves, Gikonko Rice Limited also gives incentives (Rwf 50,000 each) to cooperative agronomists for motivation and this contributes much to the increase in production and quality of paddy supplied. According to the president of Nyiramageni improved practices resulted in increases of 40% in paddy rice yield in 2011 to as shown in the figure 4.3

Figure 3: Rice production at Nyiramageni marshland (from 2011-2015)



Source: UCORIBU, 2016

According to figure 4.3, the increase in paddy rice was mainly the results of substantial increase in 2014 and 2015. Normally cooperative leaders, farmers with support from UCORIBU and factory assess the possible rice quantities to be produced before the harvest. This exercise is normally taken some weeks before the harvest. Ideally this enables the factory and cooperative

management to plan season's expenditure and required processing capacities. From field survey it was found that on average the minimum paddy rice harvested was 1000kg on a plot ranges between (5-15 acres) while the maximum was 8,600kg on 70 and above acres

4.3.3 Output market

In Rice sub- sector Paddy marketing is one of the major economic constraints to improving farmer's economic position. Following the instructions from MINICOM, farmers' were supposed to sell their paddy only to their respective cooperatives/union. The mills owned by farmers' co-operatives collect rice from farmers but generally take time before they pay the cash to farmers, just because there is a lack of briskness in selling paddy rice and stocks are increasingly being held at cooperatives. This is mainly because the farmers' co-operative committee needs to voluntarily ask for bids (after collecting a significant amount of paddy from farmers in the area) from a few traders to whom they can sell the milled rice (Kathiresan, 2011)**.**Therefore Rice farmers hid a significant portion of their harvest and sell themselves to the traders and/or rice mills located in the vicinity where they can get cash for their produce. In the absence of a guiding value, the traders purchase the grains from the farmers often at lower prices. But farmers tend to prefer this route for they get immediate cash and escape the transportation costs of harvest from farmer's field. However with Joint venture, first, the company offered the smallholders and their cooperatives a guarantee that it would buy all paddy rice harvested, at a predetermed price paid on time. Currently, joint venture farmers supply all paddies harvested to the factory and the transport is covered by the factory. During the discussion with farmers, rice growers revealed that they appreciate more to trade with the joint company of Gikonko Rice Ltd than other rice millers and were willing to supply the adequate quantity of paddy rice needed due two major reasons:

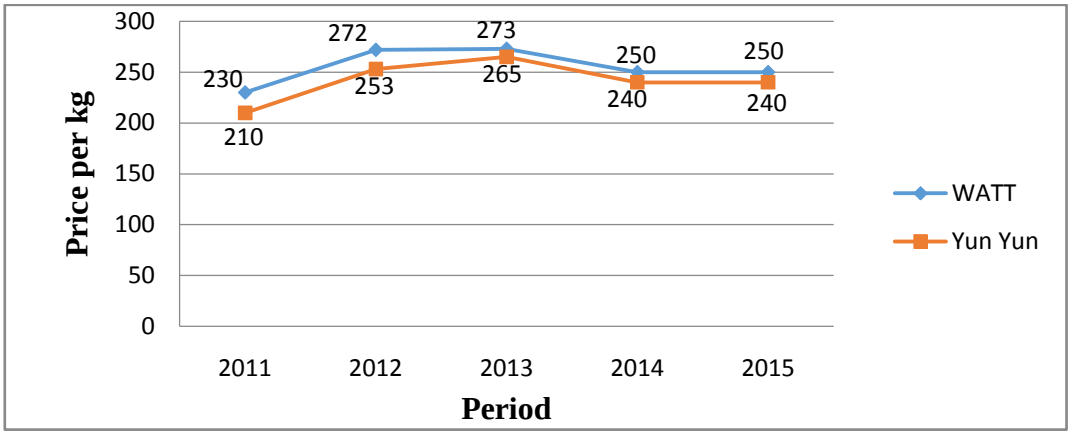
-First; ICM provides guaranteed and profitable market (good payment modalities and covers the transport costs)

-Second; ICM facilities joint venture famers to easily acquire inputs on time. However, cooperatives are required to monitor paddy production and collection to ensure high quality of produce because when these requirements are not met the factory refuse to buy the paddy and trading in such case is done by the Union and the cooperative which failed to meet the required quality of paddy grain.

4.3.4 Paddy rice Pricing

The advantage with joint famers is that price is predetermed before harvest and the price fixed cannot be changed as it happens with private traders. The idea is also supported by (Miyata et al., 2008) arguing that, the use of formula pricing reduces the risk of losses by farmers and manipulations of private traders. The rice varieties commonly grown in Nyiramageni marshland include WATT and YunYun . According to respondents WATT is sold at higher price because it is characterized by long grain compared to Yun Yun.However, on the other hand Yun Yun is the one that gives higher yield and it is also preferred by farmers because it can resist in case of water shortage. The figure bellow indicates the changes occurred in rice prices from 2011-2015

Figure 4: Evolution prices from 2011-2015



Source: Field survey, 2016

According to the coordinator of UCORIBU, with entry of ICM prices of rice shot up because the quality of paddy rice was improved. The figure 4.4, shows that the prices spiked more drastically in 2012 and 2013 (From 230Rwf in 2011 to 277 and 273 Rwf in 2012 and 2013 for Watt) and (From 210 Rwf in 2011 to 253 and 265 Rwf in 2012 and 2013 for Yun Yun) before dropping to around (250 and 240Rwf) in 2015.However famers say that they face a problem of increased prices of fertilizers. Their wish is to have prices of unprocessed rice to rise too.

4.3 .5 Rice processing

According to UCORIBU coordinator before joint venture Gikonko Rice factory was ill equipped and poorly maintained .long and short grain of paddy rice and processed rice was not separated. It was not graded, long and short grain were mixed and packed in the same sac of only 25 and 50 kg. All these issues this was the major factor affecting the quantity (volume) and value (quality)

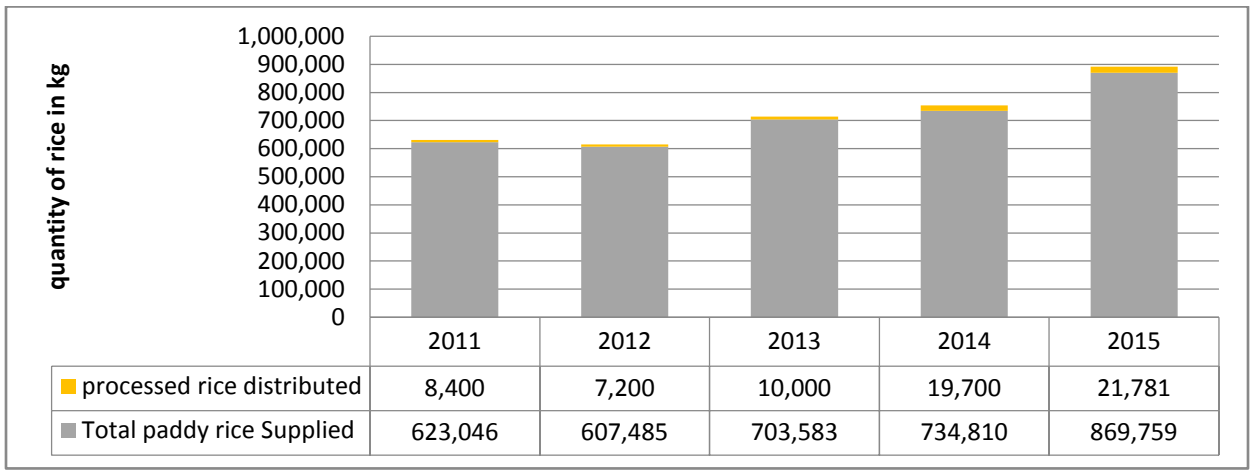
of grain processed .Low quality limit marketability and profitability consequently causes differential pricing and delays farmer's payment just because of lack of finance the factory could not pay all famers at once, they use to wait until the ½ of processed rice is sold. However With entry of ICM in Gikonko rice factory, the ICM refurbished the dilapidated mill buildings and provided capital, engineering, technical and agronomic support to increase the quality of paddy and processed rice. Today Gikonko rice factory is modernized with new equipments such as dehuskers, de-stoners, polishers, and paddy separators, length graders, blending and bagging facilities, currently, Gikonko Rice Ltd generates three different grades viz., Grade 1 (up to 10% broken), Grade 2 (10-25% broken) and Grade 3 (25-50% broken). In addition the milled rice is packaged in 2, 5, 25 and 50 Kg bags. The bags display the names of variety and other technical details such as Grade, mill location (including Rwanda as country's name), number of lot, weight, and expiry date as suggested by RBS (Cathiresan, 2013) . ICM has introduced a Rwanda Rice Brand "Luck Rice ".Besides, the transformation of paddy rice into consumption rice, the joint company introduced by product briquettes' which are now used by prisons to recover waste husks and also introduced new products, rice flour, animal feed to expand the market for Rwanda rice.

4.3.6 Rice distribution

Distribution is the process of making a product or service available for the consumer or business user that needs it. This can be done directly by the producer or service provider, or using indirect channels with intermediaries. Gikonko rice is distributed in the domestic market directly to consumers through 18 retail outlets 17 rice shops(Luck Rice) owned by ICM all over the country More importantly rice growers also are provided a proportion of processed rice and animal feeds as encouragement and they get it below the market price and the exercise is done each season things which has not been seen in other joint ventures assed in the literature. The process of animal feed production started in 2015 and farmers were given 2,200 tones in total for 55Frw /kg while the market price was 80Rwf/kg. For processed rice the process started with the establishment of joint venture .Cooperative members are allowed to register and purchase processed rice through their cooperatives. Then cooperatives submit the list of farmers to the factory. Accordingly, the amount of processed rice requested by a farmer should not exceed the quantity of paddy supplied to the cooperative. As such some farmers may register for processed rice while others not. For instance, in 2011 the average price for processed rice at the factory was

640 Rwf/Kg while cooperative members purchased the processed rice at 465Rwf/Kg whereas in 2015 the average market price was 700Rwf/Kg and farmers paid 480Frw/Kg.The figure 4.5, indicates the amount of milled rice brought back to Nyiramageni's farmers in the period of (2011-2015) in accordance to paddy rice supplied to the factory by the cooperative

Figure 5: Distribution of processed rice (2011-2015)



	2011	2012	2013	2014	2015
processed rice distributed	8,400	7,200	10,000	19,700	21,781
Total paddy rice Supplied	623,046	607,485	703,583	734,810	869,759

Source: UCORIBU, 2016

According to figure 4.5, the total milled rice received by Cooproriz Nyiramageni is 67,081kg in the last 5years. Milled rice given to cooperative increases as the paddy supplied to the factory increases and farmers also acquire milled rice in accordance to the quantity of paddy rice supplied to the cooperative. According to figure 4.5, processed rice received in 2011 was 8,400 ton and it decreased to 7,200 kg in 2012 because paddy supplied to the factory decreed by 14% however it increased to 21,781kg in 2015 because the paddy supplied increased by 40%.On average the lowest quantity that a farmer can receive is 5kg and the highest quantity is 50kg per season.

4.4 Joint venture farmers' income

This section discusses various sources of income derived from being in joint venture farming. Joint venture famers receive various income which includes, dividends, bonus and advances but the main income that a farmer relies on in a joint venture arrangement is the regularly income from produce sold per season.

4.4.1 Net income

This study used net income as farmer's income indicator. However net income could be calculated for the year 2015 because farmers' income and expenses employed in rice production are not recorded regularly to monitor changes throughout the year.

- **Annual farm expenses and income**

Business models in the agricultural sector are widely seen as a means of providing access to capital, and profitable and sustainable markets for smallholders who may otherwise be marginalized and are therefore seen by many as an effective means of rural development through increased income (Vermeulen and Cotula, 2010).In this study, the income is defined as income earned from rice sold and while expenses considered are major costs spent in rice among others inputs, land preparation, planting, administrative costs, harvesting drying, guarding winnowing, and packing of produced paddy. However transport is not included because it is covered by Gikonko Rice Limited Joint venture.

Table 2: Revenues and expenses

	N	Minimum	Maximum
Total revenue	63	240000	2150000
Total expenses	63	25000	300000
Net profit		215000	1850000

Source: Field survey, 2016

Rice farming is increasingly becoming the major source of income for majority of farmers in rural areas. According to this table, farmers managed to minimize cost of production resulting in net income that was sufficient to cover the general expenses and generate minimum annual profit of 215,000Rwf for farmers operating on 5-15acres and maximum net profit of 1850000Rwf for farmers operating on 70 acres and above. According to the president of Nyiramageni the increased income is the results of increased of paddy rice supplied and the reduced cost including transport cost currently covered by the factory but it was also found that in some households with adults members they contribute to the family farming activities instead of using hired labour and hence reduced costs. This is in line with the report of (Ogbonna, 2009, cited in Joseph et al., 2013) that farm households tend to maintain large family size, obviously to meet the large labour needs during the farming season. In addition to regular income, Profits made by the joint venture are expected to be paid as dividends or as bonus to shareholders. The next section talks about additional advantages that a joint venture farmer receives.

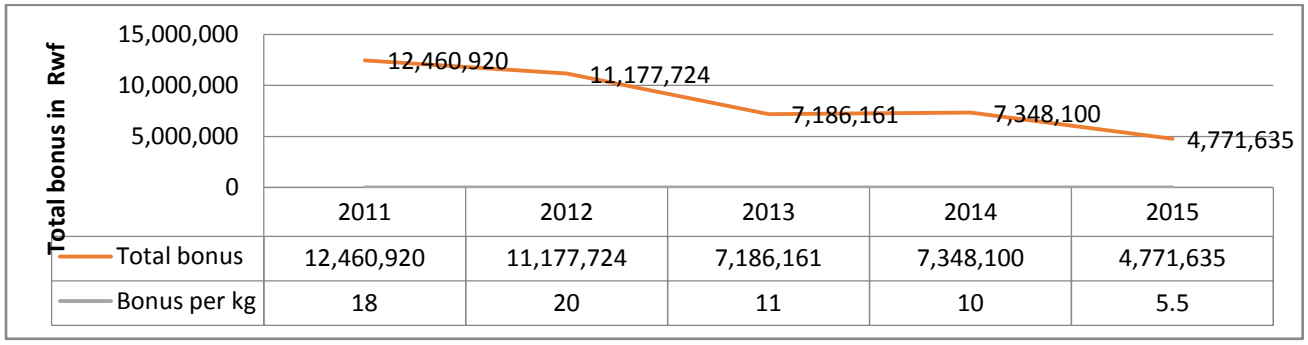
4.4.2 Additional income from joint venture farming

Successful joint venture provides various source of income in addition to sales .However, it was found that, in some cases, this increase is only temporary because some venture, farmers don't receive dividends regularly others shareholders must wait a long time before they can expect dividends of any sort and others are characterized by delay payments of famer' produce sold (Mayson, 2003).The same thing was noticed by (Lahiff and al., 2012) in South Africa where commercial farmer or agribusinesses retain effective control over all business decisions and find a ways to conceal dividends .Therefore the researcher was interested to know if the Joint venture of Gikonko provides such advantages or not to small farmers and findings are stated in the next figures.

4.4.2.1 Bonus

Within UCORIBU cooperatives, the joint venture company buy all produce harvested buy farmers to a price fixed in advance. But more importantly, farmers are provided an extra payment called bonus.A bonus is an additional compensation given to an employee above his/her normal wage. A bonus can be used as a reward for achieving specific goals set by the company, or for dedication to the company. For joint venture at Gikonko, when the sales of the company hit above the expected sales .ICM provides incentives per kg of paddy rice supplied by a farmer. Total bonus and bonus per kg of paddy rice in the last 5 years is stated in the figure 4.8

Figure 6: Bonus distribution



	2011	2012	2013	2014	2015
Total bonus	12,460,920	11,177,724	7,186,161	7,348,100	4,771,635
Bonus per kg	18	20	11	10	5.5

Source: UCORIBU, 2016

According to the figure 4.8 in 2011 cooproriz Nyiramageni received the total bonus of12, 460,920Rwf.Generarly, per unit production a farmer gets Rwf 5 to 20 more than the market price and farmers' bonus increases as paddy supply increases

4.4.2.2 Dividends

Joint venture schemes are good idea, as they provide beneficiaries with a tangible commercial asset that can yield good dividends and grow in value over time. Profits that are not reinvested in the business (dividends) are shared proportionately with ownership. (Vermeulen and Cotula, 2010).

In this case of Gikonko joint venture, it was found that, although farmers have not received dividends from the joint venture yet, The joint venture, started to release farmer's dividends in (2008) two years after the establishment of Joint venture between ICM and rice cooperatives. From 2008 up to 2012 the total dividends received by UCORIBU is amounted to 57,791,468.However in 2013, 2014, 2015, the ICM gave bonus only, dividends were not provided. According to UCORIBU coordinator, 23 % of dividends received from the joint venture were used to clear the remaining debt (13,000,000 Rwf) farmers owed to the Government amounting to 100 million (40% of the factory) the amount that would have been paid cash by farmers because farmers contributions were 83,000000Rwf only.

23%(13095299) were used to set up a co-operative bank that currently act as a savings vehicle while advancing various loan facilities to its members .Currently on UCORIBU accounts there is 31,678,169Frw (55%) of the total dividends planned to be distributed among famers end 2016 because, they are still waiting the government proof confirming that the debt has already been cleared and allow them to start the distribution of dividends among rice farmers through their respective cooperatives.

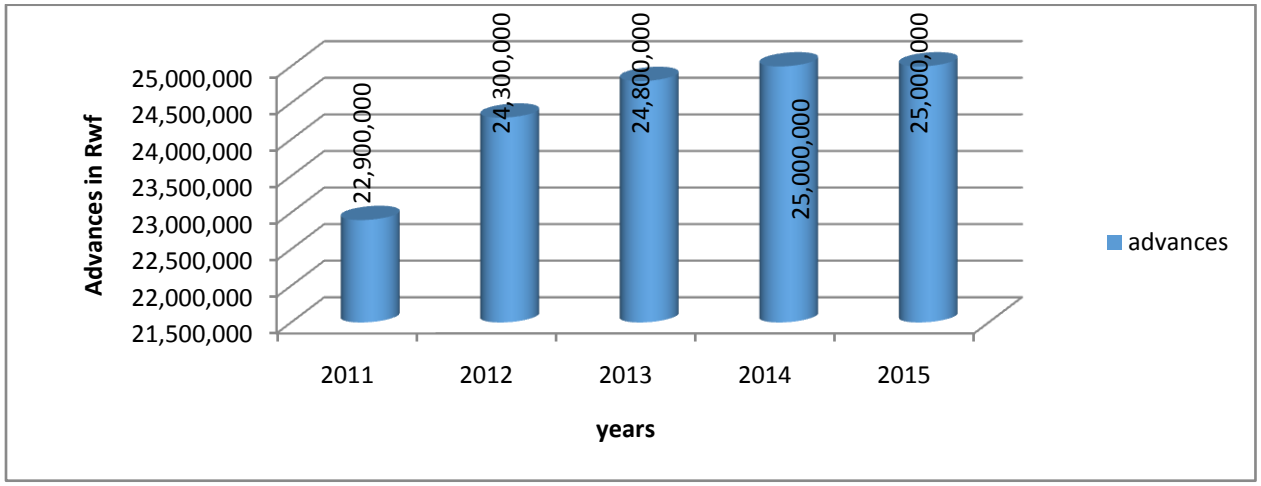
In addition to various incomes cited above, farmers are being helped by the factory to solve their financial problems through another source of income called advance payment details are in the following section.

4.4.2.3 Advance payments

In addition to bonus and dividends farmers are supported to afford farming cost and to satisfy their basic needs even before harvesting and trading of paddy rice. According to farmers, before joint venture the following season would come while payment of first season have not yet done and this forced farmers to delay farming activities of the next season and prevented them to satisfy their family needs. However, with joint venture, farmers are not only paid on time their wages but they can also ask for advance payment on their salaries to solve their problem and pay

it later with sold paddy, thing which has never been done before. The figure 4.9 shows clearly the amount of advances the joint company provided to cooproriz Nyiramageni in (2011-2015) to support farmers in need of cash.

Figure 7: Distribution of advances



Source: UCORIBU, 2016

The figure 4.9 shows how the joint venture facilitates farmers to enjoy their farming income even before trading. In 2011, the total advance provided to cooproriz Nyiramageni for his farmers was 22,900,000Frw and 25,000,000Frw in the last year (2015).According to the present of cooproriz Nyiramageni ,famers register the amount of advance they need for farming activities or family needs and the cooperative check if the expected produce of these farmers will be able to pay the credit and then submit the list of registered farmer to the factory and then factory release the money which will be later ducted to farmers pay.

4.5 Problems faced by joint venture farmers

The problems faced by the farmers and the firms under contract farming is as shown in table 4.3

Table 3: Problems faced by the farmers

Problems	Frequency		Percentage	
	Yes	Non	Yes	Non
Low prices of paddy rice	43	20	68%	32%
Technical assistance not sufficient	39	24	62%	38%
Water shortage	63	0	100%	0%
Inadequate communication	41	22	65%	35%
Inadequate seeds	63	0	100%	0%

Source: Field survey, 2016

From table 4.3, the major problems faced by farmers under joint venture were water shortage and inadequate seeds mentioned by all farmers (100%).Insufficient technical assistance with (62%) and low prices of paddy rice with 68%, these are common problems affecting most farmers in many developing economies.

4.6 Hypothesis Testing

The stated hypothesis was: To accept or to reject the statement stating that ‘’ Joint venture between UCORU and ICM has improved farmers ‘income and access to market. As far as hypothesis is concerned, the study hypothesis cannot be rejected because findings show that the joint venture has really improved farmers income and market access is no longer a constraint to rice farmers operating under Gikonko Rice ltd joint venture.

The joint venture between ICM and rice farmers improved rice marketing from production process through provision of seeds, loan for fertilizers and technical assistance and this contributes much to the increase in production quality of paddy supplied ,prices per kg which shot up from 220 to 245 in 2015 and even rised up to 263 and 269 in 2012 and 2013 as stated in the figure 4.4 .Paddy rice increased by 40% from 2011 to 2015 and income as well because famers have a sustainable ready market with free transport cost for all paddy harvested ,and payment is done on time. Farmers managed to minimize cost of production resulting in net

income that was sufficient to cover the general expenses and generate minimum annual net profit of 215,000Rwf for a farmer operating on 5-15 acres and maximum net profit of 1,850,000Rwf for a farmer operating on 70 and above acres

In addition to regular income derived from paddy rice joint venture farmers are given bonus for meeting paddy rice target delivery which ranges between 5-20Rwf as shown by figure 4.8 and other incentives like advances as shown in figure 4.9 and the advantage of buying processed rice bellow market price as shown by figure 4.5.More importantly the joint venture paid dividends amounting to 57,791,468 and enabled farmers to pay the remaining debt acquired to buy 40% of Gikonko Rice Limited joint venture and to set up set up a co-operative bank that currently act as a savings vehicle while advancing various loan facilities to its members

CHAPTER FIVE: DISCUSSION, CONCLUSION and RECOMMENDATIONS

5.1 Introduction

This chapter includes the summary of findings, discussion from findings of the study. In addition to this the general conclusion and recommendations are drown.

5.2 Summary

Rice is increasingly becoming a major source of income, employment and nutrition in Rwanda. The numerous activities undertaken in rice value chain provide employment either directly in rice production or other support services. Studies show that rice production increased from 11,654 tons in 2000 to 90,000tons in 2014 whereas the area under rice cultivation increased from 4,266 ha in 2000 to 16,000 ha in the same period.

The purpose of this study was to assess the impact of joint venture farming in rice production on smallholder's income and access to market in Rwanda. UCORIBU (Union of farmer cooperatives) was taken as case study. UCORIBU jointly owns 40% share of Gikonko Rice Company and ICM Company owned the remaining 60%. The joint venture farming is part of the government policy which target to promote smallholder market access and increasing their incomes. The joint venture at Gikonko rice has been in existence since 2006. However, the information about the effectiveness of joint venture farming and its impact on smallholder incomes and market accessibility is scanty. The study used both secondary and primary data in order to validate the objectives of the research. Secondary data included annual reports on rice production, total dividends generated, processed rice given to farmers and credit given to cooperative members. The primary information was collected from 63 farmers who were randomly selected from Cooproriz Nyiramageni one of 10 cooperatives of UCORIBU. The questionnaire was prepared and administered to smallholder farmers while interview guide was used to collect qualitative information from key informant's particularly cooperative leaders.

The key findings of the study show that the joint venture at Gikonko has been successful and has impacted the agricultural output in Nyiramageni marshland which increased by 40% from 2011 to 2015. And smallholders' income because prices have increased and farmers managed to minimize cost of production resulting in net income that was sufficient to cover the general

expenses and generate minimum annual net profit of 215,000Rwf and maximum annual net profit of 1850000Rwf .

Farmers have been able to access markets for inputs and outputs. The factory provides various supports in production process including inputs. The process takes place through primary cooperatives who gives input to farmers on credit and then the amount would be deducted from the payment after harvest. Additionally, rice farmers whose cooperatives form the union are assured of the market for their produce and this has reduced constraints related to whims of market. Gikonko Rice Limited joint venture purchases the whole paddy from famers whose cooperatives are part of union and transportation of the paddy from dry ground is catered by the factory. Furthermore, the cost of processing and marketing is incurred by the factory as well. Farmers receive payment of the paddy supplied to the factory immediately after the supply has been made and this enables farmers to meet the daily needs.

Besides that; farmers are regularly given advance payment whenever needed especially during planting season or a member needs cash for various reasons. This enables farmers to finance farming activities, cater for family needs or engage into micro-businesses.

Farmers are also allowed to buy processed rice at subsidized price. For instance, in 2015 the market price was 700Frw per kg for processed rice but farmers were allowed to buy processed rice from the factory at 480Frw per kg. The analysis indicates that in 2015 the total quantity of processed rice sold back to farmers at the price below the market price was (3%) of the total paddy rice supplied to the factory.

In addition, the joint venture company paid dividends to farmers since 2008 and bonus. However, despite the achievements realized so far; there are a number of challenges affecting joint venture at Gikonko rice. These include, low prices, inadequate seeds, insufficient technical assistance and shortage of water supply, necessity for rice growing.

5.3 Discussion of findings

The study aim was to know whether the joint venture farming has improved joint venture farmers ‘income and access to market. The findings revealed that the joint venture between UCORIBU rice growers and ICM has been contributed a lot to improvement of farmers ‘income and access to market. Joint venture farmers are provided quality seeds, loan to buy fertilizers and

technical advice which increased paddy rice quality and quantity, the main major causes of poor marketability and profitability of both paddy and processed rice. As encouragement, Gikonko Rice Limited also gives incentives (Rwf 50,000 each as monthly salary) to cooperative agronomists for motivation and this contributes much to the increase of quality of paddy rice and production by 40% from 2011 to 2015.Paddy rice harvested is purchased by the joint venture company at a predetermed price which increased on average from 220Rwf in 2011 to 255Rwf in 2015. Secondly, joint venture has improved farmers 'income through improvement of paddy prices, payments modalities and ready market. Besides, the joint venture pays farmers bonus which is an addition income for meeting the paddy rice delivery targets and farmers are seasonally given processed rice below market price to enjoy their own product. In addition farmers are also provided advances deducted from seasonal pay for free. Finally, the joint venture pays dividends amounting to 57,791,468Rwf ,from which 23 % of dividends received from the joint venture were used to clear the remaining debt (13,000,000 Rwf) farmers owed to the Government amounting to 100 million (40% of the factory) the amount that would have been paid cash by farmers because farmers contributions were 83,000000Rwf only.23%(13095299) were used to set up a co-operative bank that currently act as a savings vehicle while advancing various loan facilities to its members .Currently on UCORIBU accounts there is 31,678,169Frw (55%) of the total dividends planned to be distributed among famers end 2016 because, they are still waiting the government proof confirming that the debt has already been cleared and allow them to start the distribution of dividends among rice farmers through their respective cooperatives.Therefore concluded that joint venture can help small farmers raise their incomes through ready access to market as long as production and quality is increased

5.4 Conclusion

Raising the income of smallholder farmers and enhancing access to market and farm technology are given unique importance in agricultural policies in Rwanda. Indeed, the importance of rice farming in efforts to achieve smallholder incomes, food security and socio-economic development in Rwanda cannot be overemphasized. Rice farming in Gikonko has been practiced for many years. As part of government policy to increase rice production and value addition; rice processing factory was established in Gikonko in 2003.However, the factory could not meet the initial objective due to managerial problems and in 2005 the factory was privatized. Then in 2006 the union of cooperative (UCRIBU) and ICM which is a private company signed a joint

venture to run the factory. As part of the agreement, the cooperatives agreed to supply paddy to the factory while the private operator agreed to bring the needed technology and ensure marketing of processed rice. The study aimed to assess the impact of joint venture farming on smallholder incomes and easy access of market. Then; the joint venture at Gikonko rice factory was taken as case study. The key findings show that the venture has generated dividends over the years. And the union of cooperatives decided to use the accrued dividends to pay bank loan which the union had acquired to purchase shares equivalent to 40% of the factory value. Furthermore, farmers have benefited from the venture through income generated from rice cultivation, ready market, purchase of processed rice below the market price, and access to credits. Whereas; farmers acknowledge the benefits accrued from joint venture it would be important for them to get involved in running the factory through regular reports and participation in the general assembly meetings.

5.5 Recommendations

- The joint venture should set strategies to support farmers to use improved seeds. It was found the seed varieties used currently are not highly productive because it has been infected by the virus and this affects production in general thus depriving farmers' income.

- Farmers should be supported to sell the rejected paddy. Some time the factory rejects paddy brought by farmers when it does not meet the required standards. However, it is cumbersome for farmers to find a buyer of rejected paddy. It is therefore important for the factory to increase technical assistance and to monitor rice production from plantation to harvest in order to reduce loss as well as setting mechanisms to ensure that the low quality will be bought and processed for other purposes.

- The farmers showed that they have an issue of water which is a necessity for rice growing .So the study recommends that, the Government should put up a valley dam to ensure constant water supply in the area.

- Farmers should be allowed to participate in the general assembly meetings in which they can express their problems and appreciation and get chance to understand the financial

status and management procedures of the joint company to increase farmer's awareness and devotion towards joint venture.

5.6 Further research

Performance of joint venture can be measured through various objectives. However, the current study was limited to assess the joint venture between UCORIBU and ICM at Gikonko Rice Limited Joint venture .The aim was to know whether the joint venture has or not improved joint venture farmers' income and access to market but it is important to gauge and monitor the financial performance of Gikonko rice Limited to determine if there is really a proportional relationship between Gikonko Rice Limited profitability and joint venture framers profitability. The second suggestion concerns joint ventures established together with Gikonko like (Bugarama and Rwamanagana joint venture).They were declared as non performing but the agricultural researchers need to continue conducting research to ascertain the reason behind failure of these ventures and recommend possible measure to revive them .

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ELECTRONIC RESOURCES

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APPENDICES

Appendix 1: Informed consent

UNIVERSITY OF RWANDA

COLLEGE OF BUSNESS AND ECONOMICS

SCHOOL OF BUSINESS

MASTERS OF BUSINESS ADMINISTRATION (MBA)

Dear participant/Respondents,

I am carrying out a study /research entitled **‘’Assessing the impact of joint venture farming on farmers ‘income and access to market in Rwanda. Case study of UCORIBU famers”.**As part of partial fulfillment of the requirements for the degree of Masters of Business Administration, at University of Rwanda, Huye campus. This purely an academic research and your responses will be treated with confidentiality.

You are kindly requested to spare some time and answer the questions below.

Thank you.

Appendix 2: Instruments used in data collection

1 STRUCTURED INTERVIEW WITH THE COORDINATOR OF UCORIBU

Igika cya mbere:Imikorere n'imiterere y'ihuriro

Intego y'ihuriro cgangwa imirimo y'ingenzi:

……
……
……
……
……
……
……
……
……

Ese ihuriro ryatangiye ryari?.....**(**Umwaka)

Ese koperative zigize ihuriro zantangiye ryari kandi rifite abanyamuryango bangahe?

Izina rya koperative	Umwaka yatangiriyeho	Umubare wabanyamuryango	Umugabane nshingiro(fr)waburi cooperative muruganda
1.			
2.			
3.			
4.			

5.			
6.			
7.			
8.			
9.			
10.			

Garagaza Umubare wabakozi bahembwa bahoraho

Igitsina	Umubare
Gore	
Gabo	

Muri abo bakozi bavuzwe haruguru, garagaza Amashuri bize nu mubare wabanyamuryango ba ma cooperatives yanyu niba barimo

Imyaka bize	Gabo	Abari mu makoperative agize ihuriro	Gore	Abari mu makoperative agize ihuriro
Abatararangije abanza				
Abarangije abanza				
Abacukirije				

ayisumbuye				
Abarangije ayisumbuye				
Abarangije amakuru na Kaminuza				

Ese mwatangiriye ku amafaranga angahe nki imari shingiro yanyu?..... Frw mugeze ku fr angahe…….

Ese hari abakozi babanyamuryango banyu bakora mu ruganda

1=Yego,2=Oya

Niba ari yego uzuza imbonerahamwe ikurikira

Igitsina	Umubare	Abakozi bahoraho	banyakabyizi
Gore			
Gabo			

Abo bakozi bakora iyihe mirimo muruganda?.....
.....
.....
.....
.....

Igika cya kabiri:Imiterere n'imikorere y'ubufatanye(Joint venture)

Ese hari uruganda rutonora rukanatunganya umuceri mu karere ?

1= Yego, 2=Oya

Niba ari yego ni urwande

1= Nurwa leta, 2= Umushoramari, 3= ihuriro(UCORIBU), 4= Lata nu mushora mari, 5= Ihuriro nu mushora mari, 6= abandi(bavuge)

Niba ari urwanyu mwarubonye ryari ?.....(umwaka)
Mwabifashijwemwo nande gushing urwo ruganda?.....
1=Ubuyozi bwa leta, 2=NGO, 3=Umushoramari, 4=Abandi (bavuge)……..

Ese mufitemo uwuhe mugabane?.....% by'uruganda rwose

Ese izo % zingana zite uzishyize mu fr……

Ese yose mwamaze kuyishura? 1=Yego, 2= Oya

Niba ari oya musigaje angahe…….

Niba ari yego mwayishyuye mukoresheje fr
mukuyehe……..

……
…….

Uwo mufanije uruganda afite umugabane ungana iki?.....ninde……..
……..

Uruganda ruyobowe
nande?.....
.....

Ese ubuyobozi bwi huriro(UCORIBU) buba mu nama ifata ibyemezo yuruganda?

1=Yego, 2=Oya

Niba ari oya sobanura impanvu……

Niba ari yego inama ifata ibyemezo y'uruganda igizwe nabangahe abi huriro ni bangahe

.....

Inama ifata ibyemezo iterana kangahe?.....

Niyihe ntego cg impanvu zingenzi zatumye leta ibahuza nu mushoramari ?.....

.....

.....

Ese mubona muri rusange zaragezweho? 1=yego, 2=Oya

Niba ari oya mubona hakorwa iki?.....

.....

……

Ese hari abakozi bahoraho muruganda baba nyamuryango bihuriro 1=yego, 2=Oya

Niba ari yego ni bangahe ?.....

.

Uhembwa menshi ahembwa angahe uhembwa make ahembwa angahe?

Ese hari abakozi banyakabyizi bihuriro bakora muruganda? 1=yego, 2=Oya

Niba ari yego ni bangahe?.....
.....

Bahembwa angahe ugereranyije mu kwezi?.....

Igika cya gatatu A:Ibyagezweho kubw'ubufatanye n'umushoramari

Ese mubona kuba uruganda rwarahawe ihuriro nu mushoramari hari icyo byabafashije ugereranije mbere na nyuma yo kuruhabwa? 1=Yego, 2=Oya

Niba ari yego garagaza ibikorwa byingenzi mufashwamo

Inkunga	1=Yego 2=Oya	Vuga icyahindutse	Niba hari service muri izo zishyurwa vuga ikiguzi muzitangaho mu gihembwe
Amahugurwa mu byuhinzi			
Amafaranga(inguza nyo)			
Ikoreshwa nitangwa ry'imbuto			
Ikoreshwa nitangwa ry'ifumbire			
Ikoreshwa nitangwa ry'Imiti			
Amahugurwa mugufata neza			

umusaruro			
Inkunga yibikoresho byo gufata neza umusaruro(imbuga, ububiko,..			
Transport yu musaruro kugezwa kuruganda			
Imifuka yo gutwaramo umusaruro			
Isoko rihoraho ryu musaruro wabahinzi			
Gutunganya umusaruro			
Kugeza umuceri ku masoko			
Igiciro			
kwishyurwa			

Niba hari ibindi bitavuzwe haruguru bivuge……
……
……

Ese hari icyo uruganda rufasha abahinzi mu bikorwa byabo mugihe batarasarura ngo babone uko basarura neza bageze umusaruro aho wagenewe 1=Yego, 2=Oya

Niba ari yego garagaza fr mwahaye ama cooperative yanyu muri icyo gikorwa cyo gusarura

Umwaka	2011	2012	2013	2014	2015	2015	2016

Ese umuceri wanyu ucururizwa hehe?

…… ..

1=amashuri, 2=amasoko asanzwe, 3=kubacuruzi basanzwe, 4=amagereza, 5=hanze yigihugu, 6=ahandi (havuge)

Ese muri abo bavuzwe haruguru, hari abo mufitanye amasezerano? 1=Yego, 2=Oya,

Niba ari yego bavuge

…….

1=amashuri, 2=amasoko asanzwe, 3=kubacuruzi basanzwe, 4=amagereza, 5=hanze yigihugu, 6=ahandi (havuge)

Niba ari oya bikorwa bite?.....

Ese ibiciro byishurwa umuhinzi mubigena mukurikije iki?.....

Ese nyuma yubucuruzi bw' uruganda hari amafaranga (Dividends) mubona 1=Yego, 2=Oya

Niba ari yego hakurikizwa iki……

Garagaza igihe mwatangiriye kubona inyungu ziva mu bucuruzi bwuruganda

Dividends					
	2011	2012	2013	2014	2015
Inyungu zahawe Ihuriro(fr)					

Ese bibaho ko uruganda rudatanga inyungu 1= yego, 2= Oya

Niba ari yego biba byatewe niki?.....

.....

……

……

……

……

Ese abanyamuryango bihuriro nabo izo nyungu zabagezeho? 1=Yego, 2=Oya

Niba ari oya amafaranga yinyungu yakoreshejwe iki?.....

……

……

Ese uruganda rubaha bonus 1=yego, 2=Oya

Niba ariyego hashingirwa kuki kugirango muyihabwe…….

……
……

Ese iyo bonus igera kubahinzi 1=Yego, 2= Oya

Niba ari yego garagaza bonus yahawe amakoperative uhereye igihe batangiriye kuyihabwa na fr umuhinzi yahabwaga ku (kg)

Umwaka	2011	2012	2013	2014	2015	2015	2016

Ese umuhinzi yabonaga fr angahe kg nyuma ya bonus ugereranyije na mbere

imyaka	Umugufi wari waguzwe kg ku fr angahe	Kubera bonus igiciro cyazamutse gute	Umuremure Wari waguzwe kg ku fr angahe	Kubera bonus waguzwe ku fr angahe
2011				
2012				
2013				
2014				
2015				

Ese uruganda rwaba ruha abahinzi amahirwe yo kubona umuceri nyuma yo kuwutunganaya 1=Yego, 2=Oya

Niba ari yego ruwubaha hakurikijwe iki…….

……
…….

Ese ama koperatives yose ahabwa ibiro byumuceri bingana? 1=Yego , 2= Oya

Niba ari oya muwubaha mushingiye

kuki……

…

……

……

Garagaza ibiro/tones by'umuceri utonoye mwahaye ma cooperatives mumbonerahamwe

	2011	2012	2013	2014	2015	2015	2016

Garagaza ibiciro mwabaheragaho umuceri utonoye ni byari kwisoko

imyaka	Igiciro muheraho abahinzi umuceri utunganije	Igiciro kiro kw'isoko cy'umucer utunganije
2011		
2012		
2013		
2014		
2015		

Ese uruganda rwaba rubaha inguzanyo? 1=Yego, 2= Oya

Niba ari yego garagaza inguzanyo mwahawe

Umwaka	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Inguzanyo mwahawe(fr)										

Ese rwaba rubafasha mu bwishingizi bwo kubona inguzanyo mu ma bank? 1= Yego, 2= Oya

Niba ari yego ni ryari muheruka gufata inguza mubifashijwemo nu ruganda?.....

Yari angahe kandi mwayifashe muyihe banki…….

Ese yakoreshejwe mubiki ?1= kugura imbuto ni fumbire,2= guhemba abakozi,3= kugura ibikoresho,4= ibindi bivuge

……
……

Ese mwebwe mufasha ama cooperative kubona inguzanyo 1=Yego, 2= oya

Niba ari yego ese izo nguzanyo zishyurwa neza kugeza ubu ntakibazo muragirana nabo ?1=Yego, 2= oya

Ese abahinzi banyu babona amazi ahagaje? 1=Yego, 2= oya

Niba ari oya sobanura uko ikibazo
gteye……

……
……..

Ese umusaruro ugezwa ute ku ruganda? 1= turawitwarira, 2= ama koperative arawitwarira, 3=abahinzi barawitwarira, 4=uruganda rurawitwarira, 5=ubundi buryo (bivuge)

Igika cya kane:Ibitaragezwe ,imbogamizi n'icyakora ngo ubufatanye bugere ku ntego zayo ku buryo burambye

Nibiki mwari mwiteze kubufatanye(Joint venture) nu mushoramari kugirango ubuhinzi bw'umuceri ndetse nabahinzi muri rusange batere imbere……
……
……

Ese mubona byose byaragezweho 1= yego, 2= oya

Niba ari oya garagaza ibyo ubona bitagezweho:……
……
……
……

Niki mubona cyakorwa kugirango ibitaragezweho bigerweho:……
……
……

MURAKOZE

2 QUESTIONNAIRES FOR RESPONDENTS

Section A: Household characteristics

Cell……..

Sector……..

District……

Province……

A 1: Gender of the respondent: 1=Male ☐ 2= Female ☐

A2: Position of the respondent in the household

1=Head of the house hold, 2=other (specify)

A3: Marital status

1=Single, 2=Married, 3=Widow, 4=Widower, 5=Divorced,6=Separated

A 4: Level of education

1=Never been at School, 2=Not completed primary school, 3=Completed Primary school, 4=Not completed secondary school, 5=Completed primary secondary school, 6=University, 7=other (specify)

A5: Age of the respondent……..

A6: How many people are currently living in your household?

Number of adults >16 years	Number of children(<16years)

SECTION B: Household activities

B1: What is your major source of income?

1=Farming, 2=Agriculture, 3=Business, 4=Civil servant, 5=other (specify)

B2: If the above answer is agriculture, what is your major crop grown?

1=Maize, 2=Beans, 3=Rice, 4=Soya, 5=sorghum, 6=other (specify)

B3Do you have any other source of income 1= yes ☐ 2=non ☐

B4If yes from which activity 1=Business, 2=Hand crafts, 3=livestock

SECTION C: A: Marketing channel for rice commodity in the last 12 months

	season	Variety of rice grown	Area (acres/ha)	Total harvest (kg/tons)*	Quantity consumed at home in kg**	Quantity sold in kg***	Price Rwf/kg		Estimate the cost incurred in the last 2 season****
							Long grain	Short grain	
2015									

*1= lower than 500kg, 2= 500-1000kg, 3=1100-2100kg, 4=2200-3200kg, 5=3300-4300kg, 6= 4400-5400=5500kg and greater

**1= less than 50kg 2=50-100kg, 3==110-200, 3=more than 200kg

***1= lower than 500kg, 2= 500-1000kg, 3=1100-2100kg, 4=2200-3200kg, 5=3300-4300kg, 6= 4400-5400=5500kg and greater

**** 1=less than 50000fr, 2=50000-100000fr, 3=110000-160000, 4=170000-220000, 5=230000 and greater

C 2: Product processing

C2.1: Do you have a processing plant? Yes ☐ 2=No ☐

C2.2: Are the sole proprietor Yes ☐ 2=No ☐

C3: If no who is your partner 1=Government, 2=Private investor, 3=NGO, 4=don't know, 5=other (specify)

C4 what is the reason of undertaking the joint venture 1=to obtain financial benefits, 2=to increase income, 3=Access to market, 4=to increase production, 5=for greater effectiveness in production

C5: Does the joint venture (plant) help you? Yes ☐ 2=No ☐

C6: If yes select from the table below, the advantage of interring into joint venture

Support	1=Yes 2=Non	Give an example for each activity
Developing new farming technology		
post harvest techniques		
Post harvest equipments		
fertilizers availability		
Seeds availability		
Gaining additional financial resources(Dividends, Bonus, credity)		
Access to market		
Access to processed rice		

C7: If there is any other advantage not mentioned above please give it.....

.....

C8: Do you see any changes in your farming activities and incomes and your well being in general before and after having your own processing plant. 1=Yes, 2=Non

C9: If yes how successful was the joint venture 1=Undecided, 2=Moderate,3=Well, 4=As expected, 5=Worse

C10: list the benefits you have gained from rice income

1=improved farming activities (Inputs, land preparation), 2=Bought land, 3= House rehabilitation/house contraction, 4=paid school fees, 5=Bought livestock, 6=Bought health insurance, 7 = bought a bicycle, 8= bought a car, 9=other (specify)

SECTION D: Challenges faced by rice farmers

D1 What constraints do you face in the joint venture farming?.....
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.....
.....

D4: Briefly give your suggestions to the problem mentioned.....
.....
.....

THANK YOU