

**FACTORS INFLUENCING IMPLEMENTATION OF RICE FARMING  
INTENSIFICATION PROJECT IN KARUSI PROVINCE, BURUNDI**

**BY**

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## DECLARATION

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## **DEDICATION**

I dedicate this thesis to my family; to my husband Denis Nkurunziza for his financial support; to our children, Bethel, Caleb and Evan for their moral support; to my mother and mother in law; to my brothers, Armel, Eustache, Edouard and Martin; to my sisters, Adeline, Micheline, Evelyne, Claudine, Justine and Gerardine for their prayers and words of encouragement.

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## ABSTRACT

Food security is an issue concerning the whole world, especially in sub-Saharan Africa. Several projects were implemented in response to the threat. The success of these projects depends on several fundamental factors. This study evaluated the factors influencing implementation of rice farming intensification project in Karusi province, Burundi. The study was prompted by low production of rice in Burundi, even when countries like Rwanda and Sri Lanka with comparable environment are recording higher returns. The study evaluated the SRI project introduced by PAIVA-B 2010. The aim of the study was to evaluate the factors responsible of implementation of Rice Intensification (SRI) in Burundi. Specifically, the study examined the influence of management competence factors on project implementation; determined the influence of project characteristics on project implementation; identified the influence of organizational factors on project implementation and finally explored the influence of external environment factors on project implementation. The study was based on the complexity theory and the new framework for determining critical success or failure factors in project. It used the mixed method approach which involves the combination of qualitative and quantitative research methods. The study adopted a descriptive research design where the questionnaires and interview schedules were used as research instruments. The target population was the rice farmers of Karusi province who are beneficiaries of the project and operators of Nyabiho marshland. The target population was 2612 households from which the sample size of 190 households was determined using a formula provided by Yamane. Five project team members were interviewed. In the selection of the study sample, it used the simple random sampling techniques and each member of the population had equal chance to be selected. The Cronbach alpha reliability was acceptable at 0.73. The hypotheses were tested using Spearman's rho correlation. The study found out that there was a strong positive relationship between management competence [ $r=.759$ ,  $n=190$ ,  $p<.001$ ], project characteristics [ $r=.518$ ,  $n=190$ ,  $p<.001$ ], external environment factors [ $r=.590$ ,  $n=190$ ,  $p<.001$ ] and the success of the system of rice intensification. This indicates that an increase in competence of management, project size, value, uniqueness, external environment factors lead to an adequate success of SRI. It also found out that there was no relationship between organizational factors and success [ $r=.147$ ,  $n=190$ ,  $p=.043$ ] as the p value was  $>.001$ . The findings of the study shall be beneficial to the PAIVA-B project and other similar projects and for the government of Burundi. It will also be beneficial to other researchers in the field of project management especially those interested in factors that promote or inhibit the successful implementation of agricultural projects and novel farming techniques. Based on the findings of the study, it is recommended that the project managers and all stakeholders give the community members the opportunity to participate during the planning phase. It is also recommended that the government invest more in farming project so as to increase farmer's income.

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### **OPERATIONALIZATION OF TERMS**

**Agricultural intensification:** A way of increasing rice production per unit of inputs such as square measure, time, labor and seed.

**Community:** A group of people who live together in a Karusi province and have common characteristics.

**Community participation:** engagement of community members of Karusi in activities undertaken in their community and that affect their lives.

**Evaluation:** The assessment of the overall PAIVA-B project effects, which involves comparisons requiring information from outside the project either in time, area, or population. Evaluation will draw on the data generated by the monitoring system to help explain the trends in effects and impact of the PAIVA-B project.

**Implementation:** The phase of the Project Management process where the PAIVA-B team starts to put project plans into action.

**Monitoring:** A continuous assessment of PAIVA-B during which some of the project team members collect the information. This information is used to enable management, to assess progress of implementation and take timely decisions to ensure that progress is maintained according to schedule.

**Organization:** an organized group of people structured and managed to achieve a collective goal.

**Project:** A series of activities planned for being undertaken within a given time and a precise budget.

**Project management:** The skills, tools and management process needed to undertake the PAIVA-B with success (Westland, 2006).

**System of Rice Intensification:** a new technique of farming rice to smallholders, by using less seed, land and water, the new technique significantly increases rice yields in most cases, but at the same time intensifies work requirements at some stages.

## LIST OF ACRONYMS

**ADB:** African Development Bank

**CIIFAD:** Cornell International Institute for Food, Agriculture and Development

**ENNDA:** Ewaso Ngiro North Development Authority

- FAO:** Foods and Agriculture Organization
- FAOSTAT:** Foods and Agriculture Organization Statistics
- IFAD:** International Fund for Agricultural Development
- ILEIA:** Centre for Information on Low External Input and sustainable Agriculture
- ISTEEBU:** National Institute of Economic Statistics of Burundi
- NGO:** Non-Government Organization
- PAIVA-B:** Agricultural Intensification and Value-Enhancing Support Project
- PLA:** Participatory Learning and Action
- PAR:** Participatory Action Research
- PMI:** Project management Institute
- PRA:** Participatory Rural Appraisal
- RRA:** Rapid Rural Appraisal
- SDG:** Sustainable development Goals
- SPSS:** Statistical Package for the Social Sciences
- SRI:** System of Rice Intensification
- UNDP:** United Nations Development Program
- USAID:** United States Agency for International Development

## CHAPTER ONE

### INTRODUCTION

#### 1.0 Overview

This chapter presents the background of the study, the statement of the problem, the objectives of the study, the research hypotheses, the significance of the study, the justification, the scope and delimitation of the study.

#### 1.1 Background of the study

Food security is an issue in the whole world, especially in Sub-saharan Africa. The matter is further aggravated by the ballooning population and the threat of negative climate change (Godfray *et al.*, 2010; Henn, 2011). Food prices in the markets have increased accordingly, limiting opportunities for many developing countries to feed their citizens (Henn, 2011). Different stakeholders have responded to this threat, fronting various projects with the hope of finding a lasting solution. Several projects and enterprises have been initiated in Africa, some with great intentions and laudable plan of implementation.

The success of business enterprises is determined by certain fundamental factors related to the product, customers, strategies, positioning *et cetera*. One factor that stands out is the ability of leadership to establish good strategies and good priorities. In agricultural enterprises, the main objective when identifying priorities is to enhance the productivity which leads to the increase in the livelihood of farmers. The project leadership needs to put in place project management endeavours to ensure that they achieve their goals.

Project management according to Gwaya *et al.* (2014), is instrumental in predicting risks and problems as well as planning, organizing and controlling activities to ensure success. (Ika, *et al.*, 2012) opines that although project success is characterized by ambiguity, aspects of relevance, efficiency, effectiveness, impact and sustainability ensure that international development projects are successful.

According to Frese and Sauter (2003) cited by Ofori (2013), good planning, clear responsibility and accountability, and schedule control as well as project leadership and governance, and communications are key areas of successful projects. Ofori (2013) argues that among the project management practices, there are some that are believed to result in successful projects and also that held to contribute directly to project success; these management practices are clarity of project mission and goals, top management support, well-laid out specifications, competency of project personnel, effective consultation with project stakeholders, effective communication, adequate financial resources, teamwork, leadership, and client/ beneficiary satisfaction. The idea from Ofori (2013) is practicable in many kinds of project as well as in development projects.

Community participation is also very important aspect especially in community project implementation. The community plays a crucial role in development because the sustainability of development projects is the profits for its members. Sustainability of projects and development cannot be achieved without the capacity of the beneficiaries and their institutions being strengthened in the process. It is therefore important that governments and donors to the growing experience in many countries with respect to community participation (Paul, 1987). For the case of community project the beneficiary or client satisfaction is achieved through community participation. The community itself



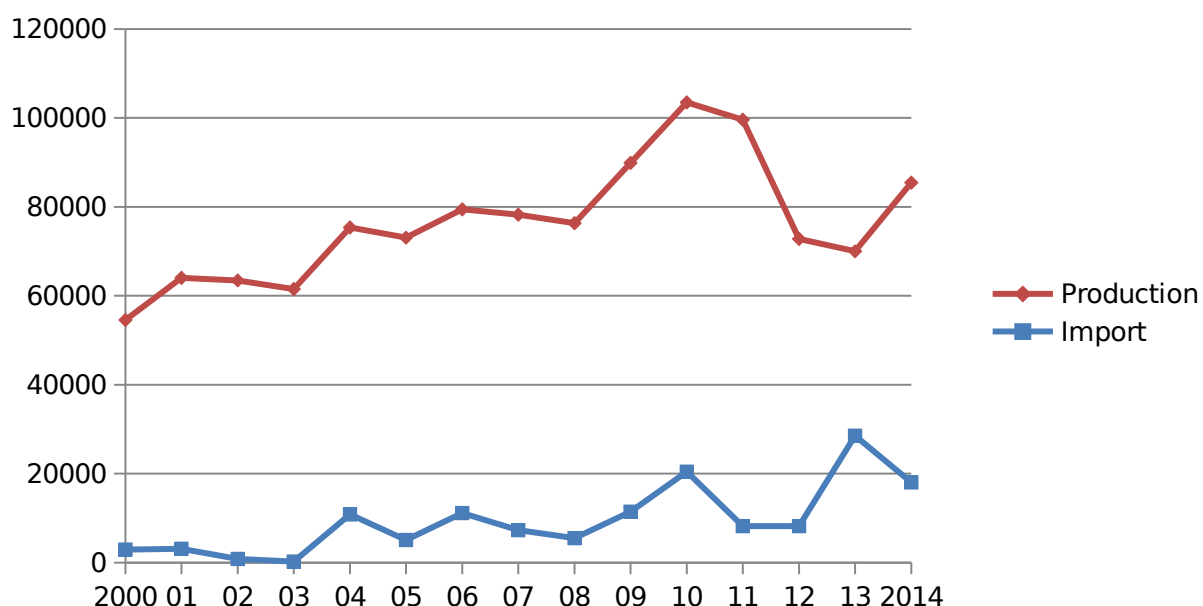
is the main stakeholder. This is the reason why community project cannot succeed without their contribution.

In Burundi, food security concerns are serious. The USAID (2010) states that Burundi's agriculture sector faces challenges in the physical, demographic and economic categories. This includes land issues, climatic change, and ecosystem degradation, income in rural areas, poor access to markets and to loans. As a country, Burundi has introduced Sustainable Development Goals meant to terminate hunger, achieve food security and improved nutrition, and promote sustainable agriculture. According to IFAD, rice is the staple food for many countries across the developing world, particularly in Asia, Latin America and Africa (Rappocciolo, 2012). Burundi has initiated many economic programs meant to fight poverty and achieve the SDGs. Among these programs, there is PAIVA-B which has introduced the System of Rice Intensification (SRI) for the purpose of maximizing rice production. SRI has attracted considerable interest particularly in Asian countries because of water scarcity at field level that affects more and more rice growers around the world (Thakur *et al.*, 2010).

Unfortunately, the system of rice intensification has been slow in spreading in the African countries while its adoption has expanded more rapidly in Asia where most of the world's rice is produced. In recent years, SRI began to be adopted in various African countries because rice consumption in the region has grown rapidly (Styger & Uphoff, 2011). For developing countries like Tanzania, the food consumed in major cities is produced by subsistence farmers whose yields are low and the whole growing period is vulnerable to climatic change. It is therefore essential to adopt technologies and farming practices that

ensure more food production and at the same time use less water (Katambara *et al.*, 2013).

In Burundi, the SRI was introduced in 2010 with the implementation of PAIVA-B activities. According to USAID (2010), the rice produced in the country is not enough. Rice has to be imported from neighbouring countries and the world market in order to meet the demand.



**Figure 1.1: Evolution of Rice production (tons) and Import in Burundi (2000-2014)**

**Source FAOSTAT, 2015.**

In Burundi, rice is the food which is cultivated in few regions, because of its irrigation requirements. Nevertheless, the quantity of rice produced is not sufficient for all the population as the statistics in figure 1.1 indicate. According to Ndayitwayeko & Korir (2012), there is perennial food insecurity in the rice producing areas, that is, the North-

West and northern parts of Burundi. The rice is expensive in Burundi and the majority of the population especially rural population with the low income cannot afford this product.

## **1.2 Statement of the Problem**

The agricultural sector in Burundi faces a number of challenges related to productivity. Rice production is not only insufficient but also significantly lower than other countries of comparable environments. While Sri Lanka produces 12.5 tonnes per hectare, and Rwanda 7.5, Burundi manages only 4 tonnes per hectare. This aggravates the already serious problem of food insecurity. Stop gap measures, which were put in place, such as the System of Rice Intensification (SRI), and that worked well in Sri Lanka and Rwanda, were introduced in Burundi in 2010 by the PAIVA-B. The SRI project started to be implemented with a duration of five years (2010-2015) after which the stakeholders agreed to fund an extension up to 2018. This is the source of the curiosity of the researcher. This study evaluated. Was the project implementation successful or not? What are the factors responsible for successful implementation of SRI project in Burundi. If the project has succeeded, it is envisaged that the SRI project management aspects that have improved rice production could be replicated everywhere in the country for maximum production. If they are some aspects of weaknesses, improvements shall be recommended based on the findings of the study.

## **1.3 Objectives**

### **1.3.1. Main Objective**

The aim of the study was to evaluate the factors influencing implementation of System of Rice Intensification (SRI) in Burundi.

### **1.3.2. Specific Objectives**

The specific objectives of the study were:

1. To examine the influence of management competence factors on project implementation.
2. To determine the influence of project characteristics on project implementation.
3. To identify the influence of organizational factors on project implementation.
4. To explore the influence of external environment factors on project implementation.

### **1.4. Hypotheses**

H0<sub>1</sub>. There is no significant relationship between management competence factors and the implementation of SRI.

H0<sub>2</sub>. There is no significant relationship between the factors related to the project characteristics and the implementation of SRI

H0<sub>3</sub>. There is no significant relationship between organizational factors and implementation of SRI project.

H0<sub>4</sub>. There is no significant relationship between the external environment factors and implementation of SRI project.

### **1.5. Significance of the study**

This study will be important particularly for the PAIVA-B program and other similar programs especially those supported by IFAD and further researchers interested in factors that promote or inhibit implementation of farming projects. This study will also be important for other programs which help the community to adopt new farming techniques similar to SRI.

Countries that seek to enhance their rice production, especially those implementing SRI and developing countries with intention to attain sustainable development will also benefit from this study.

### **1.6. Justification of the study**

Many studies conducted in the area of food security have focused on lack of food, without specifically focusing on the outcomes of implementation of certain innovative projects in Africa. Other literatures that deal with SDGs are not specific on food security. This study has focused on food security as an important factor in attaining Sustainable Development Goals. This study focused on rice which is a staple food in Burundi. The study evaluated the factors influencing the implementation of System of Rice Intensification, especially being an innovation faced with adoption challenges. Furthermore, other factors such as management competencies of the project operators, environment factors, project characteristics, organizational factors which determine implementation of the project have all been analyzed. This study analyzed the link between management factors, project factors, organizational factors and external environment factors on one hand and project implementation on the other hand.

### **1.7. Scope and delimitation**

The Agricultural Intensification and Value-Enhancing Support Project (PAIVA-B) is a program with the following overall objectives: the development of organized, commercial, profitable and sustainable family farming to increase smallholder incomes in the affected provinces: Gitega, Karusi, Kayanza, Cibitoke, Bubanza and Muramvya. This study focused on Karusi especially in Nyabiho Marsh where SRI was implemented in 2010 for the first time in the country.

### **1.8 Conclusion**

In this chapter, the researcher discussed the background of the study and stated the problem of the study. The objectives of the study and the research hypotheses were presented. The significance of the study, its justification and the scope and delimitation of the study were highlighted.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1. Overview**

This chapter presents a review of related literature on the area of project management. This section was helpful in identifying research gaps to which this research provided findings. The chapter is structured on the basis of the research objectives: management competence factors; project characteristics factors; organizational factors; and external environment factors. In this section, the researcher first discussed the theories applied in the study and finally developed a conceptual framework.

#### **2.2. Theories of the Study**

The complexity theory and the new framework for determining the factors responsible for the success or failure of project informed the study.

##### **2.2.1 Complexity Theory**

The complexity theory was developed in 1960 and 1970 from the models of self-organizing systems. It has been developed from chaos theory which was the non-linear relations. The idea of applying complexity theory in social sciences was developed by Byrne, (1998). The complexity theory was applied for the first time in project

management by Curlee & Gordon (2011). He argues that in Project Management, the aspect of risk and schedule management has been included to maximize successful implementation of the project. The aspect of risk is becoming a more widely accepted subject for both project management and complexity.

The most common definition of complexity theory states that the whole is not equal to the sum of the parts and the system dynamics generate very complicated behavior (Holbeche, 2006). Various variables participate in the journey of reaching project success. In the case of rice farming, we can say that the process is a linear process if we confirm that it is guaranteed that after a given period of time, if the farmer uses given inputs, the harvest is going to be an exact quantity of productivity. But the reality is that the process from the seeds to the harvest is not a linear process. The automation of exact watering, and the regulation of the amount of water distributed does not guarantee productivity. He argues that when trying to raise a crop, the entire planting process is more of an art than an exact science because other external factors have an impact on every step of this process (Curlee & Gordon, 2011).

### **2.2.2 The New Framework for Project Success**

The new framework for determining the success and failure factors was developed by Belassi & Tukel, (1996). The researcher grouped the factors into four areas: factors related to the project characteristics, to the project manager and the team members, to the organization, and to the external environment. The factors related to the project characteristics focused on the size and value of the project, uniqueness of project



activities, the project life cycle. Concerning the project management team, the researcher focused on communication skills, leadership skills, technical background and commitment. As for the factors related to the organization, the researcher enumerates the project organizational structure, top management support functional management support and project champion.

The external environment factors are political, economical, social, and technological factors and also include the nature. According to the researchers, those factors lead to what they call the system response under which are classified the following main points: client consultation and acceptance; effective planning and scheduling, effective coordination and communication, effective use of managerial skills, effective control and monitoring, effective use of technology, project preliminary estimate and availability of resources. This study evaluated the determinants of successful implementation of the system of rice intensification in Burundi. It focused on those areas developed in this framework which are factors related to the project characteristics, to the project manager and the team members, to the organization and to the external environment.

### **2.3. The Project Success Criteria**

Various studies have been conducted in this area and project success criteria are seen as a complex aspect in project management. Researchers have different views on which can be considered project success criteria. The Project success depends upon three elements which are team leader's competence in harnessing the available resources, the competence of the team to communicate to the organization, and the ability of the project's stakeholders to remain focused toward the common goal (Curlee & Gordon,

2011). The lack of any of these elements will increase the challenge of the project to achieve success. The success criteria will not be the same from project to project depending on a number of issues, for example, size, uniqueness and complexity (Westerveld, 2003).

The success of a project is measured first by the degree to which the predetermined objectives set by the client have been met. Secondly, whether it executed the planning that it was intended to implement with satisfaction and finally if it solves an identified problem within the stipulated time, cost and quality standards (Gwaya *et al.*, 2014).

A project that is evaluated as a success by a project manager and team members might be perceived as a failure by the client. A project which is examined to be a success by the client might be considered as a failure by top management, if the project outcome does not meet top management specifications, even though it might satisfy the client. In this case, both of these parties are evaluating project success differently and thus they value the outcome differently (Belassi & Tukel, 1996). Project managers and team members need to take ownership and better communicate the benefits of projects to those responsible for their implementation (Otonde & Yusuf, 2015).

Levy, 1998 argues that in managing innovative organization successfully, there are critical success factors to be considered. Those factors are the innovation uncertainty factor, human factor, the organization factor, the management competence factor, the know-how and know-why factors. The innovation uncertainty factor has three components, market uncertainties due to the innovation, technological uncertainties and supply uncertainties.

## **2.4 Management Competencies that contribute to project success**

The success of enterprise demands the use of certain managerial strategies that provide opportunities for growth. This means therefore that the search for new management paradigms is mandatory. Management competencies are factors covering all aspects of the organizational life, which direct and embrace attention to external and internal factors (Levy, 1998). The factors related to the skills and characteristics of project managers and team members are proposed for the successful completion of projects (Belassi & Tukel, 1996). The researchers realized that the project manager's commitment and competence become most critical during the planning and termination stages. The competence of the team members is also found to be a critical factor during the implementation stages. Sometimes, leaders may continue to make decisions alone, which can lead to the lowest level of longer-term sustainability, empowerment, responsibility and accountability (Holbeche, 2006). Therefore, it is necessary to take into consideration the management competencies that include the project managers and project team members roles and responsibilities, skills and commitments so that the project implementation can be done successfully; to It is also important to know that these factors not only affect project performance but they also have an impact on client satisfaction and project acceptance Belassi & Tukel, (1996).

### **2.4.1 Project Management**

Project management has been defined by Cagle (2005) as the methodology used to control task, schedule, and cost of a project. Cagle further observes that project management is a path started with intention to reach successful or desired destination. To do so, knowledge, experience, persona and performance are the factors of success in

project management. Knowledge is a combination of both education and training. Experience is the application of that knowledge. Persona is the personality and attitude you project to your team members, your management, and your customer. Finally, performance is how well it all comes together and how the product turns out, how satisfied management is, and how satisfied the customer is. Performance is considered as the most important factor, because even if each and every one of the other factors is great and performance is less than desired, the project will have been a failure (Cagle, 2005). The project management institute (PMI) considers project management as the application of knowledge, skills, tools, and techniques to project activities in order to meet or exceed stakeholder needs and expectations (Verma, 1995).

#### **2.4.2 Human Factor**

According to Kanda, (2011), the project manager needs people management skills that can help him to motivate his team, obtain the commitment and corporation, to involve people in what they are able to do better; the researcher named them “human factors”. He states that human factor is a predominant fundamental importance of all management activities, and includes aspects such as the ability to delegate power, to coordinate, roles and responsibilities of project team members, their commitments, communication and leadership skills. The project manager can be able to implement the project like a well-played game. The basics of management deal with leading, guiding and motivating people. The leadership skills are very important when managing innovation (Levy, 1998). Westerveld, (2003) further opines that human factor incorporates stakeholder management; this refers to a major aspect of project management. He concluded that if

future users of new system did not have the opportunity to give their ideas within the project the consequence is that users can get frustrated and the progress of the project can be delayed. Therefore human resource management is an aspect that helps in project management and integration. Westerveld held that management of scope, quality, time, cost, risk, contract procurement, and communications are other human aspects required for the success of any project.

Verma, (1995) present what he term as “five ‘people’ areas” required as necessary pre-conditions for project success. These includes: management through effective communication, building effective teams, change management, conflict management through cultural ambiance and interpersonal skills.

### **2.4.3 The Role of Communication**

Communication and leadership are the key element for success in project management field according to Curlee & Gordon (2011). Communication refers to sending and receiving information through a common system of symbols signs or behavior. Communication is a tool that project managers use to ensure that the project team members are working together (Cleland & Ireland, 2007). As Swanepoel & Beer (2006) aver, communication is not just a flat and linear sending or receiving information. It is actually a circular process, where communication happens when one has sent information, and received expected response. Fashion Thomas *et al*, (1999) argue, the lack of effective communication is a major obstacle to project success (Thomas *et al* in Cleland & Ireland (2007).

#### **2.4.4 Importance of Community Participation**

According to Swanepoel & Beer (2006), community participation does not mean community involvement only. When community members are involved in project, they take part in certain actions under certain conditions; if community members are allowed to participate, they do so fully in all aspects. Proper community participation involves decision making, planning, implementation, and evaluation of the project. In project management, the community plays an important role, and is the major beneficiaries of project implemented in their communities. This is the reason why community participation becomes very crucial. Community participation is the involvement of community in planning, implementing evaluating the projects and programs and sharing the benefits from them.

Estrella & Gaventa (1998) assert that it is very important that in all projects, project designers first clarify benefits cost effective alternatives, and purposes of consultation and participatory planning. They avow that participation helps to enhance the understanding of the development process, to increase the authenticity of monitoring and evaluation, to improve the sustainability of project activities, to share of experience, efficient allocation of resources and strengthened accountability to donors.

#### **2.5 Factors Related to the Project Characteristics**

Belassi & Tukel (1996) argue that characteristics of the project have long been overlooked in the literature as being critical success factors in management. According to these authors, project characteristics constitute one of the essential dimensions of project

performance. From Oisen's definition (1971) as cited by (Atkinson, 1999), project management is a use of precise budget, quality tools and techniques to accomplish a series of unique, complex tasks within a given specific period of time. A project is unique in the sense that it has its own starting time, completion time, participants and purpose. It follows therefore, as confirmed by Jha & Iyer (2007), that cost (precise budget), time (starting and completion), and quality performance are the three most important project characteristics. Successful implementation of projects, perceived values and client satisfaction are also three ways through which project performance can be assessed (Munns & Bjeirmi, 1996), which further clarify the project characteristics. The perceived values of the project are the opinions of the users or beneficiaries of the project. The client satisfaction is also very important; it is usually assessed when the project is closed. In brief, size and value of the project, uniqueness of the project, project cycle, and urgency (time) of the project are main characteristics. The next section presents a review of literature to that effect.

### **2.5.1 Size and Value of the Project**

Maylor (2010) avers that the value of a project is the benefits that it can yield to someone after a certain period of time. This includes business profits, Return on Investment et cetera. In other instances, the benefit may not be monetary. The scope or size of the project is defined as the mission of the project and also as the end results that it intends to achieve (Gray & Larson, 2003). The scope or size of the project can also refer to the duration that it is going to take from the initiation phase up to the closure phase. In the case of System of Rice Intensification project, the value can be measured from the

benefits that the farmers can get from it. The main purpose of SRI implementation was the maximization of rice production (Thakur *et al.*, 2010). If the rice production increases in the community, the food security is achieved, the quality of housing is improved, the access to health and school services increases.

According to Guha-Khasnobis *et al* (2007), food security means the situation where all people have access to sufficient food at all times for an active and healthy life. The United States Agency for International Development (USAID, 1996) states that one of food security principles is that food accessibility and food availability are usually non separated. The food unavailability relate to the situation where people cannot produce enough food while food inaccessibility is when people don't have resources to produce or purchase food for themselves. An economy of scale is also another benefit that community members can have from the project implemented in their community. Economies of scale means the increase in outputs which lead to a less than proportional increase in overall costs (Celli, 2013). According to Smith (1955), economy of scale is defined from long-run average cost function of economic theory. The function shows that there is a long-run relationship between average cost and the output of one homogeneous product. According to Chandra 2002), the economies of scale is the fact that the increase of scale production, marketing or distribution lead to the increase in the cost per unit. Generally, the farmers' standard of life is improved when the harvest is higher.



### **2.5.2. Uniqueness of the Project**

The uniqueness is another characteristic of a project which needs to be taken into consideration in project management. As Nicholas (1990) state, it refers to the fact that the project requires something that is not similar with what was done previously. A project is unique because of its starting and completion time. This is due to the fact that two different projects cannot have the same starting and completion time. This means that each project is unique in its nature. Any other project cannot be similar with it in all the parameters such as the strategic goals and objectives, the cost, duration, quality and employees. The factors related to the uniqueness of the project have a strong influence on the quality of estimates for project costs and time (Gray & Larson, 2003).

Concerning the uniqueness of the SRI project, it is very important to know that the project duration is crucial especially in the case of project leading to the adoption of new farming technique. The duration has to be enough so that the users arrive at the level of ownership and the project, and therefore be able to sustain. The non similarity of SRI activities with the ones in previous projects also defines the degree of acceptability of a community project.

### **2.5.3 Project Life Cycle**

The project life cycle is the number of phases that a project goes through from the starting time to the end. Each phase also has its own starting and ending point (Melton,

2007, Khanna, 2011). According to Westland (2006), and Khanna (2011) the project life cycle consists of four phases: project initiation, project planning, project execution or implementation and the project closure and each phase has the specific activities to be implemented up to the end point. During the first phase of a project which is the initiation phase, the identification of a business problem or opportunity is done and the definition of a business case which provides various solution options is also done. After that, a feasibility study is conducted to investigate whether each option addresses the business problem and a final recommended solution is then put forward. The second phase is the project planning which consist in planning to ensure that the activities performed during the execution phase of the project are properly sequenced, resourced, executed monitored and controlled (Khanna, 2011). The different activities which are normally done at this phase are to develop a project plan, resource plan, financial plan, quality plan, risk plan, acceptance plan, communication plan and procurement plan (Westland, 2006).

Good planning and monitoring and evaluation enhance the success of development project and programs. It reduces the likelihood of meeting major challenges during the implementation phase. The strong monitoring and evaluation help in detecting problems earlier (UNDP, 2009). The third phase involves implementing the plans created during the project planning phase. While each plan is being executed, a series of management processes are undertaken to monitor and control the deliverables from the project. This includes the identification of change, risks and issues, review of deliverable quality and

measurement of each deliverable produced against the acceptance criteria (Westland, 2006).

Implementation is the “doing” phase during which project activities are observed by the external environment. During that phase, the activities planned are executed. The end point of the implementation phase is usually followed by the evaluation according to the planning and the requirements (Baars *et al.*, 2002). Project closure involves releasing the final deliverables to the customer, the handover of project documentation to the business, termination of supplier contracts, releasing project resources and communicating the closure of the project to all stakeholders (Westland, 2006).

#### **2.5.4. Urgency of Project**

The urgency of a project means its need of being implemented as soon as possible (Belassi & Tukel, 1996). The projects that are more urgent get priority than projects that are less urgent (Chandra, 2002). In the cases of community projects, it is important to consider the level of urgency of the project which is going to be implemented. This is the advantage of the need assessment where the specific groups who will benefit from the social economic development have to participate in community projects (Lowe *et al.*, 1997).

The project characteristics discussed above have been useful in analyzing managerial factors that have led to failure of SRI project in Burundi. It was specifically helpful in designing the questionnaire, to help get the data from research participants, to determine the characteristics of the project.

## **2.6 Organizational Factors**

Belassi & Tukel, (1996) proposed in their new framework the organizational factors influencing the project success. The top management support is one of the most important, together with functional management support and the organizational structure.

### **2.6.1 Top Management Support**

The evidence of top management support help the project manager to ascertain that resources will always be available if the need arises and can support in time of crisis (Pinto & Prescott, 1990). The evidence of top management support of the project is also key in the attempt to achieve success (Ofori, 2013). The role of top management support system was analyzed to find out how it contributes to rice production in Burundi SRI project.

### **2.6.2 Project Organizational Structure**

The project organization is the inter-organizational team pulled together for a specific goal or purpose (Cleland & Ireland, 2007). The structure of the organization is the arrangement of the human resource needed to carry out the project (Maylor, 2010). The organizational design is its structure. It is defined as the manner in which the work will be

conducted. The structure of the organization facilitates to perform the work (Cleland & Ireland, 2007).

In management of the project, there is no one best organizational design. The best organizational design to be used depends on the stakeholder environment, circumstances of the project and its organization (Cleland & Ireland, 2007). In many projects, project manager needs to collaborate with functional or line manager. The structure of the organization is very important in managing technological innovation. It is necessary for the organization to develop a framework which increases the collaboration with stakeholders. Most organizations adapt their company to fit the needs dictated by external and internal environment (Levy, 1998).

### **2.6.3 Functional Management Support**

Functional manager plays a major role in the project environment. He is supposed to make a commitment in meeting the project objectives within scope, quality, specified time, and cost constraints (Verma, 1995).

Kerzner (2002) avers that in project management, coordination of organizational behaviour is a delicate balancing act, like sitting on a three legged stool like the ones in bars. The three legs are the project manager, the line manager, project sponsor. Like the stool, the balancing of these three important pillars is crucial, and the task is difficult if one of the 'legs' is missing. For projects to be successful, the project manager has to be vested with authority over the line managers involved. Project manager and line manager

are more likely to have shared authority. Project sponsors have to provide visible, ongoing support. They have to act as a bodyguard for the project and the project manager.

## **2.7. External Environment Factor**

The external environment context of a project is widely known as PESTEL. PESTEL context contain the political influence, influence of general and local economic, influence of social changes that includes the methods of communication, change in technology, environmental impact assessment and legal issues like the rules and regulation of projects (Maylor, 2010).

According to Belassi and Tukel (1996), this group consists of factors which are external to the organization but still have an impact on project success or failure. A number of environmental factors, such as political, economic, and social, as well as factors related to the advances in technology or even factors related to nature affect project performance, either positively or negatively.

### **2.7.1 Political Environment**

The political environment of a project consists of political leaders and political groupings with political activities such as meetings which take place in the community. They may oppose or agree with the idea of starting a development project in their community (Swanepoel & Beer, 2006). Political stability is an important consideration for business and project success. Government plan can specify priorities for investments in particular sector which can affect success or failure of project (Khanna, 2011). This study will

analyze the political environment of Burundi as an external environment factor affecting rice productivity.

### **2.7.2 Social Environment**

The social environment consists of primary institution such as the family, and secondary institutions like schools and church, clubs and interest groups (Swanepoel & Beer, 2006).

It is also important to consider the socio- demographical factors for example the education profile of the population can affect the success or failure of the project. The technological factors can also affect the project success because it very important to consider its acceptance in the environment where the project is implemented (Khanna, 2011).

### **2.7.3 Economic Environment**

Swanepoel and Beer (2006) argue that every community has its own economy for which the level can be measured. This refers to the rate of employment, the presence of infrastructure, the presence of commerce and industry activities, the ability to pay services such as food, education, health.

In economical environment, the issues like inflation, exchange rate and linkage with the global economy need to be taken into account because they affect the project interest rates capital outlays and cost of capital (Khanna, 2011).

#### **2.7.4 Technological Environment**

According to Akahashi & Barrett (2013), the system of rice intensification is one of the improved agricultural technologies used to increase the productivity and the income among the users. Khush, (2004) states that it is better to do a cost benefit analysis concerning the rice technology. The major question is: Does it help small-scale farmers to develop their countries, to protect biodiversity, to clean up the environment, to enhance ecological stability and to improve food and health quality? Among external environment factors, Belassi & Tukel, (1996) added the advance in technology. They states that the advance in technology influence the success of project in sense that the new product or service can be more preferred and accepted in the environment in which the project is implemented. It is also important to consider the access to the new technology (Khanna, 2011).

#### **2.8. Barriers of Community Participation to successful implementation**

One relevant article on barriers to effective community participation is by Murphy and Cunningham (2003). They assert that in general, limited income is considered as the main barrier of participation for people who seek to become decision makers in their community's activities. Tom Collins a community educator in Ireland who has worked with the community organizations in inner-city neighbourhoods and councils estates has identified three barriers. According to Collins cited by Murphy & Cunningham (2003) the first barrier is what he called "natural gravitation" of more affluent members of the community to control the organizations in their community compared to the less affluent members. The second barrier is the "resource deficiency of the poor": this is where people use their money to start the organizations and therefore get experience in those



activities which attract the staff and expert consultants. When other community members want to join organizations, it becomes difficult for those with little means to sustain membership. Another issue that can arise is the access to the technical assistance needed for effective decision-making. The third barrier refers to the necessity for voluntary organizations to compromise when the community members are asked to choose their own board and at the same time asked to ensure that the money to survive keeps flowing into the organization (Murphy & Cunningham, 2003).

Another barrier to citizen participation is the fact that participants are not paid for their time spent in group activities. This is the reason why committees may be dominated by strongly partisan participants who stand to benefit directly from the projects, without having the big picture of the group at heart. Some of these participants even become professional participants, with not much to do in the community (Irvin & Stansbury, 2004).

## **2.9. Community Participation and Project Management**

Communities can participate in project management during the project life cycle. It is beneficial to involve communities from the project identification, needs identification, project planning, project design, project implementation, project monitoring and evaluation, project financing (Plummer & Taylor, 2004). During identification, a needs analysis of beneficiaries could be attempted as a basis for designing the project to meet community needs and capacities (Paul, 1987).

In the project identification, participation in development activities begins with the needs identification of the project, and ultimately it is at this stage where it is possible to

determine whether a project has priority in the given community. Examples abound of projects where communities are told without prior participation what activities will be undertaken, and that they have the possibility of participating in them. Participatory project identification means that communities themselves play a role in deciding on the project they want. In project planning, most projects make significant efforts to involve households and communities in the process of needs identification and development of solutions through which the project might address the needs and identify problems (Plummer & Taylor, 2004).

One way of benefiting our communities is by identifying and addressing issues that affect the community members through participation processes. But it is a disadvantage in communities where many people have a history of exclusion, those voices need to be heard directly and those voices need to be influential. Here the author refers to people whom fall into what he calls the “excluded” category. Those are poor, those who have little formal education, or those who are marginalized on the basis of race, ethnicity, gender, religion, age, sexual orientation. There are also others who have a long history of being excluded from the inner circles of power that influence decision-making in representative democracies. The pathway to participation start from the creation of ideas gotten from expression and communication and finally use of those ideas (Lasker & Guidry, 2009). It is very important that community members got the opportunity to participate but not only to communicate but also reach the stage where the point of views given by the person who is communicating has an impact.

## **2.10. The Role of Monitoring and Evaluation in Agricultural Projects**

The basic purpose of monitoring and evaluation systems is to provide a tool for project management in discussing data collection and analysis issues (Casley & Lury, 1982). Monitoring and evaluation are complementary. Without monitoring, evaluation cannot be done well (Alison & Megan, 2005). The relative roles of monitoring and evaluation will vary with the type of project. The supply over a wide area of a well-proven package aimed at a specific crop or farm activity needs careful monitoring, but possibly less emphasis on evaluation. An innovative, but small-scale, project may be easier to monitor, but evaluation will be both difficult and critical (Casley & Lury, 1982).

Monitoring and evaluation are also ways to engage people in active learning and reflection about their work, and can be confidence-building and affirming for all involved (Alison & Megan, 2005). The initial steps for designing monitoring and evaluation systems are a review of the project objectives in order to systematize them; and identification of the users of both the monitoring and evaluation information. For monitoring, the users are the hierarchy of project management. The type of information is used to the needs of each level of project management (Casley & Lury, 1982). Monitoring and evaluation are used to find out whether planned changes have been achieved and whether they are contributing to the achievement of project objectives (Alison & Megan, 2005).

### 2.11. The Background and Major Principles of System of Rice Intensification

The “*systeme de riziculture intensive*” (SRI) has been synthesized by Father Henri de Laulanié in 1983, after two decades of experimenting with various farmer practices and his own innovations. He transplanted very young rice seedlings of just 15 days old along with 30 days seedlings at his small agricultural school near Antsirabe (1500 m elevation) where local farmers used to plant older seedlings of even up to 60 days. The school was already using a fairly wide spacing (25-25 cm) of single seedlings in a square pattern to facilitate mechanized weeding. Moreover, the rice was not grown in flooded paddies, but rather in moist soil, with intermittent irrigation (Stoop *et al.*, 2002).

Stoop *et al.*, (2002), has summarized the major elements of the SRI strategy in the following main points: raising seedlings in a carefully managed, garden like nursery; early transplanting of eight to 15 days old seedlings; single, widely spaced transplants; early and regular weeding; carefully controlled water management; and application of compost to the extent possible (Stoop *et al.*, 2002). The SRI practice consists of applied principles ranging from seed sorting, sowing, transplanting younger seedlings, weeding, and water management, all within the growing period of rice plants (Katambara *et al.*, 2013).

Furthermore, Katambara gives also a brief explanation of the principles of system of rice intensification. According to him, those principles are as follows: sorting out of the seeds; although other approaches used in sorting rice seed may exist, in SRI the approach used to remove defective seeds from good seeds so as to ensure that only good seeds are sown is by flotation-sink method in salty solution. Raising seedlings in garden-like nursery: this ensures a careful management of seedlings and easy uprooting as well as transplanting. The time between uprooting and transplanting must be between 15 - 30 minutes and the roots must be kept moist during this time. Early transplanting of 8 to 15 days old seedlings: in addition to the provision of adequate buffer for the seedling from being damaged during transplanting, full tillering and optimal production occurs when the seedlings are transplanted before entering the fourth phyllochron of growth. Single, widely spaced transplants: this ensures that the plants have enough space for tillering as well as to allow a mechanical weeder to pass through without harming the plants. Early and regular weeding: this ensures that weeds do not compete with the rice plant. In addition, mechanical weeders aerate the soil.

The roots need oxygen so as to be strong and healthy for optimal tillering and development of healthy rice grains. Carefully controlled water management: makes the rice plant healthy since the roots are supplied with moisture and air. This enables the root to absorb adequate nutrients from various soil horizons. Application of compost: the compost materials are rich with nutrients and organisms that foster rice growth. The use of composite instead of industrial fertilizers is environmentally friendly. When the

herbicides are not used, the sustainability of the ecosystem and the micro-organisms are likely to be favored, whose activities are suitable for the growth (Katambara *et al.*, 2013).

There is a need to handle the young seedlings very carefully when farmers are removing them from the nursery; it is not better to separate the seed but let them remain attached to the root. Seedlings should be transplanted only 1–2 cm deep in the mud, ensuring that the roots are laid in a horizontal position so that the root tips can easily resume their downward growth. Weeds need to be controlled regularly, starting about 10 days after transplanting (Stoop *et al.*, 2002).

The System of Rice Intensification is a complicated technique when analyzing their requirements as activities. For the farmers, SRI obliges them to work hard and to be careful, especially when they need to remove the seedlings from the nursery so that they can transplant them. The time requirement and the position are difficult elements to explain to rural population because the first objective for them is to finish fast.

## **2.12. Threat and Opportunities of System of Rice Intensification**

The advantages of the system of rice intensification are: rice yields increase significantly, doubling or even quadrupling production per hectare; savings are significant because SRI requires fewer seeds and makes limited utilisation of chemical fertilizers. The system requires the use of smaller quantity of water; rice plants cultivated with SRI usually are more tolerant to drought; SRI has a limited negative environmental impact and also

improves soil quality; SRI is a knowledge-based way of farming that does not require additional inputs or expensive additional equipment. Once farmers have learned the system, they can apply it directly to their plot (Rappocciolo, 2012).

The system of rice intensification is one of the most promising innovations to increase agricultural harvest with positive effects on the natural environment, (Styger *et al.*, 2011). The system surprised everyone; the yields surpassed all expectations and in subsequent years reliable yields, ranging from 7 to 15 t/ha, were obtained by small farmers cultivating soils with low inherent fertility, using much reduced irrigation rates, and no mineral fertilizers or other agricultural chemicals (Stoop *et al.*, 2002). The SRI increases rice yields significantly while reducing requirements of seeds, water and chemical inputs (Styger *et al.*, 2011).

In spite of advantages associated with SRI, some challenges also are associated with this practice. They include the need to transplant young seedlings within 20 minutes after uprooting. In a situation where the seedbed is located far from the paddy, it is a challenge for the seedlings to be transplanted within that period of time. The seeds are vulnerable to rodent and other creatures and therefore pest management is necessary during the rice growing period. With respect to irrigation SRI requires less water, but the assurance on availability of water must be high since it is required when soil moisture in the field is

quite low and any delays will significantly affect the rice growing process and hence the yields. Although, SRI can easily be integrated into the existing infrastructure, there is a need for a policy framework to support its implementation. Example is the issue of when to irrigate and how to control seepage from neighbouring non-SRI practicing farms that interfere with the drying of the fields (Katambara *et al.*, 2013).

The adoption of the system of Rice Intensification requires a careful water management. Water management and keeping the field regularly wet and drained are crucial elements for SRI to work. Therefore, SRI needs some sort of irrigation structure to be in place, which may rely on government commitment and may be beyond farmers' control (Rappocciolo, 2012). For smallholder farmers, the need for frequent weeding in particular is a challenge as it increases their workload and the time spent in the rice fields, and often requires the help of additional laborers (Rappocciolo, 2012).

### **2.13. Empirical Literature**

Factors that influence project success have been an important topic in many areas. The following part is the empirical literature review which is showing ideas from the previous studies related to this study. The main points developed are the factors influencing project success, rice production in Burundi and the system of rice intensification.

#### **2.13.1. Determinants of successful Implementation of the project**

Gwaya *et al* (2014) confirmed in his study that the traditional measures of cost, time, scope, and quality are still major challenges in project management. He added that there



are other variables which should be addressed. Those factors are human resources, Clients' interference issues and risk management. According to Otonde & Yusuf (2015), project planning help in communicating project objectives and strategies and the ways to achieve them. Communication connects every member of the project team to a common set of strategies leading to high project performance. He added that the large pool of human resource with good qualification lead to the successful implementation of the project. In his study, he also indicated that management support leads to the successful implementation of a project. The study has established that project planning plays a key role in the successful implementation of a project. It is imperative for project planners to define the project objectives they intend to achieve and the strategies to be employed to achieve those objectives. The research gap identified from these studies is that the evaluation of factors influencing implementation of the project should also pay attention to the project beneficiaries. They can provide some useful information considering the kind of projects concerned by the study and the role played by the client or beneficiaries in the management.

Ika *et al* (2012) conducted an empirical investigation on critical success factors for World Bank projects. In this study, the researcher aims at assessing the relationship between critical success factors and project success. The researcher considered five critical success factors which includes monitoring, coordination, design, training, and institutional environment. The researcher concluded that there is a statistically significant and positive relationship between each of the five Critical Success Factors and project success.

Westerveld (2003) argues that there is a growing need for management model that helps project managers to deal with large and complex projects. In his study, using research findings from both studies on success criteria and critical success factors for projects, the researcher developed the Project Excellence Model. The model consisted of six result areas covering project success criteria and six organizational areas covering critical success factor The Project Excellence Model can be applied in various project stages and situations. The model can be used for setting up managing and evaluating a project.

Irvin & Stansbury (2004) opined that citizen participation in decision-making is worth the effort. They suggested that to delegate environmental decision-making authority to citizens is a policy strategy lauded for its holistic consideration of local economic interests and also it is very important that the administrator consider the advantages and disadvantages of the decision-making process when determining the most effective implementation strategy (Irvin & Stansbury, 2004).

Ofuoku (2011) provides an extensive approach on the effect of community participation on sustainability of rural water projects in Delta Central Agricultural Zone of Delta State, Nigeria. The study was concentrated in the rural settlements where water projects were executed. The community citizens were rarely often or always involved in the various stages of the projects as the community development committee executives represented the communities. The conclusion from that study is that the level of participation influenced the sustainability of the water projects in the study area. The researcher

affirms that water projects will remain more sustainable when the beneficiaries are involved right from the beginning. He recommended that the citizens of the community should be involved in projects, whether water or not as this will enhance their perception on such projects positively (Ofuoku, 2011).

Finsterbusch *et al.*, (1987) in the role of beneficiary participation in development projects has been conducted argues that many development analysts are convinced that beneficiary participation will generally enhance project success, but they are less certain how to achieve that participation. The conclusion from the study was that the growing importance of utilizing local skills and knowledge, the degree of ownership and control in the outputs of the project, and in the extent that community capacity was increased. The researchers emphasized that this finding should be retested on a sample of cases which includes more cases having higher participation in project origin and design before concluding that participation can be neglected in these stages without adverse consequences. They finally pointed out that beneficiary participation contributes to project effectiveness.

A study on influence of community participatory monitoring and evaluation on performance development project in Isiolo county was conducted by Soransora (2013). He concluded that community participation affects the monitoring and evaluation, and that those who have the lower level of education are those who participate in the Ewaso Ngiro North Development Authority (ENNDA) project. The study pointed out that it is

important to involve community in the project for them to make right decision when implementing a project beneficial to them. Patrick Kerre Maelo, (2008) also conducted a study on stakeholders participation in Monitoring and Evaluation of community Project. Among stakeholders targeted, there were project beneficiaries and the government. He argues that, there is need for the various project committees to set up monitoring and evaluation systems to enhance continuous project deliverables.

### **2.13.2 Rice Production in Burundi**

Ndayitwayeko & Korir (2012) conducted a study on Determinants of Technical Efficiency in Rice Production in Gihanga (Burundi) Irrigation Scheme: A Stochastic Production Frontier Approach. Given the country's goal to turn rice into an import substitution food as underlined in the country's strategy plan of 2008-2015, the food insecurity in the rice producing areas of the country, massive food imports due to the common market and that may weaken the agricultural production, the researchers brought a contribution to improving the situation in doing the given study. The findings showed that fertilizer, pesticide, age and experience are the determinants highly significant to explain the inefficiency. From this study, a gap identified is that the investigation on the successful implementation of the projects targeting the increase of rice production such as management competence aspect, project characteristics factors.

Nzeyimana, (2016) conducted a study on Rice Market Integration and Price Transmission in Burundi. Rice price in Burundi is still increasing when the purchasing power of the consumer has remained low. A large gap was observed between producer and consumer

price. It is necessary to investigate the nature of price transmission in local markets of Burundi. According to the research findings, there was short and long run relationship between domestic markets. About the price between domestic market pairs, the findings showed that the transmission was asymmetric, this means that negative shocks were eliminated faster than positive shocks. The research gap is that it is necessary to evaluate also the factors that impede the increase of production.

### **2.13.3. System of Rice Intensification**

Using the data from Indonesia, a study that assessed the impact of the System of Rice Intensification on Household income and child schooling by Akahashi & Barrett in 2013, where the researchers found that SRI generates significant estimated yield gains. However, because SRI induces a reallocation of family labour from non-farm to farm, SRI users enjoy no household income gains. The result was that increased farm income was partly achieved at the expense of the decreased time for other productive activities, such as off-farm self-employment. The researchers found that there is statistically no difference in total household labor income between SRI and non-SRI households. Also the increased labor demand for farming of SRI was not affecting child schooling because there was no difference when comparing Children's school attendance between SRI and non-SRI households (Akahashi & Barrett, 2013). From this study we conclude that the system of rice intensification needs more investigation so as to understand the challenges behind its adoption.

In Mali, a study on the system of rice intensification as a sustainable agricultural innovation, introducing, adapting and scaling up a system of rice intensification practices was carried out by Styger *et al.*, (2011) they found that farmers have been quick to understand the importance of SRI for their livelihoods. They observed that the SRI experience encouraged people to look at the larger picture, and to rethink agricultural principles and practices, and to explore new ideas. From this study, it is observed that it should be useful to investigate determinants that influenced farmers from Mali and encouraged them to understand quickly that SRI is very important for them.

A review on adopting the system of rice intensification (SRI) in Tanzania has been conducted by Katambara *et al.*, (2013). They argue that whereas worldwide SRI started three decades ago, the knowledge of the SRI is still evolving and several issues with regard to various components that are involved in the project implementation and still need some investigation. They add that the reasons for low rate of adoption of SRI by smallholder farmers under different conditions need to be investigated. Therefore this study intended to assess factors influencing implementation of System of Rice Intensification because Katambara *et al.*, (2013 argue that there is a gap of knowledge in implementation of the system of rice intensification.

#### **2.14. Conceptual Framework**

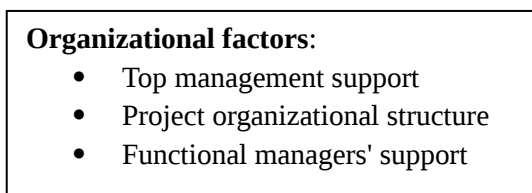
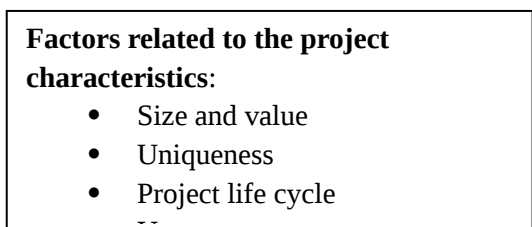
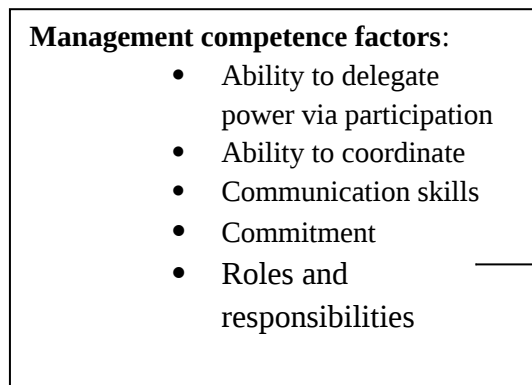
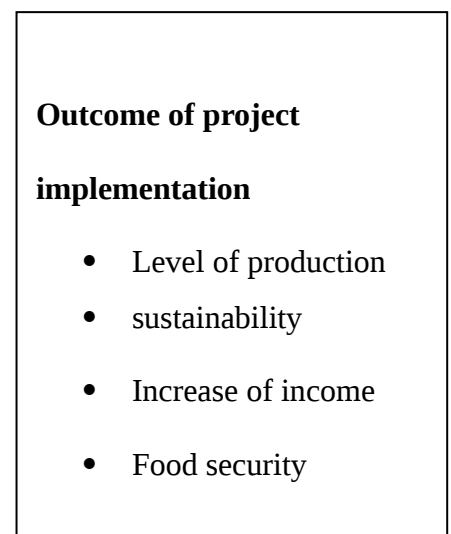
The conceptual framework was based on the four areas developed by Belassi & Tukel, in 1996 in their framework. It has independent variables and a dependent variable. The researcher evaluated the factors influencing the implementation of the project on one hand, those are the independent variables. The independent variables were management

competence, project characteristics, organizational factors and external environmental factors and the dependent variable is the outcome of the project implementation.

On management competence the variables evaluated were the ability to delegate power via participation, ability to coordinate the communication skills, the commitment of the project manager and the project team members, roles and responsibilities of the rice farmers. Concerning the project characteristics, this study evaluated the Size and value of the project, the uniqueness of the project and community participation during all phases of the project life cycle.

The study also determined the organizational factors influencing the project implementation; they were top management support, project organizational structure and functional managers' support. About the external environment, the variables concerned were political environment aspect, economical environment, social environment and technological environment.

Concerning the dependent variable on the other hand, the researcher measured was the outcome due to the effect of the independent variable which is outcome of implementation of the System of Rice intensification. The specific variables were the level of production, the sustainability of the project in Karusi province the increase of income for rice farmers beneficiaries of the PAIVA-B, Food security in households beneficiaries of the project.

**Independent variables****Dependent variable**





**Figure 2.1: Conceptual Framework**

**Source:** Modified from the new framework for determining critical success/failure factors in projects developed by (Belassi & Tukel, 1996)

## CHAPTER THREE

### RESEARCH METHODOLOGY

#### 3.0. Overview

This section presents the research methodology used to meet the objectives of the study. It includes all the methods and techniques that were used when conducting this study. It covered the design of the study, the description of the study area, the target population and the sampling procedures. It also covered the methods of data collection, interpretation and analysis methods of data that the researcher will use.

### **3.1. Research Design**

The research design is the conceptual structure within which research is conducted and constitutes the blueprint for the collection, measurement and analysis of data (Kothari , 2004). Descriptive research design was used for the study with the application of mixed methods. It used the mixed methods which involve combining both qualitative and quantitative approaches because the researcher wanted to corroborate the findings (Creswell *et al.*, 2002). This study focused on evaluation factors responsible for the implementation of the System of Rice Intensification activities in Karusi Province of Burundi. In this study, the dependent variable is the outcome of implementation of System of Rice Intensification. The independent variables are management competence factors, project factors, organizational factors and external environment factors.

### **3.2. Description of the Study Area**

This study was conducted in Karusi Province, one of the six provinces in Burundi where PAIVA-B is implemented. Karusi province has been the first area in which the System of Rice Intensification has started. This province is subdivided into 7 communities which are Gitaramuka, Bugenyuzi, Buhiga, Gihogazi, Mutumba, Nyabikere and Shombo. The chief- town of Karusi province is called Karusi town. The majority of the population in this province are famers at more than 90 percent according to the recent statistics of ISTEERU (National Institute of Economic Statistics of Burundi).

### 3.3. Target Population

The population is a theoretically specified aggregation of elements (Dattalo, 2008). The target population of this study was the community of Karusi province, rice farmers and operators of Nyabiho Marsh and beneficiaries of PAIVA-B. This community was especially in Gitaramuka commune where the System of Rice Intensification is practised by the majority. This study also tried to find information from the members of the project team who are involved in activities of the project through interview schedules. The project covers a population of 2612 farmers who are also beneficiaries of the project.

### 3.4. Sample Size and Sampling Frame

Sampling is a strategy used to select elements from a population. A sample is a subset of population elements that results from a sampling strategy. A sampling frame is the list, index, or records from which the sample will be drawn, which might not be totally inclusive of the study population (Dattalo, 2008)

Rice farmers who are also beneficiaries of PAIVA-B in Nyabiho marshland (Karusi) are 2612 which represent the population size and are grouped in six groups as shown in table below. The sample size was determined using Yamane formula (Yamane, 1967).

$$n = \frac{N}{1 + N e^2}$$

Where,  $n$  is the sample size

$N$  is the size of population

And  $e$  is the error of 7 percent.

$$\text{The sample size was } \frac{2612}{1+2612(0.07)^2} = 189.29$$

Therefore, the sample size was 190 after rounding off the results. Purposive sampling was used to determine 5 members of project team for in depth interview.

**Table 3.1 Sample Size Delimitation**

Groups	Number of households target population	Sample size	Percentage
1	460	34	17.89%
2	441	33	17.36%
3	337	25	13.16%
4	388	30	15.78%
5	387	28	14.74%
6	599	40	21.07%
Total	2612	190	100%

**Source:** Researcher 2016

In the selection of the study sample, the researcher first stratified the population into groups, based on existing household groups, and then used simple random sampling technique to determine actual household to participate in the research. Each household in a group had had equal chances to be selected. The sample size in each group was determined based on and proportional to the number of household targeted as detailed in table 3.1.

### **3.5. Methods of Data Collections**

This study used a questionnaire as a first research instrument of data collection for quantitative data. In this questionnaire, questions were articulated in such a way that expected answers would constitute relevant data required, as asserted by Brace (2004). Before the start of the field, the instrument was pretested in order to test the reliability of the instruments of the research. The questionnaire had questions printed in a definite order on a form as Kothari, (2004) argues. The questionnaire was the best form of data collection for this study compared to other form such as focus group discussion. The farmers had opportunity to express themselves and give their own opinion. The group can be difficult to manage than individual. Some farmers can fear to say the truth in group and be honest when the neighbours are not listening to them.

A series of processes was needed and followed by the researcher to arrive at the questionnaire from the study objectives. It is one of the skills of the researcher to turn the objectives of the study into a set of information requirements, and from there to create questions to provide that information and then to turn those in form of a questionnaire (Brace, 2004).

### **3.6 Administration of the research instrument**

The exercise of training the research assistant was the first step in administration of the research instrument. This assisted the researcher to confirm whether the research assistants understood the purpose and the method of data collection exercise. The researcher employed three research assistants for the sake of saving time considering the size of the sample.

During the collection of data, the researcher and the research assistants asked the questions to the respondent in form of face to face interviews and complete the questionnaire in their place. This technique was chosen because the respondents were unable to fill questionnaires themselves because the majority was illiterate and others with a lower level of education; the objective was therefore to overcome the problem of high illiteracy rate.

### 3.7. Validity of the Research Instrument

Validity is the most critical criterion and indicates the degree to which an instrument measures what it is supposed to measure. Validity can also be thought of as utility. In other words, validity is the extent to which differences found with a measuring instrument reflect true differences among those being tested (Kothari, 2004). The validity of the questionnaire was assessed by ensuring that it captures meaningful information as intended by the researcher (Bordens & Abbott, 2011). The content, construct and face validity of the questionnaire was assessed by supervisors who validated the questionnaire developed by the researcher.

### 3.8. Reliability of Research Instrument

The Reliability of the questionnaire was determined after pre-testing the instrument through a pilot study in Bubanza province of Burundi. In this study, the reliability of the questionnaire was tested using the following alpha from formula of Cronbach  $\alpha =$

$$\left( \frac{n}{n-1} \right) 1 - \frac{\sum (SD_i^2)}{SD_t^2} ,$$

where:  $\alpha$  is alpha of Cronbach,  $n$  is the number of respondents to the questionnaire,  $S D_t^2$  is the variance of the questionnaire scores, and  $\sum(S D_i^2)$  the sum of the variances of item scores. After calculation, the internal consistency of the questionnaire was  $\alpha$ . This desired consistency of questionnaire scores is called reliability.

According to Gliem & Gliem (2003), when alpha of Cronbach is  $>$  than .90 it is excellent. When alpha of Cronbach is  $.90 > \alpha \geq .80$ , it is a good coefficient. When alpha of Cronbach is  $.80 > \alpha \geq .70$ , it is to be acceptable. When alpha of Cronbach is  $.70 > \alpha \geq .60$  it is questionable. When alpha of Cronbach is  $.60 > \alpha \geq .50$ , the internal consistency of tools is poor and when alpha of Cronbach is less than .50, it is unacceptable. For this study an alpha of Cronbach at .73 was achieved, an acceptable level, the questionnaire used was reliable. This technique for testing the reliability was appropriate as the most of the questions was constructed using a Likert scale (interval level). The results obtained after the pilot study helped the researcher in making some corrections in the questionnaire where some items were rephrased in the way of making the questions more understandable by the respondents.

### **3.9. Methods of Data Analysis**

For this study, the researcher first reported the quantitative statistical results and then qualitative findings. The qualitative data was helpful in confirming or negating the statistical results.

#### **3.9.1 Quantitative Data Analysis**

The quality of data was checked and validated at every stage of data coding and entry when the researcher was confirming if all information in the questionnaire was entered. Further cleaning was conducted before starting data analysis. The analytical procedure was supported by the Statistical Package for the Social Sciences (SPSS) software to count



the frequency and percentage so as to summarize the data. The software assisted the researcher to test the hypothesis, which used Spearman's rho correlation. The correlation means the existence of relationship between two or more variables (Saleemi, 1997). The Charles Spearman's coefficient of correlation was chosen because the data was to determine the correlation between the two variables in the case of ordinal data (Kothari, 2004).

The formula of spearman correlation coefficient is:

$$r_s = 1 - \frac{6 \sum d_i^2}{n(n^2 - 1)}$$

where  $\sum d_i^2$  :is the sum of the difference between ranks of  $i^{\text{th}}$  pair of the two variables

$n$  : is the number of pairs of observations.

The value of  $r_s$  will be between -1 and +1. The positive sign of  $r_s$  will indicate the positive relationship between the independent and the dependent variables. This means that the increase in the X is associated with the increase in Y. The negative sign of  $r_s$  will indicate the negative relationship which means that increase in X is associated with the decrease in Y. The 0 value of  $r_s$  will indicate that there will be no relationship between the dependent and independent variable (Hearley, 2005).

### **3.9.2 Qualitative Data Analysis**

Qualitative data analysis was used for interview schedule. This type of data was analyzed using thematic analysis. The first step was the reading of responses given during the interviews. This step was followed by the identification of specific themes and the information was grouped under those themes (Lacey & Luff, 2007).

The information from the response of the project team members during the interview schedules was used to strengthen the quantitative data and to draw conclusions. For qualitative data analysis, the researcher coded the names of informants under PTM1, PTM2, PTM3 PTM4 and PTM5 which is Project team member number 1, number 2, number 3, number 4, and number 5 respectively.

### **3.9.3 Triangulation and Interpretation**

Triangulation is the collection and analysis of data from more than one source to gain a fuller perspective on the situation that a researcher is investigating (Lacey & Luff, 2007). For the sake of triangulating the information, the researcher applied two different sources of information in this study. The first source was the farmers and the second source was the project team members. This also helped to ensure internal validity (Cresswell, 2014). Another important benefit of triangulation methods was that it helped the researcher to increase the confidence level (Thurmond, 2001). The rice farmers were the main source of information while the project team members were giving the information which helps the researcher to validate or invalidate the quantitative data from the farmers.

### **3.10. Ethical Consideration**

During the data collection process, the researcher ensured adherence to the following ethical considerations. First, the researcher applied for permission from the relevant research stakeholders such as Moi University, PAIVA-B manager. Second, the researcher avoided to force the respondents to participate in the study, but allowed them to participate on their own will. This implies that when any of the respondents chose to withdraw during the data collection process, they were allowed to do so. Third, the researcher upheld anonymity and thus the respondents were not required to give their names.

## **CHAPTER FOUR**

### **DATA ANALYSIS, PRESENTATION AND INTERPRETATION**

#### **4.0. Introduction**

In this chapter, the researcher analyzes the data and gives the report and discussion of findings. The chapter shows the outcomes of the questionnaires and interview schedules. It also gives the findings on the analysis of factors influencing the project success for the case study of System of Rice intensification in Karusi province of Burundi.

#### **4.1 Questionnaire Response Rate**

In this study, the questionnaires were directly administered by the researcher in oral form given the higher level of illiteracy of the respondents. The outcome was the 190 questionnaires administered were fly completed which refers to a 100% response rate. The following table shows how the respondents were chosen into the different groups or perimeter in Nyabiho Marsh.

**Table 4.1: Groups Respondents**

Group number	Frequency	Percent
Group 1	34	17.9
Group 2	33	17.4
Group 3	25	13.2
Group 4	30	15.8
Group 5	28	14.7
Group 6	40	21.1
<b>Total</b>	<b>190</b>	<b>100.0</b>

**Source:** Research Survey Data, 2016

The table 4.1 shows how the respondents were members of all six groups of rice farmers in Nyabiho Mashland. This was to confirm that all the population is represented in the sample size.

## **4.2 Respondent Characteristics**

In this study, the respondents were the rice farmers operating in Nyabiho marshland of Karusi province. Those farmers are divided into six groups which correspond at perimeters of Nyabiho marshland. The characteristics of respondents are grouped under different themes which are: gender, educational status, marital status, level of income, other source of income apart from farming activities. The purpose of the researcher was to analyse if the characteristics of farmers influence the Successful implementation of the System of Rice Intensification.

### **4.2.1 Gender of Respondents**

The table 4.2 there is a summary of findings about the gender as one of respondents' characteristics. The frequency and percentages were used the relationship between gender and the project implementation.

**Table 4.2: Gender of Respondents**

Gender	Frequency	Percent
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Male	130	68.4
Female	60	31.6
<hr/>		
Total	190	100.0
<hr/>		

**Source:** Research Survey Data, 2016

The findings indicate that among one hundred and ninety respondents, 68.4% (130) were male and 31.6% (60) were female. This means that the greater percent of participant in the research were male, which is normal as male are heads of households. Even if men and women were all present in their home, usually men easily accepted to respond to research questions. The information from the project team member confirms that among the beneficiaries of PAIVA-B, the number of men is higher than women. Among the 2612 beneficiaries of PAIVA-B from Nyabiho marsh, 1829 are men and 783 are women. The findings related to the gender in this study are connected to the idea of Ostergaard (1992), when raising the gender issues in agriculture. According to the author, one of the issues is that women are not given opportunities of increasing the agricultural production. According to Kumar (2002), gender inequality is one of the social obstacles of people participation in development project. Women are already working hard especially in rural area, this is the reason why it becomes very difficult to participate much in project activities (Akerkar, 2001).

#### 4.2.2 Age of Respondents

The findings in table 4.3 show the age groups where respondent in this study belongs. This was to assess the relationship between age and successful implementation of system of rice intensification project.

The finding showed that among 190 respondents, 12 which represent 6.3% of them were 36 years old, the youngest respondent was 21 and the oldest was 79. According to the findings in table 4.3, 24.7% (47) of respondents were less than or equal to 30 years old, 41.6% (79) were between 30 and 45 years and 33.7% (64) were 45 years and above. This means that the majority of research participants were between 30 and 45 years. People can be excluded from decision-making about issues concerning their life because of their age (Lasker & Guidry, 2009).

**Table 4.3: Age Groups of Respondents**

Age group	Frequency	Percent
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Less than 30	47	24.7
30-45	79	41.6
Greater than 45	64	33.7
Total	190	100.0

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**Source:** Research Survey Data, 2016

The findings show that the majority of farmers are less than 45 years old. This is an advantage for the project success in sense that the people involved in the project can easily understand and apply new ideas. The findings show that among the beneficiaries of the project, the majority are less than 45 years old. This is also another advantage because the project has many chances to sustain as there is opportunity of teaching the coming generation.

#### **4.2.3 Educational Status**

The findings in table 4.4 indicates that among 190 respondents, 48.9% (93) were illiterates and 44.7% (85) have primary school level of education, 5.8 % (11) have a secondary school level of education, then 0.5 % (1) have achieved a level of bachelor degree and above. This means that the farmers in Karusi Province have the lower level of

education because 93.7% of respondents are classified under illiterate and primary school level.

**Table 4.4: Educational Status**

	Frequency	Percent
Illiterate	93	48.9
primary school	85	44.7
secondary school	11	5.8
degree and above	1	.5
Total	190	100.0

**Source:** Research Survey Data, 2016

According to Soransora ( 2013), there is a link between participation in community project and the level of education. He states that those who participate are the ones with lower level of education. Lasker and Guidry (2009) argue that people with little formal education are among marginalized groups which affect decision-making in representative democracies. The lower level of education of farmers is a big challenge in project management, especially in community participation. It becomes a handicap for farmers to

participate in development projects. It influences their involvement in decision-making. It becomes difficult that they understand the importance of the new farming techniques which consequently slow the adoption.

#### 4.2.4 Marital Status

In this study, the findings in table 4.5 shows that 90% of respondents were married, 3.7% were divorced, 5.3% were widowed, and 1.1 % was single. This means that most participants were married.

**Table 4.5: Marital Status of Respondents**

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	Frequency	Percent
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Married	171	90.0
Divorced	7	3.7
Widow	10	5.3
Single	2	1.1
<hr/>		
Total	190	100.0

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**Source:** Research Survey Data, 2016

Marital status can influence project success in sense that married people shall find more interest in adopting SRI than single. As SRI increase rice production, it is therefore beneficial in households because it reduces the problem of food insecurity. Hence, as the majority of the farmers are married, it is an advantage for the project to sustain.

#### **4.2.5 Other Source of Income**

The findings showed that 12.6% of respondents are doing other small businesses, 2.6 respondents are masons, 1.1% represents carpenters, 1.6 % represents civil servant, 3.2% are those who have other source of income while 78.9% of respondents had any other source of income apart from farming. This means that the SRI is very important in their lives as the majority of them live upon income from farming. The source of income is

important in this study in the sense that it can affect the project success. The farmers who have other source of income can easily respect SRI regime in using input required while those who find income in farming only are not able to do so.

**Table 4.6: Source of Income**

	Frequency	Percent
Farmers	150	78.9
Masons	5	2.6
Carpenter	2	1.1
Civil servants	3	1.6
Other	6	3.2
Total	190	100.0

**Source:** Research Survey Data, 2016

#### 4.2.6 Level of Income

The level of income for rice farmers was also assessed so as to examine if there is a relationship between Table 4.7 shows the levels of income of rice farmers participated in the study. 33.2% of respondents had the level of income below 25.000 Burundian currency equivalents of 10\$ per month, 51.1 % had an income between 25000 and 125000 (10\$ to 50\$), and 15.8% had an income of 125000 and above Burundian money equivalents of 50\$. The level of income is a very important aspect in developments projects. This confirms the idea of (Lasker & Guidry, 2009; Murphy & V.Cunningham, 2003) when they argue that resource deficiency of the poor is one of the barriers of community participation.

**Table 4.7 Income level**

	Frequency	Percent
Below 25,000	63	33.2
Between 25,000 and 125.000	97	51.1
125,000 and above	30	15.8
Total	190	100.0

**Source:** Research Survey Data, 2016

According to the authors, it is difficult for community members with little means to join organizations and have opportunities for making decisions. For the case of System of

Rice intensification, the low level of income can reduce the project success. The rice farmers with low income can have difficulties in getting all necessary inputs.

### **4.3. Discussion of Findings**

In this section, the findings will be discussed following the line of the research objectives developed in chapter one. The first objective of the study was to investigate management competence factors and their influence on project implementation; the second objective was to determine project characteristics factors and analyse their influence on project implementation; the third objective was to identify organizational factors and their influence on project implementation; the fourth objective was to explore external environment factors and their influence on project implementation.

#### **4.3.1 Evaluation of Project Implementation**

The Implementation of the System of Rice intensification was evaluated through the degree of satisfaction of rice farmers. The degree of satisfaction of farmers embodies the outcomes of the project implementation. The sustainability of the project was measured by asking farmers if they will continue adopting the System of Rice Intensification even if the project reaches its closure phase. The comparison between the rice production before and the production after the implementation of the System of Rice Intensification in their community was also used to measure the success.

#### 4.3.1.1 Degree of Satisfaction

The project success was measured from the degree of satisfaction at which the rice farmers appreciate the implementation of the system of rice intensification in their community. Among 190 respondents, 141 (74.2%) were very satisfied by the implementation of System of Rice Intensification project, 25 (13.2%) were satisfied, 5(2.6%) were neutral, 11 (5.8%) were unsatisfied, 8 (4.2%) were very unsatisfied. The satisfaction of farmers can have link with the farmer's ability to improve their life standard thanks to SRI project.

**Table 4.8: Project Implementation**

	Frequency	Percent
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very unsatisfied	8	4.2
Unsatisfied	11	5.8
Neutral	5	2.6
Satisfied	25	13.2
very satisfied	141	74.2
<b>Total</b>	<b>190</b>	<b>100.0</b>

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**Source:** Research Survey Data, 2016

#### **4.3.1.2 Sustainability of the System of Rice intensification**

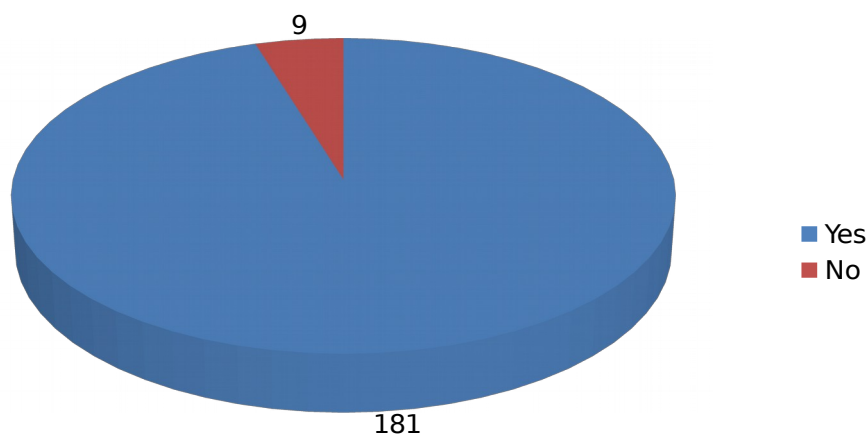
The study examined the sustainability of the project as a variable under successful implementation of the project. The figure 4.1 shows the findings where (181) 95.3% of the respondents says that they are ready to continue using SRI method in farming rice, while less than 5 percent (9) says that they will not respect SRI regime. Those who say that they will not use that farming method said that it is very difficult for them because the inputs are very expensive and they have the lower income. The project team members confirm that the adoption rate is not bad though they are observing some resistance.

« En 2016, le taux d adoption était estime entre 60 et 70 % »

PTM 3

« In 2016, the adoption rate was estimated between 60 to 70 %. »

PTM 3: Translated by the researcher.



**Figure 4.1: Sustainability of SRI**

**Source:** Research Survey Data, 2016

#### 4.3.1.3. Level of Production

Concerning the level of rice production, the researcher intended to analyze at which level the production increased thanks to the implementation of the System of Rice Intensification. The means of production before SRI and after SRI was calculated using SPSS software. The findings show that the level of production increased after implementing the system of rice intensification. For 190 respondents, the mean of

production before SRI is 1.53 tonnes per hectare and the mean of production after SRI is 4.19 ton per hectare.

During the interview PTM2 said:

*« La moyenne de production avant le SRI était à 1,5 tonnes par hectare et maintenant il est de 4.5 tonnes per hectare »*PTM2

*“The average of production before the SRI was 1.5 tons per hectare and now it is 4.5 tons per hectare”* PTM2

Translated by the researcher.

This shows that the SRI increased the production for farmers even if the figures are still lower. Another informant argues that the reasons of the lower production are the non respect of SRI regimen observed at the majority of rice farmers. He said,

*« Les raisons de la faible production son en général sont le non respect du calendrier agricole ainsi que les intrants nécessaire non réuni »* PTM 4

*“The reasons behind low production are in general the non-respect of agricultural calendar and the non-utilisation of required input.”* PTM 4

Translated by the researcher.

#### **4.3.2. Management Competence Factors**

The first objective of the study was to investigate management competence factors and their influence on project success. The table 4.9 shows the frequencies and percentages of

respondents for the variables used in evaluating management competence factors in PAIVA-B especially in Implementation of the SRI.

#### **4.3.2.1 Importance of Leadership Skills**

The researcher analyzed the effect of leadership skills of project manager and the project team members on project success. Leadership skills are very crucial in project management (Levy, 1998). The ability to delegate power, ability to coordinate activities, those are some of the skills that a project manager need so as to achieve success. There is a need that the project manager be able to delegate authority and assign responsibilities to the members of the team members ( Belassi & Tukel, 1996). Among 190 respondents, 32(16.8%) strongly agreed, 115(60.5%) agreed, 7(3.7%) were undecided, 35(18.4%) disagreed, and 1(0.5%) strongly disagreed that they are involved in decision making in issues related to the System of Rice Intensification. (Finsterbusch *et al.*, 1987) confirmed that community participation in decision making is necessary for the project to be successful.

Concerning the coordination of activities by the project team members, 94 (49.5%) strongly agreed, 94 (49.5%) agreed, 1(0.5%) was undecided, 1 (0.5%) disagreed that the project team members coordinate activities successfully.

#### 4.3.2.2. Competence and Commitment

The researcher wanted to find out if competence and commitment of project manager and project team members are determinants of System of Rice Intensification success. Concerning the frequency of project team members, 112 (58.9%) agreed, 74 (38.9%) strongly agreed and 1 (0.5%) was undecided while 3 (1.6%) disagreed that the project team members come frequently.

As regards the respect of time, 74 (38.9%) strongly agreed, 111 (58.4%) agreed, 5 (2.6) disagreed that the project team members respect time for meetings. According to Cleland & Ireland, (2007) determining the timing during project meeting need to be considered. With respect to the competence of project team members, 86 (45.3%) respondents strongly agreed, 68 (35.8%) agreed, 4 (2.1%) were undecided, 18 (9.5%) disagreed and 14 7.4% strongly disagreed that project team members are competent. About the commitment of project team members, 69 (36.3%) strongly agreed 118 (62.1%) agreed 1 (0.5%) was undecided while 2 (1.1%) disagreed that the project team members are committed. Finally concerning the commitment of project manager, 80 (42.1%) respondents strongly agreed, 89 (46.8%) agreed 5 (2.6%) were undecided 15 (7.9%) disagreed and 1 (0.5%) strongly disagree.

**Table 4.9: Management Competence Factors**

	<b>SD</b>		<b>D</b>		<b>U</b>		<b>A</b>		<b>SA</b>	
<b>If the following factors affect the</b>	Frq	%	Frq	%	Frq	%	Frq	%	Frq	%

---

<b>success of SRI implementation</b>										
Involvement in decision making	1	0.5	35	18.4	7	3.7	115	60.5	32	16.8
	0	0	1	0.5	1	0.5	94	49.5	94	49.5
Degree of coordination of activities										
	0	0	3	1.6	1	0.5	112	58.9	74	38.9
Frequency in monitoring farmers activities										
	0	0	5	2.6	0	0	111	58.4	74	38.9
Respect of time for meeting										
	14	7.4	18	9.5	4	2.1	68	35.8	86	45.3
Competence of project team members										
	0	0	8	4.2	4	2.1	64	33.7	124	65.3
Clearness and conciseness of information										
	0	0	8	4.2	4	2.1	123	64.7	55	28.9
Opportunity of farmers in giving own opinion										
	0	0	18	9.5	4	2.1	113	59.5	55	
Appropriateness of communication channels										28.9
	0	0	2	1.1	1	0.5	118	62.1	69	36.3
Commitment of project team members										
Commitment of project coordinator	1	0.5	15	7.9	5	2.6	89	46.8	80	42.1

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Key: **SD**-Strongly disagree; **D**-Disagree, **U**- Undecided, **A**- Agree and **SA**- Strongly

**Source:** Research Survey Data, 2016

The findings show that for competence and commitment, rice farmers testify that project team members were competent. The project team members are committed to their work because they frequently visit the rice farmers, and they respect time of meetings and also the rice farmer's reactions about the commitment of project team members and project managers. During the interviews, the project team members said,

*« La compétence et la responsabilités des membres de l'équipe du projet est un grand facteur de la réussite du projet. » PTM1*

*“ The competence and commitment of project team members is a big factor of project success.” PTM1: Translated by the researcher*

#### **4.3.2.3. The Role of Communication**

According to Curlee & Gordon (2011), communication plays a vital role in project management. This study assessed the part of communication skills of project team members and project manager in the successful implementation of the System of Rice Intensification success.

About the clearness and conciseness of information, 124 (65.3%) strongly agree, 64(33.7%) agreed and 2 (1.1%) were undecided that the project team members communicate using clear and concise information. As for the opportunity of farmers in giving their own opinions, 55(28.9%) strongly agreed, 123(64.7%) agreed, 4(2.1%) were undecided 8 (4.2%) disagreed that they have opportunities of giving their own opinions.

About the appropriateness of communication channels used, 55 (28.9%) respondents strongly agreed, 113(59.5%) agreed, 4 (2.1%) respondents were undecided, 18 (9.5%) disagreed that the project team members use appropriate communication channels. The effective communication is the way of achieving project success (Cleland & Ireland, 2007). The findings confirm that the rice farmers are satisfied by the effectiveness of communication used in the project considering the clearness and conciseness of information and the appropriateness of the communication channels. During the interview,

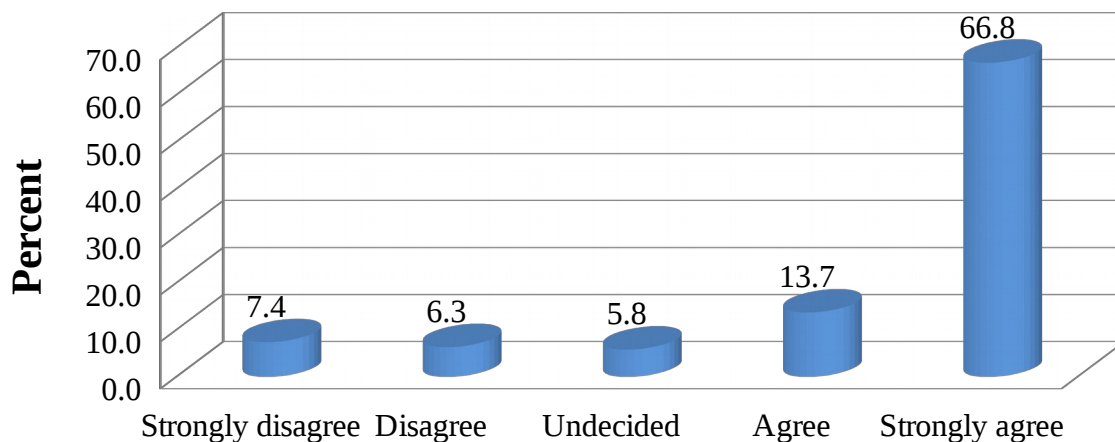
a project team member said,

*“ La compétence en communication est indispensable parce que les membres de l'équipe de projet ont besoin de donner les messages techniques ce qui demande l'utilisation du langage compréhensible. » PTM 1*

*“Communication skills are essential because project team members need to give technical messages, which requires the use of understandable language”*  
PTM1: Translated by the researcher



#### 4.3.2.4. Overall Management Competence



**Figure 4.2: Management Competences**

**Source:** Research Survey Data, 2016

Figure 4.2 shows the farmers' ideas about the management competence factor influencing implementation of the system of rice intensification. Among 190 respondents, 66.8% strongly agreed, 13.7% agreed, 5.8 % were undecided 6.3% disagreed and 7.4% strongly disagreed that the management competence influences the project implementation. This was also confirmed by project team members during the interview.

*« La compétence dans la gestion est un grand facteur qui détermine le succès d'un projet. » PTM1*

*“Competence in management is a major factor determining the success of a project” PTM1: Translated by the researcher.*

#### 4.3.2.5 The Influence of Management Competence on Project Implementation

The spearman's rho correlation was used to establish the relationship between management competence and project implementation. There was a positive relationship between management competence and project implementation as shown in table 4.10 ( $r=.759$ ,  $n=190$ ,  $p<.001$ ). The results indicate that the more the management is competent, the higher the project is successfully implemented. This confirm the idea from Belassi & Tukel, (1996) that project manager skills and competence, commitment, project team members technical background, commitment communication skills lead to the successful implementation of the project.

**Table 4.10: Relationship between Management Competence and Project Implementation**

Variables	Project Implementation	Management competence
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Project Implementation	Correlation Coefficient	1.000	.759**
	Sig. (2-tailed)	.	.000
Management competence	N	190	190

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\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Source:** Research Survey Data, 2016

From table 4.10, as the p value is  $< .001$ , there is a strong evidence to believe that the alternative hypothesis is true. Therefore, the null hypothesis (there is no significant relationship between management competence factors and the implementation of SRI) is rejected.

#### 4.3.3. Factors Related to the Projects Characteristics

The second objective was to determine project characteristics factors and analyse their influence on project implementation. The table 4.11 shows the summary of findings related to the farmers' participation during the project life cycle and project

characteristics influencing SRI implementation. It is the frequencies and percentages drawn from the questions asked.

#### **4.3.3.1 Delegation of Power via Participation**

Concerning the participation of farmers during the planning phase, 47 (24.7%) strongly disagreed, 113 (59.5%) disagreed, 11(5.8%) neither agreed nor disagreed, 17(8.9%) agreed and 2 (1.1%) strongly agreed that they participated in the planning phase.

As for the participation in monitoring of SRI activities, 28(14.7%) respondents strongly agreed, 130 (68.4%) agreed, 14(7.4%) neither agreed nor disagreed, and 18 (9.5%) disagreed that they participated in monitoring activities. About the participation during evaluation, 30 (15.8%) strongly agreed 81 (42.6%) agreed, 15 (7.9%) were undecided, 61(32.1%) disagreed 3(1.6%) strongly disagreed that they have participated in evaluation activities. The community does not do much during evaluation as argued by the interviewee. Regarding the farmers participation during the implementation phase, 77 (40.5%) strongly agreed, 101 (53.3%) agreed, 3(1.6%) were undecided and 9 (4.7%) disagreed that they participated in the implementation of the SRI. The project team members confirmed that the beneficiaries of the project started to participate during the implementation and monitoring activities.





**Table 4.11: Factors related to the project Characteristics**

factors affect SRI implementation	SD		D		U		A		SA	
	Fr	%	Fr	%	Fr	%	Fr	%	Fr	%
Stakeholders participation	0	0	6	3.2	10	5.3	99	52.1	75	39.5
Farmers participation during planning phase	47	24.7	113	59.5	11	5.8	17	8.9	2	1.1
Effectiveness of planning and scheduling	4	2.1	16	8.4	29	15.3	112	53.7	39	20.5
Farmers participation during monitoring	0	0	18	9.5	14	7.4	130	68.4	28	14.7
Effectiveness of monitoring	0	0	18	9.5	13	6.8	115	60.5	44	23.2
Farmers participation during evaluation	3	1.6	61	32.1	15	7.9	81	42.6	30	15.8
Effectiveness of evaluation	0	0	23	12.1	31	16.3	74	38.9	62	32.6
Farmers participation during implementation	0	0	9	4.7	3	2.1	101	53.2	77	40.5
Human Resource contribution during implementation	3	1.6	33	17.4	2	1.1	69	36.3	83	43.7
Value of the project in the life of farmers	0	0	1	0.5	1	0.5	79	41.6	109	57.4
Economies of large scale production	1	0.5	17	8.9	10	5.3	114	60	48	25.3

Increase of income	0	0	2	1.1	10	5.3	88	46.3	90	47.4
Food security	0	0	12	6.3	14	7.4	97	51.1	67	35.3
Increase of livestock or land	0	0	30	15.8	11	5.8	82	43.2	67	35.3
Quality of housing	3	1.6	49	25.8	14	7.4	84	44.2	4	7.4
Access to the market	1	0.5	24	12.6	7	3.7	108	56.8	50	26.3
Access to qualitative inputs and other services	0	0	38	20	7	3.7	103	54.2	42	22.1
Decrease of price for input	4	2.1	56	29.5	10	5.3	73	38.4	47	24.7
Uniqueness of project activities	1	0.5	3	1.6	1	0.5	111	58.4	74	38.9
Degree of handling urgency cases	0	0	2	1.1	2	1.1	117	61.6	69	36.3

Key: **SD**-Strongly disagree; **D**-Disagree, **U**- Undecided, **A**- Agree and **SA**- Strongly



On the participation of all stakeholders, among the 190 respondents who answered the questionnaires, 75 (39.5%) respondents strongly agreed, 99 (52.1%) agreed, 10 (5.3%) were undecided and 6(3.2%) disagreed that the project facilitate the participation of all stakeholders. The findings were supported by ideas from the project team members during the interview schedules. The following are some of the information received by the researcher.

« L'implication des bénéficiaires s'observe souvent dans la mis en oeuvre des activités et dans le suivi évaluation. La planification a été fait par une équipe forme par les bailleurs de fond, le gouvernement ainsi que les représentants de bénéficiaires. Même le staff a été engage pour commencer la mis en ouvre» PTM3

« The implication of beneficiaries is observed during the implementation, monitoring and evaluation. The planning was done on the ground by a team of donors is the representative of the Ministry of Agriculture and Livestock. Even the project team members were committed to begin implementation » PTM translated by the researcher.

« Le projet implique la communauté depuis le ciblage jusqu'a l exécution.» PTM1

« The project involves the community from the targeting to execution» PTM1: Translated by the researcher.

The findings show that the project didn't facilitate the participation of the community during the planning phase. The finding shows that the idea of involving the community during the project planning phase was not considered in the case of SRI. It is important to consult community from the earlier stages. It allows the project team to consider the needs and concerns of the community regarding the schedule, budget, activity plan, and staffing of the project (Ori, King Nkatha, 2014; Paul, 1987)

#### 4.3.3.2 The System of Rice Intensification Project life cycle

This study evaluated the farmers' satisfaction about the effectiveness of project phases of the project life cycle. About the effectiveness of planning, 39 (20.5%) respondents strongly agreed, 102(53.7%) agreed 29 (15.3%) neither agreed nor disagreed 16 (8.4%) disagreed and 4 (2.1%) strongly disagreed.

With regards to effectiveness of monitoring, 44 (23.2%) respondents strongly agreed, 115 (60.5%) agreed 13(6.8%) were undecided, and 18(9.5%) disagreed. Concerning the effectiveness of evaluation, 62 (32.6%) respondents strongly agreed, 79 (38.9%) agreed, 31 (16.3) were undecided, 23 (12.1%) disagreed. The findings of this study show that the rice farmers were generally satisfied with the effectiveness of the project planning, monitoring and evaluation activities and project implementation phases. The findings show that the majority among beneficiaries of the project confirm that the activities during the project life cycle were effective. The idea that project life cycle is one of project characteristics which need to be inherent in the project management developed by Belassi & Tukul, (1996) was considered.

#### 4.3.3.3 Size and value of the project

The size and the value of the project can also determine the project success or failure (**Belassi & Tukul, 1996**). The size of the project relates to its scope of beneficiaries expecting to have a profit from its implementation while the value is the benefits that it can yield to the specified beneficiaries (Maylor, 2010). The researcher assessed the value that SRI added to the beneficiaries of the project. As the farmers confirmed that SRI project increased their harvest. The study also assessed the part of the project in

increasing farmers' income and if it helped them to achieve food security. About the value of the project in farmers' life 109 (57.4%) strongly agreed, 79 (41.6%) agreed, 1 (0.5%) undecided, 1 (0.5%) agreed that the project has a strong value in their lives.

About economies of large scale, rice farmers were asked if the project gave them opportunity to sell rice harvested and buy fertilizers at a large scale so that the transport cost shall be reduced. Among 190 respondents, 48 (25.3%) strongly agreed, 114 (60%) agreed 10(5.3%) undecided 17 (8.9%) disagreed 1 (0.5%) strongly disagreed that they profit the large scale production thanks to the project implemented in their community. The researcher confirmed the idea of Chandra, (2002) where he defined the economies of scale as the fact that the increase of scale production, marketing or distribution lead to the increase in the cost per unit of production. The findings shows that the farmers confirm that they have advantages of selling rice harvest and buying inputs such as fertilizers at a large scale; which helps them to decrease the cost of transport.

About the increase of income, 90 (47.4%) respondents strongly agreed, 88 (46.3%) agreed, 10(5.3%) neither agreed nor disagreed, 2 (1.1%) disagreed that the project assisted them in increasing their income. The project team members confirmed during interview schedules that rice farmers who are beneficiaries of the project have increased their income at an average of more than 60% thanks to the project. This information was also confirmed by the midi-term evaluation report (IFAD, 2010). Their opinion is confirmed by the findings about the increase of livestock, land and availability of food compared to before the implementation of the project. The level of income is very important in the sense that it determines the accessibility of food, another factor of food

security. Even if the food is available on the market, their price determines its accessibility; those who have lower income can't afford them (Godfray *et al.*, 2010).

Concerning the increase of livestock or land 67(35.3%) respondents strongly agreed, 82 (43.2%) respondents agreed, 11 (5.8%) undecided, 30 (15.8%) disagreed that they have increased the livestock or bought land thanks to the project. The research findings show that the majority of rice farmers in Karusi province had the opportunity to purchase land or livestock. This confirms the idea that one of the strategies that farmers use to escape poverty is purchasing land or livestock (Dixon *et al.*, 2001).

About the quality of housing belonging to the rice farmers, 40 (21.1%) strongly agreed, 84 (44.2%) agreed, 14 (7.4%) neither agreed nor disagreed, 49 (25.8%) disagreed, and finally 3 (1.6%) strongly disagreed that they have improved the quality of housing thanks to the project.

As far as food security is concerned, this study assessed the impact of SRI in beneficiaries' households. About the availability of food 67 (35.3%) respondents strongly agreed, 97 (51.1%) agreed 14(7.4%) neither agreed nor disagreed 12 (6.3) disagreed that the project helped them in increasing the availability of food in their households which lead to attending food security in their households. The availability of food in the household is one of the indicators of food security (Guha-Khasnobis *et al.*, 2007). The findings confirm that the implementation of the SRI increased the availability of food.

Concerning the contribution as staff of the project, 83(43.7%) strongly agreed 69(36.3%) 2(1.1%) undecided, 33(17.4%) disagreed 3(1.6%) strongly disagreed that they have been employed by the project. The researcher investigated the value of SRI based on the idea

of Maylor, (2010) that the value of the project is the benefit that it can yield for someone after a certain period of time where business projects value is justified by payback from an investment and perceived value for the specified beneficiaries in the case of a social project.

*« Au niveau des impacts ce serait trop tôt de dire que c'est bon... mais il ya eu une amélioration des niveaux de vie des ménages bénéficiaires du projet.» PTM1*

*« Concerning the impacts it would be too early to say that it is good. But... there has been an improvement in the living standards of households the beneficiaries of the project.» PTM1: Translated by the researcher.*

#### **4.3.3.4 Uniqueness of the project**

The uniqueness of the project concerns its starting and completion time. As mentioned in chapter two each project is unique in its nature. Any other project cannot be similar with it in all the parameters such as the strategic goals and objectives, the cost, duration, quality and employees. This study was limited to the project strategy and services derived thereof. As far as the uniqueness of the project activities is concerned, 74(38.9%) respondents strongly agreed, 111 (58.4%) agreed, 1 (0.5%) neither agreed nor disagreed, 3 (1.6%) disagreed and 1 (0.5%) strongly disagreed that the project usually decreases the price of inputs.

Concerning the access to the market, 50(26.3%) respondents strongly agreed 108 (56.8%) agreed, 7 (3.7%) neither agreed nor disagreed, 24 (12.6%) disagreed, 1 (0.5%) strongly disagreed that the project improves the facilities of accessing the market.

About the access to qualitative input and other services, 42 (22.1%) strongly agreed, 103 (54.2%) agreed, 7(3.7%) neither agreed nor disagreed, 38 (20%) disagreed that the project improved the facilities for accessing the qualitative input and other services. Then

about the decrease of price for inputs, 47 (24.7%) respondents strongly agreed, 73 (38.4%) agreed, 10 (5.3%) neither agreed nor disagreed, 56 (29.5%) disagreed and 4 (2.1%) strongly disagreed that the project usually decreases the price of inputs.

The findings shows that the beneficiaries are satisfied with the uniqueness of the activities in the sense that they are not similar with the existing ones in the previous projects (Nicholas, 1990). According to Belassi & Tukel (1996), the uniqueness of the project can affect the performance of project management which therefore can influence the project implementation.

#### **4.3.3.5 The Urgency of the System of Rice Intensification Project**

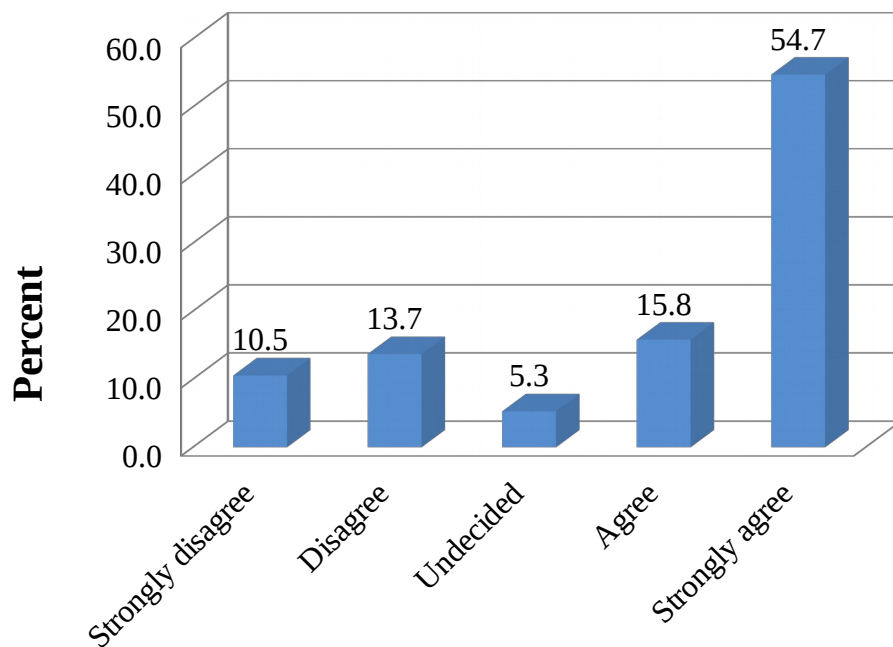
The system of rice intensification was an urgency case project. This is confirmed after analyzing the findings from the study. 118(62.1%) respondents strongly agreed, 67 (35.3%) agreed, 1 (0.5%) neither agreed nor disagreed, 4 (2.1%) disagreed that the project implemented was a priority in their community. According to Chandra, (2002), the projects that are more urgent get more priority than projects that are less urgent. As mentioned In the country strategic plan from 2008 to 2015, the government policy was to turn rice into an important food substitution (Ndayitwayeko W-M & Korir M, 2012). The findings from the beneficiaries of the project confirm that the System of Rice Intensification project was an urgency case to consider.

Regarding the degree of handling urgency cases such as the maintenance and repair of infrastructures, 69(36.3%) respondents strongly agreed, 117 (61.6%) agreed, 2 (1.1%)

neither agreed nor disagreed, 2 (1.1%) disagreed that they are satisfied by how the project team members handled emergency cases. Those project characteristics can influence the project implementation.

#### 4.3.3.6 Overall Project Characteristics Factors

Among the 190 respondents, 54.7% strongly agreed, 15.8% respondents agreed, 5.3% were undecided, 13.7% respondents disagreed and 10.5% strongly disagreed that the project factors like size value and uniqueness influence the success of the system of rice intensification.



**Figure 4.3: Project Characteristics Factors**

Source: Research Survey Data, 2016

#### 4.3.3.6 Overall influence of project characteristic factors on project implementation

The spearman correlation was used to assess the relationship between project characteristics factors which are the value, the size the uniqueness and the project implementation. The findings showed that there is a positive relationship between project characteristics and project implementation ( $r=.518$ ,  $n=190$ ,  $p<.001$ ). This means that as long as the project is unique, it has many benefits and increases their standard of life, the project is successfully implemented.

**Table 4.12: Relationship between Project Implementation and Project characteristics**

		Project Implementation	Project characteristics
Project Implementation	Correlation Coefficient	1.000	.518**
	Sig. (2-tailed)	.	.000
	N	190	190
Project characteristics			

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Source:** Research Survey Data, 2016

From table 4.12, we can conclude that there is a positive relationship between project characteristics factors and project implementation. As the p-value is  $<0.01$ , there is a strong evidence to believe in the alternative hypothesis and reject the null hypothesis (There is no significant relationship between the project characteristic factors and the implementation of SRI). The researcher concluded that there is a significant relationship



between factors related to project characteristics and the implementation of the System of Rice Intensification.

#### **4.3.4 Organizational Factors**

The third objective was to identify organizational factors and their influence on project implementation. Table 4.13 show the summary of findings concerning the organizational factors of project implementation. The variables used to measure organizational factors were top management support, functional management support, organizational structure and communication model used in the project and the advantages of the given structure for farmers. This was to make sure whether or not the structure facilitates access to inputs and to the market.

##### **4.3.4.1 Top Management Support**

Concerning the top management support, 119(62.6%) respondents strongly agreed, 28 (14.7%) agreed, 12 (6.3%) neither agreed nor disagreed, 15 (7.9%) disagreed, and 16(8.4%) strongly disagreed that the project was supported by the top management. According to Pinto & Prescott, (1990) the top management support is very important in the project management as it proves the availability of resources. Other authors like Ofori (2013) and Belassi & Tukel (1996) also argue that the top management is a key factor to project success.

##### **4.3.4.2 Functional Management Support**

With regard to the functional management support, the researcher needed to confirm from the farmers if the project is supported from the functional management support.

103(54.2%) respondents strongly agreed, 60 (31.6%) agreed, 11 (5.8%) neither agreed nor disagreed, 12 (6.3%) disagreed and 4 (2.1%) strongly disagreed that they are satisfied by the functional management support. The findings confirm the idea of Belassi & Tukul (1996), that the project supported by the functional management has no difficulties related to the availability of resources because the level of support from the top management usually determines the level of support provided by the functional managers.

#### **4.3.4.3 Availability of Resources**

The availability of resources is the major determinant of project success. Belassi & Tukul, (1996) argues that from the full support, project managers get facilities of implementing strategies for project's successful completion. Concerning the availability of capital resources, 91(47.9%) respondents strongly agreed, 71 (37.4%) agreed, 9(4.7%) neither agreed nor disagreed, 15 (7.9%) disagreed and 4 (2.1%) strongly disagreed that the capital resources are available every time when they need it.

From the findings, the farmers confirm that the resources are available for the implementation of SRI project. This testifies that the project was supported by the top management. The findings of the study confirm the idea of Belassi & Tukul, (1996); Westerveld, (2003)availability of resources is the major factor of project success.

#### **4.3.4.4 Organizational Structure**

With regard to the appreciation of structure of the organization, 62(32.6%) respondents strongly agreed, 112 (58.9%) agreed, 11 (5.8%) neither agreed nor disagreed, 5 (2.6%) disagreed that they appreciate the structure of the organization. Afterwards, 93(48.9%)

respondents strongly agreed, 62 (32.6%) agreed, 11 (5.8%) neither agreed nor disagreed, 14 (7.4%) disagreed and 10 (5.3%) strongly disagreed that the project operates under the government's policy. According to Maylor, (2010), the organizational structure is defined as the arrangement of the human resource that will be used to carry out the project. The organizational design is the structure of the organization. It is defined as the manner in which the work will be conducted. The structure of the organization facilitates to perform the work (Cleland & Ireland, 2007). The findings of the study agree that the rice farmers don't have issues related to the structure of the organization.

On communication, 75(37.4%) respondents strongly agreed, 71 (37.4%) agreed, 6 (3.2%) neither agreed nor disagreed, 35 (18.4%) disagreed and 3 (1.6%) strongly disagreed that the rice farmers have opportunity to communicate directly to the project manager. Hence, 12(6.3%) respondents strongly agreed, 39 (20.5%) agreed, 8 (4.2%) neither agreed nor disagreed, 102 (53.7%) disagreed and 29 (15.3%) strongly disagreed that the rice farmers communicate only to the project team members. the findings show that the farmers don't have issues related to the structure of the organization

**Table 4.13: Organizational Factors**

If the following factors affect the success of SRI implementation	SD		D		U		A		SA	
	Frq	%	Frq	%	Frq	%	Frq	%	Frq	%
Top management support during the project life cycle	16	8.4	15	7.9	12	6.3	28	14.7	119	62.6
The project operates under	10	5.3	14	7.4	11	5.8	62	32.6	93	48.9

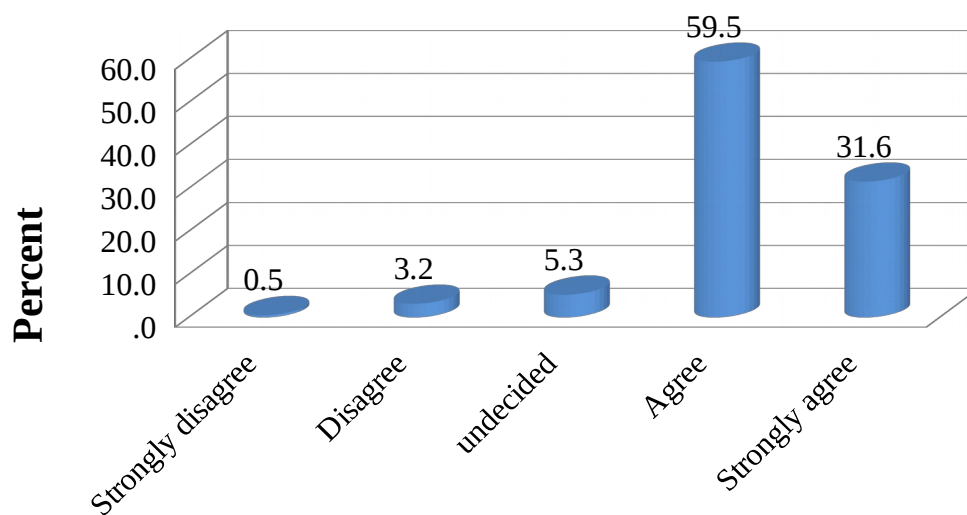
government policy

Functional management support	4	2.1	12	6.3	11	5.8	60	31.6	103	38.4
Rice farmers communicate directly to the project manager	3	1.6	35	18.4	6	3.2	71	37.4	75	39.5
Rice farmers communicate only to the project team members	29	15.3	102	53.7	8	4.2	39	20.5	12	6.3
Capital resources are available if necessary	4	2.1	15	7.9	9	4.7	71	37.4	91	47.9
Appreciation of structure of the organization	0	0	5	2.6	11	5.8	112	58.9	62	32.6
Rice farmers are participating as staff of the project	0	0	51	9.5	30	15.8	67	35.3	42	22.1
Organizational structure facilitate access to inputs	2	1.1	24	12.6	12	6.3	115	60.5	37	19.5
Organizational structure facilitate access to the market	1	0.5	15	7.9	9	4.7	111	58.4	54	28.4

Key: **SD**-Strongly disagree; **D**-Disagree, **U**- Undecided, **A**- Agree and **SA**- Strongly

**Source:** Research Survey Data, 2016

#### 4.3.3.5 Overall Influence of Organizational Factors on Project Implementation



**Figure 4.4: Organizational Factors**

**Source:** Research Survey Data, 2016

The figure 4.4 shows the ideas of respondents about the influence of organizational factors on the project implementation, 31.6% respondents strongly agreed, 59.5% agreed, 5.3% were undecided, 3.2% disagreed, 0.5% strongly disagreed that organizational factors like top management support, structure of the organization, affect the project implementation.

The spearman rank correlation was used to examine the relationship between organizational factors and project implementation. The findings show that there is no significant relationship between organizational factors and project Implementation [ $r=.147$ ,  $n=190$ ,  $p=.043$ ]. This means that the increase of the organizational factors didn't influence the increase of successful implementation of the project. As the p value is 0.043, we have no strong evidence to believe the alternative hypothesis. Therefore, we accept the null hypothesis. There is no significant relationship between organizational factors and the implementation of SRI.

The findings can be justified by the ideas from the project team members discussed during the interview. They informed the researcher that the organizational structure has been recently changed.

**Table 4.14: Relationship between Organizational Factors and Project implementation**

Variables		Project implementation	organizational factors
Project Implementation	Correlation Coefficient	1.000	.147*

	Sig. (2-tailed)	.	.043
organizational factors	N	190	190

\*. Correlation is significant at the 0.05 level (2-tailed).

**Source:** Research Survey Data, 2016

*« Dans le but de faciliter l'encadrement de proximité, le FIDA a créé la décentralisation dans ses projets. D'où la création des unités régionales quatre offices ont été ouvert au nord, ouest, est et centre du Pays. ...C'est bénéfique pour le riziculteur car ca facilitera le suivi- évaluation. » PTM4*

*“To facilitate proximity supervision of the project beneficiaries, the management initiated a process of decentralization for its projects. Hence, the creation of sub-office units: four of those were opened in the Northern, Western, Eastern and Central part of the country. ... This proves beneficial to rice farmers since it facilitates monitoring and evaluation.”PTM4: translated by the researcher*

#### 4.3.5 External Environmental Factors

The fourth objective was to explore external environment factors and their influence on project implementation. The table 4.15 shows the summary of findings. The variables used to measure the external environment factors were the political factors, socio economical factors, environmental factors and technological factors.

##### 4.3.5.1 Political factors

About the participation of the government, 37(19.5%) respondents strongly agreed, 106 (55.8%) agreed, 11 (5.8%) neither agreed nor disagreed, 33 (17.4%) disagreed and 3 (1.6%) strongly disagreed that the governor of Karusi province and the administrator of Gitaramuka participate in a SRI activities or meetings. This confirm the idea of Khanna, (2011).

Concerning the project priorities, 118(62.1%) respondents strongly agreed, 67 (35.3%) agreed, 1 (0.5%) neither agreed nor disagreed, 4 (2.1%) disagreed that the project implemented was a priority in their community. As regards to the job created thanks to the project, 91(47.9%) respondents strongly agreed, 79 (41.6%) agreed, 7 (3.7%) neither agreed nor disagreed, 13 (6.8%) disagreed that many jobs have been created after the implementation of the project.

#### **4.3.5.2 Social and Economical Factors**

About the high output from SRI, 57(30%) respondents strongly agreed, 116 (61.1%) agreed, 9 (4.7%) neither agreed nor disagreed, 8 (4.2%) disagreed that the output is higher compared to the value of the inputs used. Concerning the improvement of infrastructure, 71(37.4%) respondents strongly agreed, 109 (57.4%) agreed, 3(1.6%) neither agreed nor disagreed, 6 (3.2%) disagreed and 1 (0.5%) strongly disagreed that the project have contributed to the improvement of infrastructures. Also shops has been created as 65(34.2%) respondents strongly agreed, 88 (46.3%) agreed, 17 (8.9%) neither agreed nor disagreed, 3 (1.6%) disagreed and 1 (0.5%) strongly disagreed that shops have been created in the community.

**Table 4.15: External Environmental Factors**

<b>If the following factors affect the success of SRI implementation</b>	<b>SD</b>		<b>D</b>		<b>U</b>		<b>A</b>		<b>SA</b>	
	Frq	%	Frq	%	Frq	%	Frq	%	Frq	%
If the project was the priority	0	0	4	2.1	1	0.5	67	35.3	118	62.1
The project operates under government policy	2	1.1	28	14.7	13	6.8	104	54.7	43	22.6
Participation of governor and administrator	3	1.6	33	17.4	11	5.8	106	55.8	37	19.5
Output from SRI is higher considering the value of inputs	0	0	8	4.2	9	4.7	116	61.1	57	30
Jobs created thanks to the project	0	0	13	6.8	7	3.7	79	41.6	91	47.9
Improvement of infrastructure thanks to the project	1	0.5	6	3.2	3	1.6	109	57.4	71	34.2
Shops created thanks to the project	1	0.5	19	10	17	8.9	88	46.3	65	34.2
Access to school for rice farmers kids	0	0	5	2.6	10	5.3	77	40.5	98	51.6
Access to health services	0	0	6	3.2	7	3.7	74	38.	103	54.



								9	2	
Church constructed thanks to the project	5	2.6	82	43.2	47	24.7	45	23.7	11	5.8
Appreciation of SRI activities	1	0.5	31	16.3	8	4.2	81	42.6	69	36.3
Reduction of production for other crops	30	15.8	121	63.7	7	3.7	28	14.7	4	2.1
Degree of appreciation of SRI technique	0	0	2	1.1	0	0	116	61.1	72	37.9
Water management difficulties decreased rice harvest	1	0.5	4	2.1	4	2.1	77	40.5	104	54.7

Key: **SD**-Strongly disagree; **D**-Disagree, **U**- Undecided, **A**- Agree and **SA**- Strongly

**Source:** Research Survey Data, 2016

With regard to the access to school for rice farmers' kids, 98(51.6%) respondents strongly agreed, 77 (40.5%) agreed, 10 (5.3%) neither agreed nor disagreed, 5 (2.6%) disagreed that their children have facilities to access school services thanks to the project.

About the access to health services, 103(54.2%) respondents strongly agreed, 74 (38.9%) agreed, 7 (3.7%) neither agreed nor disagreed, 6 (3.2%) disagreed that the project increased the easiness of accessing health services for rice farmers. Regarding the appreciation of SRI activities, 69(36.3%) respondents strongly agreed, 81 (42.6%) agreed, 8 (4.2%) neither agreed nor disagreed, 31 (16.3%) disagreed and 1 (0.5%) strongly disagreed that they appreciate the SRI activities. Then, 4(2.1%) respondents strongly agreed, 28 (14.7%) agreed, 7(3.7%) neither agreed nor disagreed, 121 (63.7%) disagreed and 30 (15.8%) strongly disagreed that the SRI activities increase the production of other crops. This is the part of the social and economic impact of the project that needs to be considered. The increase of rice production is a priority, and it is

one of the ways to follow when one needs to achieve the objective of increasing the life standard of the small farmers.

#### **4.3.5.3 Environmental Aspect**

Concerning the water management difficulties, 104 (54.7%) respondents strongly agreed, 77 (40.5%) agreed, 4 (2.1%) neither agreed nor disagreed, 4 (2.1%) disagreed and 1 (0.5%) strongly disagreed that the water management in Nyabiho marshland reduced the rice harvest expected. During interview, project team members also confirmed that the success of the system of rice intensification is strongly influenced by the climate change.

They informed the researcher that:

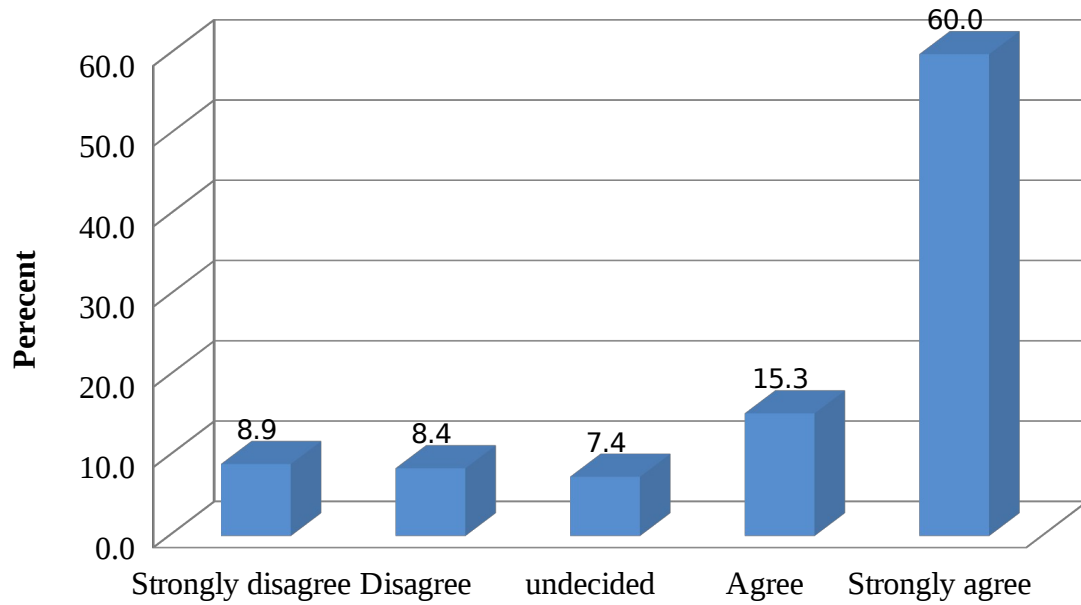
*« L'un des principaux problèmes est qu'une partie de Nyabiho souffre de la manque d'eau. Les agriculteurs ne peuvent pas pratiquer le SRI. » PTM 2*

*“One of the major problems is that a part of Nyabiho marshland suffers from the lack of water. Farmers can't practice SRI” PTM 2: Translated by the researcher.*

This confirms the argument of Khanna (2011), that the environment includes water, air, land and human beings and the interrelationships between them. When water is well managed, the system of rice intensification is going to be successfully implemented and finally the rice harvest will increase.

#### **4.3.5.4 Technological Factors**

Among 190 respondents, 72(37.9%) strongly agreed, 116(61.1%) agreed, 2(1.1%) disagreed that they appreciate the technology used for the system of rice intensification



**Figure 4.5: External Environment Factors**

**Source:** Research Survey Data, 2016

The figure 4.5 shows how the respondents replied when asked if the external environment factors lead to project implementation. Among 190 respondents, 60% strongly agreed, 15.3% agreed, 7.4% were undecided, 8.4 % disagreed, 8.9 % respondents strongly disagreed that the external environment factors affect the implementation of the system of rice intensification.

#### **4.3.4.5 Relationship between External Environment and Project implementation**

The spearman rank-correlation was used to establish the relationship between external environment factors and system of rice intensification success. There was a positive relationship between external environment factors and SRI success [ $r=.590$ ,  $n=190$ ,  $p<.001$ ]. This means that as long as the political, social, economical, technological and legal environmental aspects are good, the project implemented in this locality has the

potential to achieve success. The project team members also confirm that the system of rice intensification will achieve the objectives thanks to the contribution of many factors.

*« On a remarqué qu'on arrive à la réussite du projet suite à une série de facteurs; même si les fonds sont disponible, l'environnement dans lequel on travail doit être favorable. Par exemple, les marais sont des poches de fertilité. C'est là où on peut espérer avoir plus de production... » PTM 5*

*“it has been observed that the success of the project can be achieved thanks to a series of factors; even if the funds are available, the work environment has to be favourable. For example, marshlands are reserves of fertility. This is where we can hope to have more production...” PTM 5: Translated by the researcher.*

From the table 4.16, the researcher concluded that the relationship between the project implementation and the external environment factor is significant as the p value is less than 0.01. The null hypothesis (There is no significant relationship between the external environment factors and implementation of SRI) is to be rejected in favor of the alternative one. The conclusion is that there is a significant relationship between the external environment factors and the implementation of the system of rice intensification.

According to Maylor, (2010) the external environment context in which the project is taking place, commonly known as PESTEL need to be considered. The author states that PESTEL contexts contain the political influence, influence of general and local economic, influence of social changes where can be considered the methods of communication, change in technology, environmental impact assessment and legal issues like the rules and regulation of projects.

**Table 4.16: Relationship between External Environment Factors and Project implementation**

Variables		Project implementatio n	External environment factors
Project Implementation	Correlation Coefficient	1.000	.590**
	Sig. (2-tailed)	.	.000
	N	190	190
	External environment factors		

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Source: Research Survey Data, 2016

The findings of the study agree with the idea from Belassi & Tukel, (1996) that a number of environmental factors such as economical, political, social, technological influence the project implementation.

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMANDATIONS

#### 5.0 Overview

This chapter presents the summary of the key findings of the study in which will be considered the general information on respondent's characteristics, implementation of the system of Rice Intensification, relationship between management competence, project characteristics, organisational factors and environmental factors on one hand and project implementation on the other hand. the chapter presents also the conclusions drawn and

recommendations and the recommendations for further research made by the researcher from the findings discussed in the last chapter.

## **5.1 Summary of the key Findings**

The outcome from the field was that the questionnaire was completed at 100% rate. The 190 questionnaires administered were fully completed.

### **5.1.1 General Information on Respondent Characteristics**

The general information on rice farmers' characteristics such as gender, age, educational status, each respondent was asked the source of income and the level of income. The purpose of this study was to identify the influence of farmers' characteristics on SRI implementation.

The findings indicated that among one hundred and ninety respondents, 68.4% were male and 31.6% were female which means that the greater percent of participants in the research were male. Concerning the age of respondent, 24.7% of respondents were less than or equal to 30 years old, 41.6% were between 30 and 45 years and 33.7% were 45 years and above. This means that majority of research participants were between 30 and 45 years.

About educational status of respondents, 48.9% were illiterate and 44.7% have a level of education of primary school, 5.8 % have a secondary school level of education, then 0.5 % have achieved a level of bachelors' degree and above. This means that the rice farmers in Karusi Province have the lower level of education because 93.7% of respondents fall under the category of illiterate and primary school level. Concerning the marital status of

respondents, 90% of respondents were married, 3.7% were divorced, 5.3% were widow and 1.1 % were single.

As far as the source of income was concerned, the majority of respondents find their income in farming. 78.9% are farmers only while 12.6% of respondents are doing other small business, 2.6 respondents are masons, 1.1% represents carpenters, 1.6 % work for the government, 3.2% have other source of income not mentioned. The rice farmers in Karusi have the lower level of income as the findings show that more than 80 % are not able to make 50\$ a month. This means that Burundian farmers have the lowest level of income, hence more than 80 % are not able to make 50\$ a month.

### **5.1.2 Implementation of System of Rice Intensification**

The degree of satisfaction was assessed to confirm if the project is appreciated by the users of the technique. The majority of respondents testified that they are satisfied. 74.2 % respondents were very satisfied by the implementation of System of Rice Intensification project, 13.2% were satisfied, 2.6% were neutral, 5.8% were unsatisfied, 4.2% were very unsatisfied. 95.3% of the respondents declared that they are ready to continue using SRI method in farming rice, while less than 5 percent (9) said that they will not follow SRI regime which shows that the project has great chances of sustaining the community.

### **5.1.3 Relationship of Management Competence and SRI Implementation**

The first objective of the study was to investigate the influence of management competence factors on project implementation. After doing that, the researcher was able

to analyse if there is a significant relationship between management competence and SRI implementation.

Concerning community participation, rice farmers confirmed that they participated in the activities of the system of rice intensification from the implementation phase. In monitoring of SRI activities, 28(14.7%) respondents strongly agreed, 130 (68.4%) agreed, 14(7.4%) neither agreed nor disagreed, and 18 (9.5%) disagreed that they participated in monitoring activities. During implementation phase, 77 (40.5%) strongly agreed, 101 (53.3%) agreed, 3(1.6%) were undecided and 9 (4.7%) disagreed that they participated in the implementation of the SRI. During the planning phase, more than 80% of respondents disagreed that they participated in the initiation and planning activities of the project.

Regarding the overall management competence, among 190 respondents, 66.8% strongly agreed, 13.7% agreed, 5.8 % were undecided, 6.3% disagreed and 7.4% strongly disagreed that the management competence influences the project implementation. The spearman's rho correlation was used to establish the relationship between management competence and project implementation. There was a positive relationship between management competence and project implementation [ $r=.759$ ,  $n=190$ ,  $p<.001$ ].

#### **5.1.4 Relationship of Project Characteristics and project Implementation**

The second objective of the study was to determine the influence of project characteristics factors on project implementation. From there, the analysis reached at a conclusion that there is a significant relationship between project characteristics factors



and the System of Rice Intensification implementation. Concerning the project characteristics factors, 54.7% strongly agreed, 15.8% respondents agreed, 5.3% were undecided, 13.7% respondents disagreed and 10.5% strongly disagreed that the project factors like size, value and uniqueness influence the success of the system of rice intensification.

Concerning the urgency of the project, 118(62.1%) respondents strongly agreed, 67 (35.3%) agreed, 1 (0.5%) neither agreed nor disagreed, 4 (2.1%) disagreed that the project implemented was a priority in their community.

The spearman's rho correlation was used to assess the relationship between project factors which are the value, the size, the uniqueness and the project success; the findings show that there is a positive relationship between project characteristics factors and project implementation [ $r=.518$ ,  $n=190$ ,  $p<.001$ ].

#### **5.1.5 Relationship of Organizational Factors and Project Implementation**

The third objective was to identify the influence of organizational factors on project implementation. This assisted the researcher in confirming or rejecting the assumption that there is a relationship between organizational factors and the implementation of SRI. About the influence of organizational factors on the project implementation, 31.6% respondents strongly agreed, 59.5% agreed, 5.3% were undecided, 3.2% disagreed, 0.5% strongly disagreed that organizational factors like top management support, structure of the organization, affect the project implementation. The spearman rho correlation was used to examine the relationship between organizational factors and project

implementation. The finding shows that there is no significant relationship between organizational factors and project implementation. [ $r=.147$ ,  $n=190$ ,  $p=.043$ ].

#### **5.1.6 Relationship of External Environment and Implementation of the System of Rice Intensification**

The fourth objective was to explore the influence of external environment factors on project implementation. The accomplishment of the purpose enabled the study to assess if there is a significant relationship between external environment factors and System of Rice Intensification.

Regarding the external environment factors, among 190 respondents, 60% strongly agreed, 15.3% agreed, 7.4% were undecided, 8.4 % disagreed, 8.9 % respondents strongly disagreed that the external environment factors affect the successful implementation of the system of rice intensification. The spearman rho correlation was used to establish the relationship between external environment factors and implementation of system of rice intensification. There was a positive relationship between external environment factors and Implementation of SRI [ $r=.590$ ,  $n=190$ ,  $p<.001$ ].

#### **5.2 Conclusions**

After analysis, it was concluded that the System of rice intensification has been successfully implemented. This was concluded after realizing that the majority of beneficiaries were satisfied with its implementation. Among farmers interacted with in this research study, 95.3% of respondent decided to continue farming rice using the

system of rice intensification techniques. This means that the project is going to sustain. Among the factors that influence the project implementation, there are management competence factors, project characteristics, and external environment factors. The management competence factors include the commitment of the project manager and project team members, the ability to delegate power via participation, the leadership and communication skills. Those are the main aspects which help to manage the project successfully.

The spearman's rho correlation results [ $r=.759$ ,  $n=190$ ,  $p<.001$ ] helped the researcher to draw conclusions. As the p-value is  $<.001$ , there is a strong evidence to believe that the alternative hypothesis is true, and therefore reject the null hypothesis (There is no significant relationship between management competence factors and the implementation of SRI). We conclude that there is a significance relationship between management competence factors and the implementation of the system of rice intensification.

Concerning the project characteristics, the project size, its value uniqueness and the degree of its urgency are crucial characteristics to consider when managing project. The researcher based on Spearman rho correlation results [ $r=.518$ ,  $n=190$ ,  $p<.001$ ] to conclude that there is a positive relationship between factors related to project characteristics and project implementation. The conclusion was that SRI project has a higher value for farmers when considering the frequency and percent of farmers who confirmed that they SRI project assisted them in increasing the food security in their households, improving their infrastructures, buying the land and livestock.

The external environment factors include the political, legal social, economical, technological and environmental aspect in which the project is implemented. There was a positive relationship between external environment factors and SRI implementation [ $r=.590$ ,  $n=190$ ,  $p<.001$ ]. This was concluded after analyzing the spearman correlation rho between the two variables.

**Table 5.1: Summary of Conclusions related to Hypothesis**

Hypothesis	Spearman rho correlation results( n=190)		Conclusions drawn
	r <sub>s</sub> Value	P value	
H0 <sub>1</sub> . There is no significant relationship between management competence factors and the implementation of SRI	$r=.759$ ,	$p<.001$	There is a significant relationship between management competence factors and the implementation of SRI.
H0 <sub>2</sub> . There is no significant relationship between the project factors and the implementation of SRI	$r=.518$	$p<.001$	There is a significant relationship between project factors and the implementation of SRI.
H0 <sub>3</sub> . There is no significant relationship between organizational factors and implementation of SRI	$r=.147$ ,	$p>.001$	There is no significant relationship between organizational factors and implementation of SRI.
H0 <sub>4</sub> . There is no significant relationship between the external environment factors and implementation of SRI.	$r=.590$	$p<.001$	There is a significant relationship between external environment factors and implementation of SRI.

Concerning the water management difficulties, 104(54.7%) respondents strongly agreed, 77 (40.5%) agreed, 4 (2.1%) neither agreed nor disagreed, 4 (2.1%) disagreed and 1 (0.5%) strongly disagreed that the water management in the march reduced the rice harvest expected. From there, we conclude that it is important that the project manager together with the top management assist the community in water management so as to increase the harvest. The table 5.1 summarizes the conclusions drawn from the findings of the study concerning the hypothesis of the study.

## **5.2 Recommendations**

Based on the findings of the study, it is recommended that the project managers and all stakeholders give the community members the opportunity to participate during the planning phase of the project going to be implemented in their community; it is recommended that the project operators consider the aspect of project characteristics; the increase of duration of the project shall participate significantly on successful implementation of this project; it is also recommended that the project managers make sure that the top management is supporting the project activities so as to have evidence of availability of resources; finally, it is recommended that the government invests more in farming project so that the level of farmer's income increases.

## **5.3 Recommendations for further research**

The factors influencing project success are crucial in project management. The study recommends further researchers to do more investigation on organizational factors, where the project managers and project team members will be the source of information.

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## **APPENDICES**

### **APPENDIX A: QUESTIONNAIRE (FOR COMMUNITY MEMBERS)**

#### **Factors influencing PAIVA-B/SRI success in Karusi Province**

##### **Questionnaire**

##### **Introduction of the researcher**

My name is Honorine Murorunkwere, I am a student taking Masters program in Project Planning and Management in Moi University, Kenya. I am doing research on the factors influencing implementation of Rice farming intensification project in Karusi Province, Burundi. I would like to inform you that all the questions that will be asked are only for academic purpose. Therefore, be free when responding. The information you will provide shall be used for the sole purpose of evaluating the factors influencing the implementation of Rice farming intensification and will be kept with confidentiality.

Thank you in advance for your active collaboration.

##### **A. Personal Information of the respondent**

1. Gender -----

2. Age -----

3. Other source of income behind rice farming activities

Small Business Service        Labor        Carpenter

Teaching  Others  Specify .....

4. Educational Status

Illiterate  Primary School   
Secondary School  Degree and Above

5. Marital status of respondent

Married  Divorced  Widow  Single

6. Income Level per month (in Francs Bu)...

Below 15,000  Between 15,000 and 75,000  75,000 and above

**B. General Idea about PAIVA-B**

7. Do you know anything about PAIVA-B and SRI?

Yes  No

8. What is your current level of rice productivity compared to before starting adopting SRI methods?

Before.....t/ha After .....t/ha

9. Are you ready to continue cultivating rice using the System of Rice Intensification methods.

Yes  No

If yes why? .....

If no why not ? .....

10. Are you satisfied that the SRI has been successfully implemented?

Very satisfied  Satisfied  Neutral  Unsatisfied  very   
unsatisfied

**C. Management Competence Factors**

1. How have you been informed about the project

Through public meeting  through radio  in the church

if other specify it.....

In the following session, tick in the appropriate column. 5 Strongly agree (SA)

4 Agree (A) 3 Undecided (U) 2. Disagree (D) 1. Strongly Disagree.

Statements	SA	A	U	D	SD
	5	4	3	2	1
1. Rice farmers have been involved in SRI decision making					
2. The project team members coordinate activities					
3. Project team members come frequently to monitor rice farmers' activities.					
4. Project team members always respect starting time for meeting.					
5. Rice farmers are satisfied with the competence of project team.					
6. Project team members give rice farmers clear and concise information					
7. Rice farmers are given opportunity to give their point of views or opinions.					
8. Project team members use appropriate communication channels to reach the rice farmers.					
9. Rice farmers appreciate the commitment of project team members.					
10. Rice farmers appreciate the commitment of project manager.					
11. Management competence factors contribute to the project implementation					

**2. Factors Related to the Project Characteristics**

1. What was the community’s contribution in the project implementation?

Labor  Cash  Land  Any other

specify.....

2. Do you think that this project undertaken in your locality has been implemented through participation of all stakeholders?

Yes  No

Statements	SA 5	A 4	U 3	D 2	SD 1
3. Rice farmers’ opinions were taken into account during planning phase.					
4. The rice farmers are appreciating the effectiveness of project planning and scheduling					
5. Rice farmers’ opinions are taken into account during monitoring.					
6. Rice farmers are appreciating the effectiveness of control and monitoring					
7. Rice farmers participate during evaluation.					
8. Rice farmers are satisfied with the effectiveness of project evaluation					
9. The community opinions are taken into account during the implementation of SRI					
10. Rice farmers contribute in terms of resources during the project					

implementation.					
<b>11.</b> Rice farmers appreciate the value of the project in their life.					
<b>12.</b> Rice farmers enjoy economies of large scale production					
<b>13.</b> Rice farmers have increased their income thanks to the project.					
<b>14.</b> The project increased the food security for rice famers					
<b>15.</b> The project increased the quality of housing for rice farmers.					
<b>16.</b> The project facilitates access to the market for rice farmers					
<b>17.</b> The project facilitates access to qualitative inputs or other service.					
<b>18.</b> Rice farmers get discount when purchasing inputs in big quantity.					
<b>19.</b> The SRI project activities are unique in nature.					
<b>20.</b> The rice farmers are satisfied with how the project team members handle the emergency cases.					
<b>21.</b> The size, the value the uniqueness of the project contribute to the implementation of SRI					

**D. Organizational structure of the project.**

Statements	SA 5	A 4	U 3	D 2	SD 1
1. There has been strong top management support during the project life cycle.					
2. The project operates under government policy.					
3. The rice farmers are benefiting from the functional management support					
4. The rice farmers have opportunity to exchange ideas directly to the project manager.					
5. The rice famers communicate only to the project team members.					
6. Rice farmers appreciate the structure of the organization					
7. The rice farmers participate as human resources of the project					
8. The capital resources of the project are available when necessary.					



9. The project has a structure that enables access to inputs.					
10. The project structure facilitates the access to the market.					
11. The organizational structure influence the project implementation					

**E. External environmental factors influencing project implementation**

Statements	SA	A	U	D	SD
	5	4	3	2	1
1. The SRI was the priority for the Karusi population.					
2. The government was involved starting from initiation phase of the project.					
3. The local governor and administrator participate in SRI meetings.					
4. The output from SRI methods is very high compared to the inputs used by farmers.					
5. More jobs have been created thanks to the project					
6. The project has improved the infrastructure.					
7. More shops have been created thanks to the project					

8. The project has increased the access to school for rice farmers kids.					
9. The project has increased the access to health services for rice farmers.					
10. Many churches have been built thanks to the project.					
11. The project activities are appreciated by non rice farmers.					
12. The SRI activities reduce the production of other crops.					
13. Rice farmers has access to the market for their production					
14. Rice farmers appreciate the SRI technique of managing water, raising and transplanting seeds					
15. The external environment factors influence the implementation of SRI					

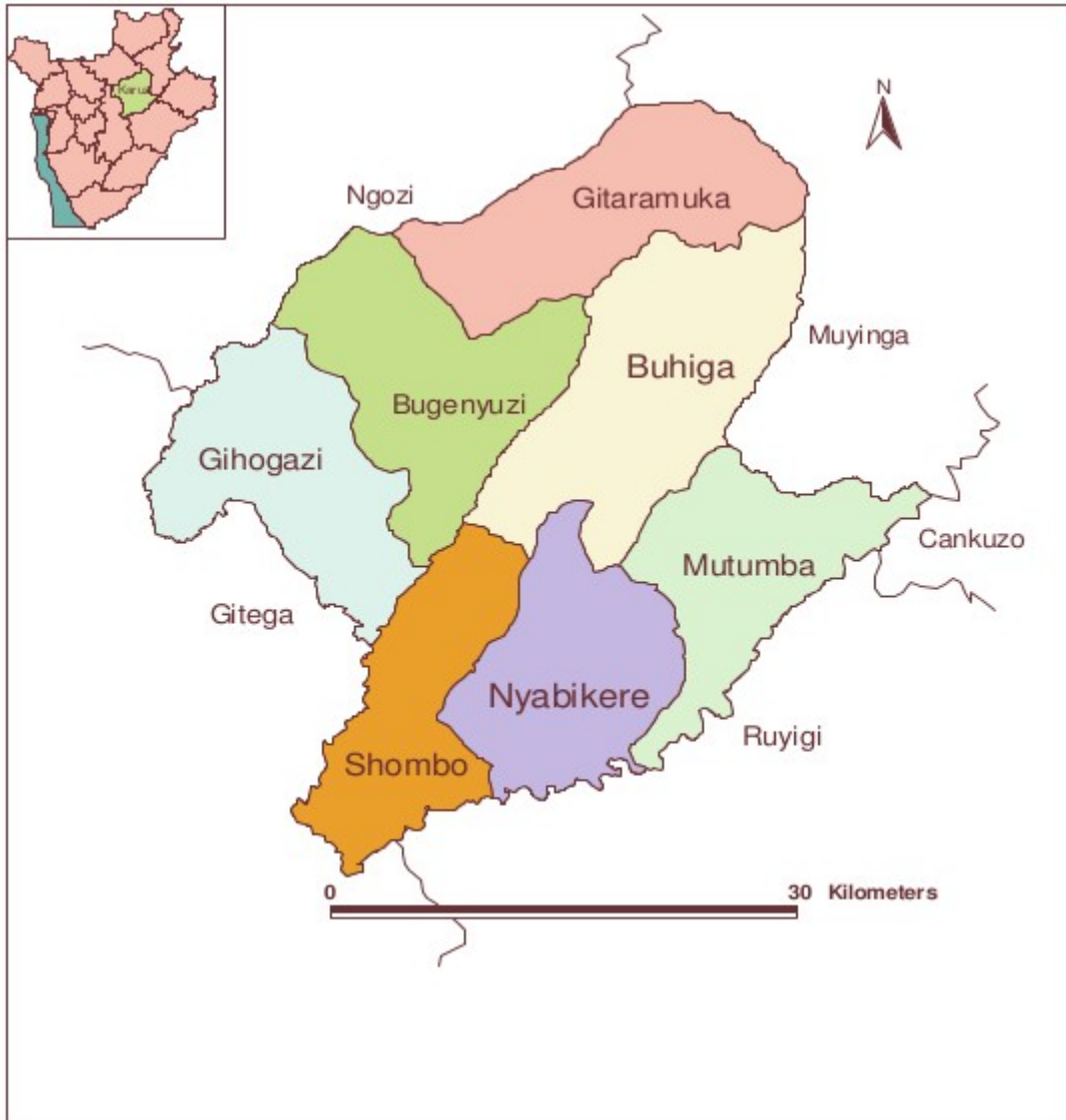
**Thank you!**

**APPENDIX B: INTERVIEW SCHEDULE FOR PROJECT TEAM MEMBERS**

1. Does your project engage community during all phase of project life cycle
  - A) If Yes, How? For example in Schedule management, Budget management, materials and equipment management?
  - B) If No, Why not?
2. How does the project engage the government in the project management? What were the project objectives?
3. Are the project objectives among the government priorities in the government plan?
4. What have been your successes in achieving the project objectives?
5. At which level can you consider that the project has enhanced the livelihood of rice farmers?
6. Were the time, cost, quality and scope of the project managed as planned?
7. What are the problems met in the project that related to the background of project team members?
8. Are you satisfied with the top management support and the resources availability?
9. Do you have any problem related to the structure of the organization? If Yes, explain
10. How does the availability of resources (human, financial, raw materials and facilities) affect the project success?
11. What are the environmental problems related to SRI that you realized during the project life Cycle?
12. How do the communication skills of project team members affect the project success?
13. How does the leadership skills of project team members affect the project success?( explain how)

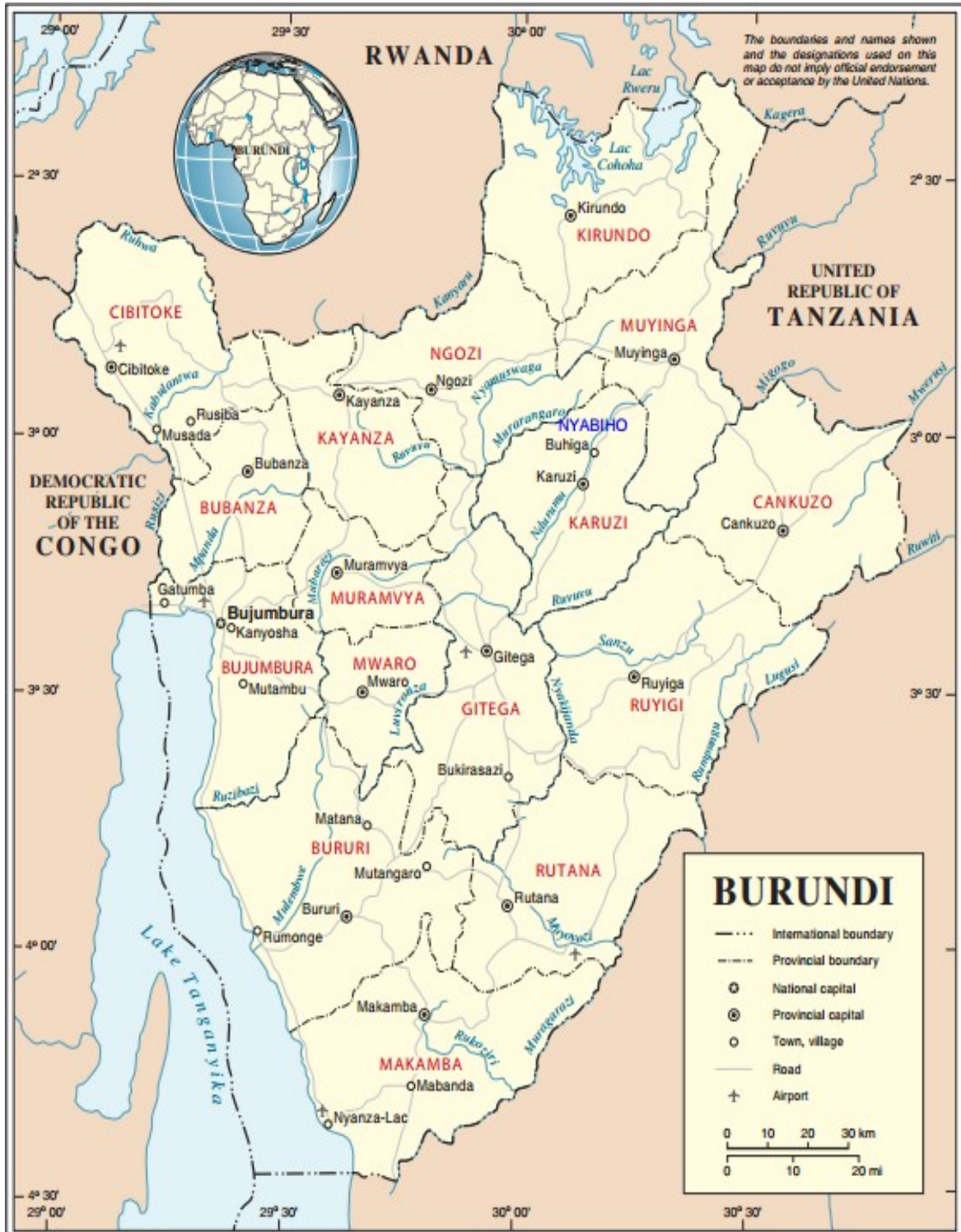
**Thank you!**

**APPENDIX C: ADMINISTRATIVE CUTTING OF KARUSI PROVINCE**



Source: A case study of Karusi Province, 2012 p6

APPENDIX D: MAP OF BURUNDI





Source: UN cartographic section, 2017



## APPENDIX E :RESEARCH PERMIT

REPUBLICQUE DU BURUNDI

Bujumbura, le 09 novembre 2016

Investir dans les populations rurales

MINISTRE DE L'AGRICULTURE ET DE L'ELEVAGE

PROJET D'APPUI A L'INTENSIFICATION ET  
A LA VALORISATION AGRICOLES  
DU BURUNDI « PAIVA-B »  
DON N° COFIN-EC-8031-BI  
DON N° DSF-8031-BI  
DON SUPPLEMENTAIRE DSF 2000001257

Réf : 360/ucp/paiva-b/j.nt/H.R/2016

A Madame l'Administrateur de la Commune Gitaramuka  
à Karusi

**Objet : Enquête sur l'analyse des facteurs  
influençant le succès d'un projet : le cas de  
la riziculture intensive dans la province de Karusi,  
Commune Gitaramuka**

**Madame l'Administrateur,**

Le Projet d'Appui à l'Intensification et à la Valorisation Agricoles du Burundi a accordé un stage de fin d'études à Madame Honorine Murorunkwere et cette dernière veut mener l'enquête ci-haut emargée dans la Commune dont vous assurez la tutelle.

Dans ce cadre, la stagiaire voudrait descendre sur terrain pour vous rencontrer ainsi que les autres acteurs œuvrant dans le domaine de la riziculture.

Le PAIVA-B sollicite votre appui en instruisant l'administration à la base pour une bonne collaboration.

Veuller agréer, Madame l'Administrateur, l'expression de notre considération très distinguée.

**LE COORDONNATEUR DU PAIVA-B**  
**Herménégilde RUFYIKIRI**

**Ampliation :**

- Monsieur le Coordonnateur de l'UFCR Centre  
à Gitega

Projet d'Appui à l'Intensification et à la Valorisation Agricoles du Burundi (PAIVA-B)  
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