MBA PROGRAM SFB–MSM

Intake V

THESIS TOPIC: “Crop Intensification Program as a tool of poverty reduction in Rwanda”.

A case study of rice farmers in Southern Province

Research project Proposal submitted to SFB-MsM as a partial fulfilment of requirements for the award of Master’s Degree in Business Administration (MBA), Finance option.

Prepared and Submitted by: MUSABE BIRASA Liliane
RW/SFB/F/050931

Under Supervision of: Mr. Ambrose NZAMALU

September, 2012
DECLARATION

I, MUSABE BIRASA Liliane, do declare that this dissertation is my original work and have never used to any other university or institution.

Signature: ……………………………………………

Date: …………/……………./……………….

NAME: MUSABE BIRASA Liliane
REG.NUMBER: RW/SFB/F/050931
APPROVAL

This dissertation was done under my supervision and guidance. It is submitted in partial fulfillment of the requirement of award of the degree of Masters in Business Administration with my approval.

Signature: …………………………………

Date: …………/……………./…………

Mr. Ambrose NZAMALU
Supervisor
DEDICATION

To Serge,
My Husband, my love, my best Friend – always

To Kristie and Sasha,
For your loving spirit sustains me still.
ACKNOWLEDGMENTS

I offer my sincere thanks to the Almighty God whose gifts without measure have continued flowing from His goodness to bring me Joy, Peace and Mercy through this defining moment and journey!

I am especially grateful to Mr. Ambrose NZAMALU who offered his time and considerable talents in reviewing all the chapters and who gave me invaluable ideas for improving the form and substance of the thesis. I am grateful also to rice farmers of Southern Province and their respective cooperative managers for the knowledge, skills and good collaboration and helpful information provided during the research exercise.

I wish also to extend my gratitude to the Government of Rwanda for offering me the scholarship through RDGG/RITC. A special word of thanks goes to Mr. Gasana Jerome, former RITC Director and all RITC staff for their friendship.

To my classmates who always shared their experiences that helped in the course of completing this MBA course successfully.

For tremendous support, prayers and encouragements received from my Parents, brothers and sisters throughout these 2 years, words of mouth may not be enough to express my appreciation and gratitude.

All of you allowed me to benefit from your technical capacity, your knowledge and friendship. Foremost, the entire venture would have not been possible if I did not have the support, encouragement and dedication of my Husband Serge BIRASA. A special appreciation goes to my daughters, Kristie and Sasha for their love.
ABSTRACT

Agricultural development is considered as a key pillar in growth and significantly reduces poverty and hunger in our country. As Rwanda progresses towards economic development, considerable efforts should be made to uplift the agricultural sector that employs 80% of population through diversified and intensified production in order to change the citizen’s livelihood. In attempt to address this issue, the government of Rwanda through MINAGRI has put remarkable efforts on crop intensification program (CIP) which have demonstrated potentials of achieving tangible results in terms of food security.

Since the launching in September 2007, the Crop Intensification Program has positively impacted and improved the livelihood of rice crop farmers in Southern Province as confirmed by farmers from selected four (4) cooperatives namely: KIABR/Rugeramigozi, COOPRORIZ-Cyiri, COOPRORIZ-Abahuzabikorwa/Mukunguri and COOPRORIZ-Busoro/Kinyegenyege.

This study intended to show the contribution of Crop Intensification Program toward poverty reduction in Rwanda. Specific objectives include to determine the contribution of Crop Intensification Program to the livelihood of rice farmers in southern Province, to determine the role of Crop Intensification to the rice value addition, to highlight challenges being faced by rice farmers and CIP implementers and finally to highlight success factors of Crop Intensification Program.

The methodology used to collect data includes interviews and questionnaires for primary data while for gathering secondary data, both electronic and hard books articles and reports relate to the topic were used.

It was observed that the Crop Intensification Program has lifted up the livelihood of rice farmers in Southern province where 90.4% declared to have sufficient food for their household while 94.7% afford to have their own houses, sending children to schools and afford medical care. The CIP has demonstrated potentials of increasing job opportunities where 91% of rice farmers offer temporary jobs to other people and 97.9% possess saving accounts. The study also revealed that CIP has increased the production of rice both in quality and in quantity. This lead to an increase in the overall rice productivity, thus, increasing income to rice farmers. Some confirmed that
their income has increased by a half, for others the income doubled while others testified to have tripled their income.

However, challenges were highlighted from both CIP implementers and rice farmers from selected cooperatives. Among these challenged are low selling price of rice, to get manure easily is still a challenge, lack of adequate infrastructure, land consolidation still challenging, insufficient of selected seeds and lack of knowledge.
ABBREVIATIONS

CIP: Crop Intensification Program

COPRORIZ: Cooperative de production de Riz

EDPRS: Economic Development and poverty Reduction Strategy

EICV: Enquête Intégral sur les Conditions de vie des ménages au Rwanda

FAO: Food and Agriculture Organization

GDP: Growth Domestic Product

GoR: Government of Rwanda

KIABR: Koperative Imparaniramusaruro y’Abahinzi Boroziba Rugamigozi

IFDC: Integrated Soil Fertility Management

MBA: Masters of business Administration

MINAGRI: Ministry of Agriculture and Animal Resources

MINECOFIN: Ministry of Finance and Economic Planning

MsM: Maastricht School of Management

OECD: Organization for Economic Co-operation and Development

PASTA: Support Project the Strategic Plan for the Transformation of Agriculture

PPP: Purchasing Power Parity

PRS: Poverty Reduction Strategy

RAB: Rwanda Agriculture Board
RDGG: Rwanda Development Gateway Group

REMA: Rwanda Environment Management Authority

RITC: Regional ICT Training and Research Center

RSSP: Rural Sector Support Project

Rwf: Rwandan Franc

SFB: School of Finance and Banking

SPSS: Statistical Package for Social Sciences

UNDP: United National Development Program

UNEP: United Nations Environment Program

USA: United States of America

WCED: World Commission and Environment Development
TABLE OF CONTENTS

DECLARATION .................................................................................................................. i
APPROVAL ........................................................................................................................ ii
DEDICATION ..................................................................................................................... iii
ACKNOWLEDGMENTS ..................................................................................................... iv
ABSTRACT ....................................................................................................................... v
TABLE OF CONTENTS .................................................................................................... ix

CHAPTER I: INTRODUCTION ......................................................................................... 1
1.1 Background ................................................................................................................. 1
1.2 Problem statement ...................................................................................................... 2
1.3 Objectives of the study ............................................................................................... 2
1.4 Research questions ..................................................................................................... 3
1.5 Significance of the study ........................................................................................... 3
1.6 Southern Province ..................................................................................................... 4
1.7 Organization of the study .......................................................................................... 4

CHAPTER II: LITERATURE REVIEW .............................................................................. 5
2.1 CONCEPT OF POVERTY .......................................................................................... 5
2.1.1. Definition of Poverty ............................................................................................ 5
2.1.2. Monetary poverty ............................................................................................... 6
2.1.3. Human poverty .................................................................................................. 6
2.1.4. Measurements of poverty .................................................................................. 6
2.1.5. Indicators of poverty .......................................................................................... 8
2.1.6. Causes and consequences of poverty ............................................................... 9
2.1.7 Poverty in Rwanda ............................................................................................... 10
2.2 Agriculture in Rwanda .............................................................................................. 13
3.7.1 Primary data ................................................................. 30
3.7.2. Secondary data .......................................................... 30
3.8 Data analysis and interpretation .......................................... 30
3.9 Limitations of the study .................................................... 31

CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATION ............... 32

4.0. INTRODUCTION ................................................................ 32
4.1 DEMOGRAPHIC DATA FOR RICE FARMERS ....................... 32
4.2. Contribution of CIP to the livelihood of rice farmers of the selected cooperatives .......... 36
4.2.8. Roofing status of the houses of rice farmers for the selected cooperatives ................. 41
4.5 Success factors and challenges to implement CIP .......................... 50
  4.5.1 Success factors to implement CIP at national level ....................... 50
  4.5.2 Success factors to implement CIP at field level .......................... 50
  4.5.3 Major challenges to implement CIP at national Level .................... 51
  4.5.4 Major challenges to implement CIP at field Level ....................... 51
5.1 SUMMARY OF FINDINGS .................................................. 52
5.2 CONCLUSION .................................................................. 54
5.3 RECOMMENDATIONS ...................................................... 55
5.4 SUGGESTIONS FOR FURTHER RESEARCH ......................... 56

BIBLIOGRAPHY .................................................................. 57

APPENDICES ..................................................................... 58
1. QUESTIONNAIRES IN ENGLISH ........................................... 58
2. INTERVIEW GUIDE FOR CIP MANAGEMENT/RAB .................. 63
3. INTERVIEW GUIDE FOR COOPRTATIVES MANAGERS AND AGRONOMISTS .... 64
4. QUESTIONNAIRES IN KINYARWANDA .................................. 64
5. RICE COOPERATIVES IN SOUTHERN PROVINCE .................... 69
LISTE OF FIGURES

Figure 1: Gender of respondents farmers .......................................................... 33
Figure 2: MARITAL STATUS ............................................................................. 33
Figure 3: Family size ....................................................................................... 34
Figure 4: Age of Respondents ......................................................................... 35
Figure 5: Educational level ............................................................................. 35
Figure 6: Secondary School attendance for the children of rice farmers .......... 38
Figure 7: Children in secondary school ............................................................. 38
Figure 8: Level of income spent on school fees for the children of rice farmers in selected cooperatives ................................................................. 39
Figure 9: Type of employment in the rice farmers cooperatives......................... 41
Figure 10: Improvement in the farmers’ income after joining CIP ....................... 42
Figure 11: Access to bank loans ...................................................................... 43
Figure 12: Investment in domestic animals ....................................................... 44
Figure 13: Rice farming status before CIP ....................................................... 45
Figure 14: Production improvement after CIP .................................................... 45
Figure 15: Quality and Quantity of rice after CIP .............................................. 46
Figure 16: The price of rice ............................................................................. 47
Figure 17: Major challenges faced by the rice farmers in selected cooperatives .......................................................................................................... 47
LIST OF TABLE

Table 1: Percentage of the Rwandan population identified as poor ......................................................... 10

Table 2: Percentage of the Rwandan population identified extremely poor ........................................... 11

Table 3: Indicators of poverty in Rwanda per category ............................................................................. 11

Table 4: Major causes of poverty in Rwanda ............................................................................................. 13

Table 5: Fertilizer import vs crop production in Rwanda ......................................................................... 25

Table 6: Farmers and their cooperatives .................................................................................................. 32

Table 7: Meals frequency per day for the farmers of selected Rice cooperatives .................................... 36

Table 8: Existence of enough food before joining CIP ............................................................................. 37

Table 9: Existence of enough rice production for food and market (selling) ........................................ 37

Table 10: Ability of rice farmers of selected cooperatives to pay health insurance (Mutuelle de santé) .... 40

Table 11: Housing ownership for the rice farmers of selected cooperatives ........................................... 40

Table 12: Existence of saving accounts for the rice farmers in the selected cooperatives .................... 43

Table 13: Types of banking institutions used by rice farmers ................................................................. 44
CHAPTER I: INTRODUCTION

I.1 Background

With an area of 26,338 square km, Rwanda is a landlocked poor country located in the great lakes region of central Africa. In 2009, the population of Rwanda was estimated to be 9,997,614. The population density of Rwanda is among the highest in Africa; about 370 persons /km\(^2\) and up to 600 people per square kilometer of arable land. This is expected to increase to about 12 million by 2015 and to 16 million by 2020 (EDPRS, 2008-2012).

In 2006, 57% of the total population were living below the poverty line with less than 1$ per day. 37% were extremely poor, and 61.9% of the poor people were living in rural areas (EICV2, 2006). From the World Bank report elaborated in 2006 in collaboration with NISR, it is indicated that 28% of rural populations suffer from food-insecurity and 24% are highly vulnerable to food insecurity.

The dominant economic activity undertaken by the majority of population leaving in rural areas is agriculture to which women are contributing a lot. 42% of the active population of Rwanda take charge of helping their own families through agriculture (77% of them are female while the remaining 33% are men farmers).

Agricultural development is considered as a key pillar in growth and significantly reduces poverty and hunger in our country. As Rwanda progress towards economic development, considerable efforts should be made to uplift the agricultural sector that employs 80% of population through diversified and intensified production in order to change the citizen’ livelihood. In attempt to address this issue, the government of Rwanda through MINAGRI has put remarkable efforts on crop intensification program (CIP) which have demonstrated potentials of achieving tangible results in terms of food security. The program started in September 2007 and focused on six (6) crops namely rice, maize, wheat, beans, Irish potato and cassava. Traditional farmers are urged to synchronize the cultivation of crops in lands and these are in consolidated and rearranged to form larger and more rational group holdings. The government of Rwanda imported farm inputs such as improved seeds and fertilizer and these were distributed to farmers through public-private partnerships. As a result, the crop yielding has significantly
increased. As an illustration, the production of maize and wheat has increased by 6-fold while that of Irish potato and cassava has tripled. Over the past four (4) years, the production of rice and beans has increased by 30%. These outputs have pushed Rwanda to the verge of becoming a food secure country. Rwanda has 4 types of land: cultivated lands, marshlands, forests and soils allowing water resources. Cultivated lands present around 46% (1.12million hectares) and forests 8% of the county. 870 000 ha (36%) are cultivated of annual crops and 250 000 ha (10%) of permanent crops.

1.2 Problem statement

Food security is becoming ever challenging, constrained by decreasing availability of arable land, rising of commodity prices, climate change and increasing populations. The contribution of agriculture sector on the development of the country is not clear because it is characterized by low productivity and low economic value. Almost 90% of households in Rwanda practice a traditional subsistence agriculture which is mainly carried on narrow plots of land and exhausted by a continuous utilization which leads to food inaccessibility in rural area.

To overcome this, the government of Rwanda has made efforts to develop the agriculture sector to boost Rwandan economy. The crop intensification program is one of the major programs targeting to increase agricultural productivity, which can lead to better farming income and improved food security and nutrition. Hence it is more important to assess and analyze its contribution towards poverty reduction especially in southern province which is the area with the highest level of extreme poverty in the country.

1.3 Objectives of the study

The objectives of this study are divided into general and specific objectives.

1.3.1 General objectives

The overall of this study is to show the contribution of CIP in poverty reduction.
1.3.2 Specific objectives

- To determine the contribution of CIP to the livelihood of rice farmers in southern province.
- To determine the role of CIP for rice value addition in southern province.
- To highlight challenges faced by farmers and propose possible solutions.
- To find out success factors and challenges to implement CIP.

1.4 Research questions

- What is the contribution of CIP to the livelihood of rice farmers in southern province?
- What is the role of CIP for rice value addition in southern province?
- What are the challenges faced by rice farmers?
- What are the success factors and challenges to implement CIP?

1.5 Significance of the study

This research is significant to the researcher, academics, MINAGRI/RSSP, and to the Rwandan government.

❖ **To the current researcher:** this work encourages the researcher to discover the ultimate impact of crop intensification program in poverty reduction through some new knowledge about the crop intensification that will be required. Especially, it is one of the requirements before being awarded with a MBA in Finance.

❖ **To future researchers:** this work will be served as reference for further researcher on similar work.

❖ **To the farmers:** where this study was conducted, it will help them for understanding the role of crop intensification program in their livelihoods.

❖ **To the Rwandan government:** the research findings expect to meet the interests of government especially MINAGRI/RSSP and south province for decision making.
1.6 Southern Province

Southern Province is one of four provinces constituting the Country of Rwanda. It is situated in South of Rwanda. In the North, there is Kigali City, Eastern province is situated in the East, Western Province in West and Burundi is in South of this province. Southern Province has the highest level of poverty compared to the rest of the other 3 provinces. It has a surface of 5701 Km² with more than 2,659,332 of population and it is composed by eight Distrits. Southern province has many places of interest such as the Rock of Kamegeri which is situated at Ruhango District, the sky of Kamonyi, the church of holy spirit of save, big stone of shali, the place of King Mutara III Rudahirwa at Rukari and the National Mesueum of Rwanda.

1.7 Organization of the study

This research will be under major chapters as follows.

- **Chapter one** will give a general introduction to the study. The starting point will be the study context. It will highlight the importance of this study. In the same light, some detail will be given to research problem, research questions, objectives and significance.

- **Chapter two** will cover the literature review. Major study concepts will be discussed along side with their theories. At the end, the research gap will be shown as matter of justifying why this research is worthwhile.

- **Chapter three** will discuss research methodology. It will highlight how steps will be gone to gather, present and interpret data to justify the relevance of conclusion and recommendations that will be reached on at the end of this work.

- **Chapter four** will present and discuss data collected. This will be done in line with research objectives. Appropriate instruments will be used to present and interpret the collected data.

- **Chapter five** will give a summary of findings. Conclusions and recommendations are a job to be done here. It ends by suggesting the need for further research.
CHAPTER II: LITERATURE REVIEW

2.1 CONCEPT OF POVERTY

In this section an attempt has been made to understand the concept and various meaning of poverty, several indicators of poverty, its causes and consequences.

2.1.1. Definition of Poverty

Poverty is a very widespread phenomenon everywhere in the world. Its contents differ according to the counties and several definitions were given to the concept of poverty. In their study and Robby define poverty as the relative absence of incomes, assets, basics services, dignity, possibility of education and social life mobility, as well as participation to the adaptation of the decisions in various forms.¹

Mithani D.M and Desai R.G² define poverty as utter deprivation. They say that the poor are economically as well as socially depressed people. Their social life is miserable, as they are at the bottom of the society. They always feel insecure and suffer from inferiority complex. They continue to explain that poverty is a complex socio-economic phenomenon. It is commonly felt, but not easy to define. We understand poverty, when we see the poor people and their socio-economic conditions.

People have defined poverty in many different ways. Some have defined poverty as total deprivation of essential items such as food, water, clothing, and shelter for a dignified living. According to Copenhagen declaration poverty is described as a condition of severe deprivation of basic human needs including safe drinking water, food, sanitation facilities, health, shelter, education and information. In order words people are considered to be in poverty when they are not able to go to school, to eat or to have access to any health care regardless of their income.

Nevertheless, the definition of the poverty most used in the empirical studies is the one which makes a distinction between monetary poverty and human poverty.

¹ PNUD, Pauvrete et développement, éd. Harmattan, Unesco, 1990, p.50
² MITHANI.DM and DESAI RG,(1987),economic theory, Himalaya publishers, New Delhi
2.1.2. Monetary poverty

It consists of the absence of a minimal adequacy between incomes and expenditure. It is conceived in two ways; firstly there is total or general poverty defined as the income incapacity to satisfy the essential or fundamental needs of an individual, food or other needs. Secondly, there is the absolute poverty which is characterized by an acute deprivation with glance to the fundamental needs of human being; food, salubrious toilets, hygienic installations, health, shelter, education and information.\(^3\)

2.1.3. Human poverty

Poverty is not only one business of incomes, primarily because the insufficiency of income involves human situations which are clean for him. The insufficiency of income determines what one agrees to call monetary poverty and the other aspects correspond to human poverty. Human poverty is defined like the absence of the basic human capacities; illiteracy, malnutrition, reduced longevity and bad maternal health. Poverty is also illustrated by the fact of being reached by a disease which could be avoided\(^4\).

2.1.4. Measurements of poverty

Defining poverty for measurement purpose is an important step of understanding what actually helps to alleviate it and what works or what does not work in the fight against poverty.

These measurements of poverty are centered mainly on the access or not of the population to the various possibilities of human development. Measurements of poverty are necessary elements of documents poverty reduction strategy (PRS) and from the keystone of the total diagnosis. They make it possible to quantify the incidence of poverty according to the number of people or households whose resources are below the poverty line.

---

\(^3\) Nations Unies, Sommet mondial pour le développement social, déclaration et programme d’action, new York

\(^4\) PNUD, la pauvreté humaine; Rapport sur la pauvreté humaine, p20
The OECD and the European Union measure poverty using a relative poverty measurement. This is based usually on a level of income usually set at 60% of the middle household income. One relative measurement would be to compare the total wealth of the poorest one-third of the population with the total wealth of richest 1% of the population. In this case, the number of people counted as poor could increase while their income rises.

The United States, in contrast, uses an absolute poverty measure. An example of an absolute measurement would be the percentage of the population eating less food than is required to sustain the human body.

For international reasons to the World bank, the most commonly used way to measure poverty is based on monetary terms such us income/consumption. A threshold of necessary basic needs for a proper living is defined and an individual is considered poor if his or her income level falls below that minimum level. This minimum level is usually called the "poverty line". It is obvious that what is necessary to satisfy basic needs in one society is dynamic and therefore may be different from time to time and from one society to the other. Thus, countries use poverty threshold that are appropriate to their respective level of development, societal norms and values. The poverty line or poverty threshold is the minimum level of income deemed necessary to achieve an adequate standard of living in a given country. In the past 1$ per day has been used as the common poverty line at the International level. Later on, year 2005, the figure was revised to 1.25$ at purchasing Power Parity (PPP) and this may be adjusted each year (World Bank, 2008).

Poverty line in Rwanda represents the cost of an adult’s basic needs: enough food to provide 2,500 calories per day, and some basic non-food items. While the poverty line was 175 Rwandan Francs per day (RWF 64,000 per year) in January 2001 prices, it increased to RWF 250 (almost a half $) per day in January 2006 prices. Similarly extreme poverty covers food costs only, and varied from RFW 123 per day in 2001 to RWF175 per day in 2006 (MDGs country report, 2007).

An extreme poverty line was also set as the cost of buying the food consumption basket if nothing was spent on non-food at all; this line was 45,000 RWF per adult per year in January
2001 prices. In current prices, these lines correspond to 118,000 RWF and 83,000 RWF, respectively (EICV3, 2011).

Measurements of poverty are necessary elements of documents poverty reduction strategy (PRS) and from the keystone of the total diagnosis. They make it possible to quantify the incidence of poverty according to the number of people or households whose resources are below the poverty line.

2.1.5. Indicators of poverty

The degree is not only appreciated by the income as considering above. Indeed, the economic and social indicators constitute also a reference of poverty.

2.1.5.1. Social indicators

Several indicators are present in connection with the social condition, informing about human poverty5:

✈ Health (life expectancy, infant mortality, a number of inhabitants per doctor);
✈ Education (rate of schooling, rate of analphabetisation);
✈ Housing conditions (percentage of households having access to drinking water, having sanitary facilities, percentage of precarious residences, etc);
✈ The urbanization (percentage of the urbanized population);
✈ Demography.

---

2.1.5.2. Economic indicators

The economic indicators which can be quoted are;

- The proportion of the expenditure allocated to food;
- The expenditure per capita
- Income per capita;
- GDP per capita, etc

According to the UNDP reports, these indicators from the most exact method in order to know poverty. They universally have the advantage of being accepted and jointly used by the organizations of the United Nations, the World Bank, etc to evaluate the progress achieved in the fight against poverty.

2.1.6. Causes and consequences of poverty

Also, so that this fight is effective it is useful to know the causes of poverty, its effects and its consequences.

2.1.6.1. General causes of poverty

World Bank reports states that to the causes of poverty are complex and the consequences often serve to re-enforce the causes leading to the further impoverishment. The basic causes of poverty are characterized by lack of access and endowment including the following:

- Inadequate access to employment opportunities;
- Inadequate physical assets such as land and capital;
- Inadequate means of supporting rural development in poor regions;
- Inadequate access to market for goods and services that the poor can sell;
- Low endowment of human capital;
- Destruction of natural resources;
- Inadequate access to assistance for those living at the margin and victimized by transitory poverty because of the drought, pests and war;
- Inadequate participation of the poor in the design of development programs;
For Rwandan case, lack of land, drought/weather and lack of are regarded as the major causes of poverty, the first being resultant of the second.

2.1.7 Poverty in Rwanda⁶

At the national level poverty is estimated to be 44.9%, with 22.1% poor in urban areas and 48.7% poor in rural areas as summarized on the table below:

Table 1: Percentage of the Rwandan population identified as poor

<table>
<thead>
<tr>
<th>Province</th>
<th>2000/01</th>
<th>2005/06</th>
<th>2010/11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kigali City</td>
<td>22.7%</td>
<td>20.8%</td>
<td>16.8%</td>
</tr>
<tr>
<td>Southern Province</td>
<td>65.5%</td>
<td>66.7%</td>
<td>56.5%</td>
</tr>
<tr>
<td>Western Province</td>
<td>62.3%</td>
<td>60.4%</td>
<td>48.4%</td>
</tr>
<tr>
<td>Northern Province</td>
<td>64.2%</td>
<td>60.5%</td>
<td>42.8%</td>
</tr>
<tr>
<td>Eastern Province</td>
<td>59.3%</td>
<td>52.1%</td>
<td>42.6%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>2000/01</th>
<th>2005/06</th>
<th>2010/11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>28.5%</td>
<td></td>
<td>22.1%</td>
</tr>
<tr>
<td>Rural</td>
<td></td>
<td>61.9%</td>
<td>48.7%</td>
</tr>
<tr>
<td>Total</td>
<td>58.9%</td>
<td>56.7%</td>
<td>44.9%</td>
</tr>
</tbody>
</table>

Source: EICV poverty report (P.14)

Poverty is highest in all three surveys in the Southern Province, Eastern Province is the second least poor province and lowest by far is in Kigali City.

2.1.7.2 Percentage of the Rwandan population identified extremely poor

At the national level extreme poverty is estimated to be 24.1%, with 10.4% extremely poor in urban areas and 26.4% extremely poor in rural areas as summarized on the table below:

⁶EAVC3
Table 2: Percentage of the Rwandan population identified extremely poor

<table>
<thead>
<tr>
<th>Province</th>
<th>2000/01</th>
<th>2005/06</th>
<th>2010/11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kigali City</td>
<td>14.5%</td>
<td>12.9%</td>
<td>7.8%</td>
</tr>
<tr>
<td>Southern Province</td>
<td>44.7%</td>
<td>44.9%</td>
<td>31.1%</td>
</tr>
<tr>
<td>Western Province</td>
<td>40.4%</td>
<td>37.7%</td>
<td>27.4%</td>
</tr>
<tr>
<td>Northern Province</td>
<td>46.5%</td>
<td>39.1%</td>
<td>23.5%</td>
</tr>
<tr>
<td>Eastern Province</td>
<td>39.4%</td>
<td>29.9%</td>
<td>20.8%</td>
</tr>
<tr>
<td>Urban</td>
<td></td>
<td>16.0%</td>
<td>10.4%</td>
</tr>
<tr>
<td>Rural</td>
<td>39.5%</td>
<td></td>
<td>26.4%</td>
</tr>
<tr>
<td>Total</td>
<td>40.0%</td>
<td>35.8%</td>
<td>24.1%</td>
</tr>
</tbody>
</table>

Source: EICV poverty report

Table 3: Indicators of poverty in Rwanda per category

<table>
<thead>
<tr>
<th>Poverty indicators per category</th>
<th>Poor per category</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Destitute /Umuhanya or Umutindi nyakujya</td>
<td>Beggars; no land or livestock; no clothes, no food, no shelter. Their children are malnourished and cannot go to school; they are prone to illness but have no access to medical care.</td>
</tr>
<tr>
<td>2</td>
<td>Poorest/ Umutindi</td>
<td>Similar to Destitute but can work for others to survive</td>
</tr>
<tr>
<td>3</td>
<td>Poor/Umukene</td>
<td>They have some land and poor shelter, live on their own labor and produce, have no surplus to sell, their children do not always go to school, they can cloth themselves but with difficulty, they can hardly afford medical care and food.</td>
</tr>
<tr>
<td>4</td>
<td>Resourceful Poor/umukene</td>
<td>Similar to poor but have a bit more small land and keep some domestic animals Besides subsistence,</td>
</tr>
<tr>
<td>Category</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>wifashije</td>
<td>they have little income to satisfy other needs, their children go to primary school (covered by universal education program)</td>
<td></td>
</tr>
<tr>
<td>Food rich/Umukungu</td>
<td>They have large landholdings with fertile soil and livestock; they have enough to eat and have excess harvest to sell, have more money and can afford medical care. Their children can go to secondary school. They have good house and can employ others as laborers.</td>
<td></td>
</tr>
<tr>
<td>Rich/Umukire</td>
<td>Similar to Food rich but have more land and more animals sometimes they have paid employment to maintain good living conditions.</td>
<td></td>
</tr>
</tbody>
</table>

Source: MINECOFIN: EDPRS 2008-2012

The purpose of this study is based on number 2 and 3 cause CIP has objectives of uplifting farmers who have small land with poor shelter to afford medical care and send children to school is very difficult for them. CIP also target those who work for other in order to survive by offering many job opportunities in the plantations.
Table 4: Major causes of poverty in Rwanda

<table>
<thead>
<tr>
<th>Major causes of poverty in Rwanda</th>
<th>Share of respondents (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of land</td>
<td>49.5</td>
</tr>
<tr>
<td>Poor soil</td>
<td>10.9</td>
</tr>
<tr>
<td>Drought/weather</td>
<td>8.7</td>
</tr>
<tr>
<td>Lack of livestock</td>
<td>6.5</td>
</tr>
<tr>
<td>Ignorance</td>
<td>4.3</td>
</tr>
<tr>
<td>Inadequate infrastructure</td>
<td>3.0</td>
</tr>
<tr>
<td>Inadequate technology</td>
<td>1.7</td>
</tr>
<tr>
<td>Illness</td>
<td>1.7</td>
</tr>
<tr>
<td>Polygamy</td>
<td>1.2</td>
</tr>
<tr>
<td>Lack of access to water</td>
<td>1.1</td>
</tr>
<tr>
<td>Population pressure</td>
<td>0.7</td>
</tr>
<tr>
<td>Others</td>
<td>10.6</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: MINECOFIN (2007)

2.2 Agriculture in Rwanda

Agriculture is the backbone of Rwanda’s economy and the majority of households in Rwanda are engaged in some sort of crop or livestock production activity. The agriculture sector is therefore widely regarded as the major catalyst for growth and poverty reduction.

The share of households’ agricultural production which is marketed is an important indicator for monitoring the commercialisation of agriculture. The share of marketed output (livestock as well as crop activities) increased strongly between rounds, from 22% to 27%. This increase can be observed across all provinces, although the increase is less marked in the poorer Southern Province. Commercialization of crop production, as measured by the share of harvest sold, is highest in the Eastern Province, at 25%, and around 20% in all the other provinces outside Kigali.
City. As one would expect, commercialization increases with quintile; the poorest quintile sells only 15% of its harvest, as compared to 19% in the second and 25% in the fourth quintile.

Noteworthy changes in livestock ownership can be found between EICV2 and EICV3. In all provinces, higher proportions of households are able to afford cattle, from 34% to 47% nationally and with particularly high increases in the Western (29% to 43%), Northern (38% to 58%) and Eastern (27% to 45%) provinces. In contrast, cattle ownership in the poorest Southern Province has improved only a little.

The survey also gives information about land consolidation, erosion protection and regionalization of crops. 22% of crop-producing households have had at least one of their cultivated plots affected by land consolidation. The highest proportion of households reporting being affected by land consolidation is in the Northern Province, with 40% reporting changes. In the other three provinces, the proportion of households affected by land consolidation is around 19–20%. As would be expected, in the mainly urban Kigali City the incidence is very low.

84% of crop-producing households in Rwanda have at least one of their plots protected from erosion. This is particularly high in the Southern Province (93%), and at 81% to 84% in the other three provinces outside Kigali City. Regionalization of crops has been an important government policy over recent years. 21% of households added an additional type of crop to at least one of their plots.

The EICV also allows insights into changes in crop cultivation over time. Increasing proportions of households cultivate maize and potatoes, whereas cultivation of sorghum or sweet potatoes has decreased since EICV2.

Purchases of agricultural inputs also changed, which is an indicator expected to correlate positively with increases in production. Use of sacks and packing increased from 37% to 48% between surveys for households purchasing any agricultural inputs. This is an indicator of commercialization of production, since sacks and packaging are purchased primarily if selling is intended.
Use of fertilizers also increased drastically, from 18% to 38%. For chemical fertilizers, usage increased from 11% to 29% of households, while for organic fertilizers the increases were smaller (7% to 9% of households). Use of insecticides has also increased: 31% of households used them as compared to 24% in EICV2.

2.3 The role of agriculture in poverty reduction

Alexander, Sara Savastano and Luc Christiaensen (June 2006) argue that agricultural and food policies have a crucial role as well as aggregate poverty in Africa, given that the bulk of the poor are in rural areas, and are employed in agriculture.

N. Diop, P. Brenton and Y. Asarkaya state that Rwanda is among the poorest countries in the world with trade which offers best route for substantial poverty reduction. Therefore, most poor people are rural substance farmers whom are disconnected from markets and commercial activities due to the transport costs which is very high and severe difficulties to shift from traditional farming to modernized farming. The difficulties include also inaccessibility to bank loans, to information regarding on the knowledge and techniques needed to produce commercial crops. This was confirmed by the World Bank in the National Agriculture Policy (2007) prepared by the request of Rwanda Government. The policy state that the agriculture is the backbone of Rwanda’s economy and that it will be central to stimulating the economic growth and reducing poverty.

The strategic plan of ministry of agriculture (2007) also mentions that the economy of Rwanda is based predominantly on the Agriculture. The Agriculture sector averaged 45% of the GDP in the past decade (1997-2007) and generates nearly 75% of the foreign exchange earnings and provided employment to around 88% of the population. However the sector is still facing many challenges that hinder its contribution to poverty reduction.

Among the constraints highlighted by the strategic plan for the transformation of the agriculture (SPTA II) are (i) availability of arable land associated with the high population density that cause the exploitation of the land to the very limits of agriculture possibilities; (ii) the problem of the
small size of the country (26,338 km²) and this implies a need of strategic planning to shift from the isolated households farming with small piece to formation of cooperatives. Nevertheless, any mechanism will have to be supported with appropriate financing mechanisms. Agricultural productivity remains poor and rural communities are generally poor. In addition, the financial services offered in rural areas remain limited although they have been identified as offering major leverage for economic development (DID, 2005).

Fred Sabiti (2006) agrees that increasing agriculture productivity has benefited millions through higher incomes, more plentiful and cheaper food, and by generating patterns of development that are employment-intensive and benefit both rural and urban areas.

Michael Morris, Liz Drake, Kene Ezemenari, Xinshen Diao (2008) confirm that the agriculture contributes to Rwandan GDP on the rate of 35-40%, employs 90% of the population (especially women), generates 70% of export revenues and 90% of national food needs.

However the sector is considered very risky financial institution and has great challenges of financial mechanisms.

2.4 Link between agriculture and poverty reduction

DFID (2004), argues that history shows that different rates of poverty reduction over the past 40 years have been closely related to differences in agricultural performance particularly the rate of the growth of agricultural productivity.

Links between agriculture and poverty reduction are forged through four transmissions mechanisms:

(i) direct and relatively immediate impact of improved agricultural performance on rural incomes;

(ii) impact of cheaper food for both urban and rural poor; (iii) agriculture’s contribution to growth and the generation of economic opportunity in the non-farm sector; and (iv) agriculture’s fundamental role in stimulating and sustaining economic transition, as countries (and poor people’s livelihoods) shift away from being primarily agricultural towards a broader base of

2.7 Generality on crop intensification

The majorities of developing countries depend on agriculture for economic growth and industrial development. According to Breman, agriculture is the backbone of some of the Asia-Pacific countries. Even though most of developing countries are moving towards industrialization, agriculture development will remain the mainstay of the developing countries economy. However, Berry states that the role of agricultural sector in developing countries is focused on food production, gainful employment, foreign exchange earnings, capital accumulation and labor replacement.

28. Concept of crop diversification

The crop diversification can be a useful tool of increasing crop productivity under the current complex situation. Crop diversification can be implemented in two approaches. The main approach and the commonly understood is the addition of more crops to the existing range of cropping system, which can be referred to as horizontal diversification. This system of multiplying crops within one field has increased potentiality of food production (OECD, 2008).

Another approach of crop diversification is vertical crop diversification where many downstream activities are done. Crop species that can be refined to manufactured products, such as fruits, which are canned or manufactured into juices or syrups, illustrate vertical crop diversification. This reflects the extent and stage of crop industrialization and takes consideration the economic returns from different crops.

Vertical crop diversification differs from horizontal crop diversification at national level as well as farm level. Crop substitution and crop adjustment are other terms used in crop diversification. These are the approaches more often used to maximize profit from different varieties of crop yielded. The level of diversification differs from region to region, district to district and country to country. Diversification at household (farm) level implies growing different crops for reaching self-sufficiency which is totally different from diversification at national level. Diversification at
Country level require a lot of resources and high demand of selecting and managing a certain specified crops sold freshly or on which the additional value is added to achieve higher profits (Ringius, 2004).

Crop diversification presents several advantages such as:

- High return earned from crops.
- Higher net returns per unit of labor.
- Optimization of the use of resources.
- Efficiency in land utilization.
- Creation of job opportunities

2.10 Sustainability of intensified crop production

To meet the demand for food of a growing population is a permanent pressure on crop production which itself is facing growing challenges of environmental degradation and uncertainties resulting from the climate change. Sustainable crop intensification provides solutions for increasing crop productivity per unit area taking into account various sustainability aspects such as social, political, economic and environmental impacts. Recently, the incorporation of scientific principles of ecosystem management into farming practices has been proved to enhance crop productivity (yield).

Sustainable crop production intensification responds to the need to increase the opportunities for crop production to address the current and future environmental threats the world is facing, and ultimately respond to the need to increase food production for the forecasted increase in human population. Hence, an important aspect it looks to manage biological processes sustainably to optimize crop production (FAO, 2008).

2.11 Crop intensification in Rwanda

Because food security has become a permanent problem in Africa as well as in Rwanda, to address this situation, the Rwandan government through MINAGRI has put more efforts on crop intensification program (CIP) which have revealed the potential of achieving food security.

The program started in September 2007 as started earlier and focused on six (6) crops namely
rice, maize, wheat, beans, Irish potato and cassava.

Traditional farmers are urged to synchronize the cultivation of crops in lands and these are in consolidated and rearranged to form larger and more rational group holdings. The government of Rwanda imported farm inputs such as improved seeds and fertilizer and these were distributed to farmers through public-private partnerships. As a result, the crop yielding has significantly increased. As an illustration, the production of maize and wheat has increased by 6-fold while that of Irish potato and cassava has tripled. Over the past four (4) years, the production of rice and beans has increased by 30%. These outputs have pushed Rwanda to the verge of becoming a food secure country. Rwanda has 4 types of land: cultivated lands, marshlands, forests and soils allowing water resources. Cultivated lands present around 46% (1.12 million hectares) and forests 8% of the county. 870 000 ha (36%) are cultivated of annual crops and 250 000 ha (10%) of permanent crops.

Low use of inputs is the main cause of the low crop productivity in Rwanda. As a vicious cycle, the low crop productivity continues to prevent farmers from using inputs, as many farmers hardly produce enough food to feed their family, and therefore have no disposal income to purchase enhancing inputs. The solution for this situation lies in breaking this cycle by means of appropriate intervention. Thus, Increasing agricultural productivity and food security in Rwanda requires the adoption of modern inputs by smallholder farmers, as done elsewhere like in Asia where green revolution was facilitated by using modern inputs such as selected seeds, pesticides, and fertilizers to farmers. Therefore in attempting to address this situation, the government of Rwanda through MINAGRI has put more efforts on crop intensification program. Even though the price of inputs are high because of transportation cost to rural areas and low level of demand inputs which have to be imported, the Government of Rwanda, with the help of development partners, overcame this challenge through bulk procurement of improved seeds and fertilizers from neighboring countries and distributed the inputs to farmers through a network of public and private partnerships.
2.12 Mission

The mission of the Crop Intensification Program is to increase the productivity of agriculture sectors under PSTA II. It has a mission of achieving food security at national level as well as uplifting livelihood of rural farmers. To achieve its mission the CIP uses different methods among them includes distribution of improved seeds, fertilizers, land consolidation, management of post harvest handling and storage and extension services.

2.12.1 Distribution of improved inputs

Accesses to agricultural improved inputs have been major constraints to farmers from increasing productions. This is was due to the low demand and to the high cost of transports to rural areas. To solve this problem, the Crop Intensification Program adopted approach of supply-push where Government through MINAGRI under RAB supplies agriculture inputs and farmers are sensitized to use them.

2.12.2 Improved Seeds

Generally speaking, as plants become more domesticated and are more highly bred to improve yields in quality and quantity, their hardness declines. This is why varieties of highly yield cereals cultivated in countries with agricultural industries are not hardy or resistant in tropical Africa. In order to maximize yields the use of chemical products are needed to get rid of disease carriers and weeds competing with the crops.

To increase crop productivity, selected seeds are imported by Crop Intensification Program/RAB from Eastern Countries like Tanzania and Kenya. Quantity of imported seeds gradually increased from 1200 tons in 2009A to 3512 tons in 2011 A. Furthermore, improved planting materials (cuttings) of cassava and potato were also distributed to farmers. Under this program, the use of improved seeds by farmers rose from 3% to 40%. By sensitizing farmers to use improved seeds, the CIP has significantly increased the local demand and the capacity for seed production. Apart from hybrid seeds, the government (RAB) and entrepreneurial farmers in the country are multiplying varieties of high-yield cereals such as maize, wheat, rice and beans.
2.12.3 Distribution of fertilizers

Fertilizers are imported and distributed to farmers using service and through bulk orders. Farmers growing maize, wheat, rice and potato used about 83% of imported fertilizers. In 2009, the CIP imported fertilizers from Mombasa 14,427 tons and distributed them to maize and wheat growers at subsidized rates of 50% of the overhead costs (transportation and administrative costs). The CIP continued to import and distribute to farmer fertilizers and in 2010, 33,500 tons were imported while imports of 2011, amounted to 22,000 tons. Through an auction process, the CIP auctions the imported fertilizers to national private distributors. To access the imported fertilizers at a subsidized price, the CIP distributes vouchers to farmers through service providers. The farmers buy fertilizers from the distributor by presenting the voucher. The distributor transacts the voucher at the financial bank outlets which in turn collect from MINAGRI/MINICOM. As a result of these efforts, estimates suggest fertilizer used in 2010 has increased from 8Kg-23Kg per hectar.

2.12.4 Consolidation of land use

Due to the high pressure of population with scarcity of land, traditional farmers are urged to synchronize the cultivation of crops in lands and these are in consolidated and rearranged to form larger and more rational group holdings. The government of Rwanda imported farm inputs such as improved seeds and fertilizer and these were distributed to farmers through public-private partnerships. As a result, the crop yielding has significantly increased from the small areas (MINAGRI, 2010)

2.12.5 Proximity extension services

These extension services are performed under the CIP program by agronomist (A2 and A1) in areas under intensification efforts. One Agronomist supervise a consolidated land which is equal to 500 Ha and manage the materials and knowledge distributed by RAB which coordinates the extension services. (MINAGRI, 2010)
2.12.6 Post Harvest Handling and Storage

The program has taken initiative to minimize the post harvest losses of key priority crops. These initiatives aim at improving the handling and storage of harvested farm produces. The CIP is currently engaged in making an inventory of available facilities for community storage in the country and is also undertaking control on the management of strategic food stocks for the Country. Crop Intensification Program has also embarked on constructing public drying areas in each district. It is also intends to acquire in the near future small tools and equipments for improving post harvesting by farmers where it has built stores in each districts for the Country. (MINAGRI, 2010).

2.13 Outputs of CIP

Through the approaches described above, the CIP has increased the production of maize; wheat and cassava. This production has tripled over the past 3 years. During the same, the beans production has doubled whereas the production of rice and Irish potato has increased by 30%. The total production improved mainly due to the increase in productivity per unit of land area and such outputs have transformed Rwanda from a food insecure country to a country with improved food security. The CIP has revealed untapped massive potentials that exist to increase the agricultural productivity of the farm smallholder. (MINAGRI, 2010).

1.16 Impacts for CIP to Rwandan society

The CIP program has made a significant arena. By improving food security, the CIP contributes to attaining the millennium development goals of cutting by half the number of people living in extreme hunger and poverty in Rwanda.

The level of success has demonstrated that the cost of achieving food security is fiscally manageable and responsible and that the idea of supporting inputs rather than food aid actually makes economic sense. The increased profitability of crop production has uplifted the economic well being of many farmers and their families. The consolidated use of land and synchronization of crop activities during the season have generated employment opportunities especially for women. The CIP has created in rural areas small business and enterprises which facilitates firm
inputs and yields especially in processing, trading, and transportation. This has improved the agricultural structure and the social positive effect on rural development. For instance, the emphasis of the program on consolidating land used for agriculture has revealed the potentiality of economizing rural space by balancing interest related to environment conservation, constructing houses and agriculture as well as transportation (MINAGRI, 2011).

2.17 The concepts of sustainable agriculture

2.17.1 Definition of sustainable agriculture

According to the 1990 Farm Bill of the U.S. Department of Agriculture, sustainable agriculture must satisfy, over the long term, human needs, enhance the quality of the environment as well as natural resources and use efficiently the non-renewable resources. According to Gomiero et al., agriculture sustainability does not base on prescribed set of practices and this differs from organic agriculture in that agrochemicals (synthetic fertilizers and pesticides) still play a role (Gomiero et al. 2008).

To promote sustainable agriculture, the Integrated Soil Fertility Management ISFM is one of the most used approaches. The ISFM consists of technologies that combine the use of soil amendments (organic matter, phosphate, lime) and Inorganic fertilizers. Mr. Breman advocates that integrated soil fertility management technologies should be validated, improved and implemented in regions where fertilizers are needed for soil improvement. Because of soil amendments, the use of fertilizers (and of other production factors like water and labor) becomes more efficient. Agro forestry together with other relevant soil conservation measures (reduced tillage, crop rotation, improved fallow) represents useful alternative to promote sustainable agriculture (Catalyst, 2008).

Results obtained are quite impressive as the application of manure generates an increase in the level of production. No tillage decreases the level of short term production, but in the long run increases carbon content and soil productivity (see table 3). When the economy is based on intensive agriculture, this is likely to suffer from a tradeoff between higher productivity in the short term and, in long term, the land degradation (Takeshita and Akaia, 2006).
2.18. Sustainability of Crop Intensification Program

The Crop Intensification Program (CIP) initiated by the Government of Rwanda (GoR) with the aim of increasing national agricultural productivity and improving food security to achieve this CIP is responsible for managing sustainable natural resources, water and soil, marshland development, irrigation, food and nutrition management and supply of agricultural business. (MINAGRI, 2010)

The idea of Rwanda CIP is effective from a conceptual point of view and this is to increase the use of productive inputs (fertilizers), water use (improvement of irrigation) and an optimum level of land use (marshland development) will lead to an increased crop production and therefore, food security.

Thus, the concept of sustainability involves an intergenerational process that guarantees the well being of the present and that of future generations in terms of economic, environmental and social criteria.

For the first step the evaluation was done in the short run Crop Intensification Program was economically sustainable as stated in MINAGRI report of 2010. Under this program, the government procures improved seed and fertilizers which are distributed to farmers in selected zones based on their food crop production potential. In the first year of the program, the Rwanda Ministry of Agriculture (MINAGRI) imported and distributed roughly 9,000 MT of fertilizers. Results of CIP target crops are encouraging.

Maize yields increased by about 90 percent while wheat yields were more than double (Morris et al. 2007).
Table 5: Fertilizer import vs crop production in Rwanda

<table>
<thead>
<tr>
<th>Years</th>
<th>Fertilizers import (tons)</th>
<th>Crop production (MT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>13,942</td>
<td>7166567</td>
</tr>
<tr>
<td>2007</td>
<td>22,443</td>
<td>7098512</td>
</tr>
<tr>
<td>2008</td>
<td>17,533</td>
<td>8234188</td>
</tr>
<tr>
<td>2009</td>
<td>33,500</td>
<td>9261945</td>
</tr>
</tbody>
</table>

Source: RAB and MINAGRI (2010)
CHAPTER THREE: CONCEPTUAL FRAMEWORK AND RESEARCH METHODOLOGY

3.1. Introduction

This chapter is related to the methodological approach used in this research. It describes the sampling methods and sample size, as well as the sources of data and the instruments used to collect data from different population. The combination of qualitative and quantitative methods will be applied to this study.

This chapter also describes conceptual framework and the research methodology.

3.2. Conceptual framework

Many authors such as Ravallion and Datt 1996; Mellor 1999; Diao, hazel, and thru low 2010 highlight the economic growth’s sectoral structure as the key determinant income distribution changes and also the strength of the growth and poverty relationship. Timmer stated that the link between growth and food security is less clear. Food security includes: to have enough food in quality and in quantity produced either locally or imported, to have access to sufficient resources a human being needs and utilization of food through adequate diet, water sanitation and health care.

However, there is a link between growth and food security and this is the same between growth and poverty reduction in terms of rising disposable income and ability to get enough food needed by households. Therefore the analysis of impact of rice crops on rural development should be considered especially in southern province of Rwanda and how this has increased the farmers’ income in food hence reduction of poverty.

3.3 The research methodology

This is concerned with how data is going to be gathered and analyzed. It gives precise pictures of the research design, sample design, the population, sample size, sampling procedure, data collection techniques and instrument to be used and data analysis and interpretation.
3.4 Research design

The research design is the strategy, the plan and the stricture of conducting a research project. In this case, the researcher uses a case study of rice farmers of southern province.

Below is the summary on how the research was conducted.

Design and development of survey

Instruments

Sample selection

Data collection

Analysis

Results

3.5. Population

Carl and Roger 1991 defined population as the total group of people from whom the information is to be gathered. The population of the research is concerned with all rice growers of south province which are made of 12, 886 people. The total population is grouped under 11 cooperatives from 6 districts which cultivate rice.

Case study: the researcher used a case study as a research strategy where the case study of this research is southern province of Rwanda.

A case study is an intensive description and analysis of a single individual, organization or event based on information obtained from a variety of sources such as interviews, documents, test results and archival records.

3.6 Sample size and Sampling procedure

- **Sample size:** According to Yamane (1967:886) formula; a total sample size of 204 was obtained from the total population of 12,886 of rice farmers as follows:

  \[ n = \frac{N}{1 + N(e)^2} \]

  Where: \( n \) is the total sample size of rice farmers
  
  \( N \) is the total population for rice farmers
  
  \( e \) is the level of precision/sampling error. Here the research used 7%.

  Therefore, the sample size for rice farmers = \( \frac{12886}{1 + 12886(0.07)^2} \) = 204

Questionnaires were distributed among cooperatives using proportionate systematic approach.
As shown on the following table:

Table 6: distribution of questionnaires

<table>
<thead>
<tr>
<th>No</th>
<th>Cooperatives</th>
<th>Districts</th>
<th>Member s</th>
<th>sample size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>KIABR/Rugeramigozi</td>
<td>Muhanga</td>
<td>852</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>COOPRORIZ-Cyili</td>
<td>Huye-Gisagara</td>
<td>1,408</td>
<td>50</td>
</tr>
<tr>
<td>3</td>
<td>COOPRORIZ-Abahuzabikorwa/Mukunguri</td>
<td>Kamonyi</td>
<td>2,750</td>
<td>97</td>
</tr>
<tr>
<td>4</td>
<td>COOPRORIZ-Busoro/Kinyegenyege</td>
<td>Nyanza/Ruhango</td>
<td>792</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>5,802</strong></td>
<td><strong>204</strong></td>
</tr>
</tbody>
</table>

Sample size was obtained from the following formula:

\[ N_h = \frac{N_h}{N} \times n \]
(Source: http://statrak.com/sample-size/stratified-sample.aspx)

Where:
- \( n_h \) is the sample size for each cooperative
- \( N_h \) is the population size for each cooperative
- \( N \) is the total population size
- \( n \) is the total sample size

- Sampling procedure and methods (www.google.com) there are two different types of sampling procedure-probability and non-probability. Probability methods ensure that there is a possibility methods target specific individuals.
- Non-probability sampling methods include the following: **Purposive samples, volunteer subjects, haphazard sampling and quota sampling.**
- Where probability sampling methods include the following: **Simple random sample, systematic selection procedure sample, stratified sample, cluster sample and multistage sampling.**
Purposively the research used convenient sample methods where 4 cooperatives which cover 6 districts are selected. These cooperatives are: KIABR/Rugeramigozi, COOPRORIZ-Cyiri, COOPRORIZ-Abahuzabikorwa/Mukunguri and COOPRORIZ-Busoro/Kinyegenyege.

3.7. **Data collection method**

The researcher used the two types of data, which are primary and secondary data.

3.7.1 **Primary data**

The kind of data was collected through:

- **Questionnaire method:** in this case the researcher designed questions and presented them to the rice farmers. Questionnaires were formulated in English and Kinyarwanda language. Three types of questions were designed, including open ended questions, dichotomous questions and multiple questions.

- **Interview method:** in this case questions were addressed to different agronomist of RSSP/MINAGRI. Focus group was used also as primary data collection method.

3.7.2 **Secondary data**

This is the second hand data. The part of data collection was supported by the uses of different books and document from different library among them are; annual reports, books, handouts, journals, magazines and online library.

3.8 **Data analysis and interpretation**

The researcher analyses the data basing on the information got using data collection methods. Then the data analysis and interpretation editing and tabulation method were used.

Concerning tabulation of data, statistical tables will be used where by frequencies of responses will be measured in terms of total number of respondents in order to come up with conclusion.
To ease the work, the data will be analyzed using statistical package for social sciences (SPSS) and Microsoft excel.

### 3.9 Limitations of the study

There are some limitations that prevented the researcher from meeting its expectations:

- Insufficient funds to enable the researcher covering all costs require in conducting this research.
- The critical limitation to this study concerned little time scheduled for the researcher to complete, but I worked under pressure to meet the deadline.

In spite of these limitations, the researcher hopes that they were not largely impair results of the study and the findings should be useful towards filling part of the apparent knowledge gap or at least form a foundation for further research crop intensification program.
CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATION

4.0. INTRODUCTION

In this chapter, the researcher carries out analysis as well as presentation and interpretation of data collected during the research process. This part therefore, should be able to highlight the show the contribution of CIP in poverty reduction considering a situation of rice crops Farmers of the Southern Province of Rwanda.

In total, 204 questionnaires were distributed to the respondents but only 188 were returned (92%). Therefore, 188 were treated as total number (100%) while analyzing information from respondents.

4.1 DEMOGRAPHIC DATA FOR RICE FARMERS

Table 7: Farmers and their cooperatives

<table>
<thead>
<tr>
<th>Cooperatives</th>
<th>Farmers (frequency)</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KIABR/RUGERAMIGOZI</td>
<td>26</td>
<td>13.8</td>
</tr>
<tr>
<td>COOPRORIZ-CYILI</td>
<td>48</td>
<td>25.5</td>
</tr>
<tr>
<td>COOPRORIZ/ ABAHUZABIKORWA</td>
<td>88</td>
<td>46.8</td>
</tr>
<tr>
<td>COOPRORIZ BUSORO</td>
<td>26</td>
<td>13.8</td>
</tr>
<tr>
<td>TOTAL</td>
<td>188</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Primary

According to data presented in table 7, it is indicated that COOPRORIZ-ABAHUZABIKORWA and COPRORIZ-CYILI dominate the sample of cooperatives in terms of cooperatives members; they represent 73.3% of the total respondents (46.8% and 25.5% respectively).
Referring on the data presented in figure 1, it is shown that members of mentioned cooperatives are dominated by female cooperative members. That is 51% of the total respondents. This implies that women who sometimes are heads of their respective families are highly motivated to participate in programs designed to stimulate people’s income including crop-intensification.

Source: Primary data
Reference made to figure 2, majority of respondents was married (61%); followed by widow (31%) while divorced and single cases were minor (3% and 5% respectively). This is due to the fact that after marshland consolidation especially for rice-crop intensification, priority was given to already establish families (Father, Mother and children or single father/Mother and children). Furthermore, it implies people who impliedly have financial burden especially related to basic needs (food, shelter, education, health) are highly concerned with poverty reduction programs including rice-crop intensification.

**Figure 3: Family size**

![Family size chart]

**Source: Primary data**

Reference made to figure 3, majority of respondents (65%) is of high sized families; 46% represents farmers with 5 to 9 family members while 19% represent farmers with above 10 family members. That is to say those families vulnerable to poverty resulting to family’s consumption related to basic needs are integrated in rice-crop intensification program which in turn help them to raise income to cater for their respective families.
Figure 4: Age of Respondents

![Bar chart showing age distribution of respondents]

Source: Primary data

According to the above chart, most of respondents are above 41 years old (51%) followed by those who are between 21-30 years old (24%). This implies that plot of land are distributed to the families as it is the requirement of getting land.

Figure 5: Educational level

![Bar chart showing education levels of respondents]

Source: Primary data
The most respondents have finished primary school (63%) followed by those attended 9 years basic education (16%) and (13%) who never attended school, this shows that there is a relationship between poverty and illiteracy or low level of education.

4.2. Contribution of CIP to the livelihood of rice farmers of the selected cooperatives

It is of paramount important to indicate that, contribution to the livelihood of farmer identified in the selected rice cooperatives is analyzed mainly focusing on how resulted income are used to satisfy their basic needs such as food security, affordable shelter, education, and health care together with employment opportunities.

Table 8: Meals frequency per day for the farmers of selected Rice cooperatives

<table>
<thead>
<tr>
<th>Meals per day</th>
<th>Frequency</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Once a day</td>
<td>12</td>
<td>6.4</td>
</tr>
<tr>
<td>Twice a day</td>
<td>170</td>
<td>90.4</td>
</tr>
<tr>
<td>More than two</td>
<td>6</td>
<td>3.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>188</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Primary data

Reference made to table 8, it is indicated that majority of farmers (90.4%) eats twice a day while only 6.4% do eat once a day. The later eat only once a day just for not having enough food but due to lack of time of food preparation on their own as most of their time is spent in field work. This implies after joining rice crop intensification, apart from rice farmers became able to raise income that assist them to buy necessary food stuff used in their daily diet.
Table 9: Existence of enough food before joining CIP

<table>
<thead>
<tr>
<th>Responses</th>
<th>Frequency</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>86</td>
<td>45.7%</td>
</tr>
<tr>
<td>No</td>
<td>102</td>
<td>54.3%</td>
</tr>
<tr>
<td>Total</td>
<td>188</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Primary data

According to data presented in table 9, it is indicated that more than a half of respondents (54.3%) suffer of food insecurity. They hardly afford to feed their families. Referring back to previous table, it is clearly shown that having actively participated in rice-crop intensification via cooperatives, farmers are now able first to food by rice itself and money raised from selling harvest which in turn utilized to cater for other food stuff.

Table 10: Existence of enough rice production for food and market (selling)

Source: Primary data

According to that shown in the above chart, most of respondents (88%) confirmed apart from having enough rice for daily home diet, they manage to have excess production which is taken to market. For 12% responding to not having enough rice for home diet and market, it reflect to the principles of rice production management in cooperatives whereby only 50 kilograms are reserved for home consumption while the rest of harvest are put to the market. That is to say that
of course large sized families do not get enough rice for home consumption. But under general circumstance, the data show that rice-crop intensification permit cooperative members to raise income that will be used to satisfy their daily basic needs.

**Figure 6: Secondary School attendance for the children of rice farmers**

![Pie chart showing secondary school attendance for the children of rice farmers]

**Source: Primary data**

Reference made to data presented in above chart, it is shown that only 45% of rice farmers in the selected cooperatives have children attending secondary education for who in the most cases are required to pay considerable money for school fees. In the other hand 55% of respondents responded that they do not have children in secondary education. This is not to mean that they all can’t afford education cost of their families but their children are at pre secondary education level. It is in this regard therefore, data presented here implies that above food satisfaction, rice-CIP intensification assists farmer in getting income to cater for education of their families. This is reflected to the fact that for those who confirmed to have children in secondary education, they have at least one student for whom they pay school fees on their own (self sponsorship).

**Figure 7: Children in secondary school**
Figure 8: Level of income spent on school fees for the children of rice farmers in selected cooperatives

Source: Primary data

According to data presented in chart 8, it is indicated that majority of people having children in secondary education (68%) do pay school fees ranging from 60,000 Rwandan francs onwards. This is considerable amount for Rwandan farmer to get money above 180,000 Rwandan francs (equivalent to 300 Us Dollars) on annual basis; since poverty line is still ranging to 83000 Rwf
(EICV3, 2011). This is a good indication that Rice-CIP highly facilitates farmers to get income to cater for their basic needs including education costs of their families.

**Table 11: Ability of rice famers of selected cooperatives to pay health insurance (Mutuelle de santé)**

<table>
<thead>
<tr>
<th>Responses</th>
<th>Frequency</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>122</td>
<td>64.9%</td>
</tr>
<tr>
<td>No</td>
<td>102</td>
<td>35.1%</td>
</tr>
<tr>
<td>Total</td>
<td>188</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Source: Primary data**

Reference made to data presented in table 11, it was indicated that 64.9% of selected farmers afford to pay health insurance for their families while the rest (35.1%) cannot afford to pay health insurance for the whole family. This implies that though rice-CIP assist farmers therein in boosting their financial capacity which used to cater daily basic needs (food, shelter, education and medical care), some additional efforts need to be made to ensure that almost all cooperative members become able to cater all their basic needs including health care on their own. More on that based on further talk with respondents majority of those who cannot pay health care are assisted by charity organization particularly FARG.

**Table 6: Housing ownership for the rice farmers of selected cooperatives**

<table>
<thead>
<tr>
<th>Responses</th>
<th>Frequency</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>178</td>
<td>94.7%</td>
</tr>
<tr>
<td>No</td>
<td>10</td>
<td>5.3%</td>
</tr>
<tr>
<td>Total</td>
<td>188</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Source: Primary data**

Following the data presented in table 12, it is clearly indicated that almost all rice farmers of selected cooperatives (94.7%) afford to have their own houses. Even the minor (5.3%) who responded to not have houses some of them are in progress. This implies that having enough rice production is not only used for food purpose but also for market purpose whereby farmers get
money for other basic needs including housing.

**Table 13: Roofing status of the houses of rice farmers for the selected cooperatives**

The type of roofing materials used to each and every house reflects level of income for individual farmers since their prices are different. The better materials are prestigious, the higher price is to be paid. It in this regard therefore the table 13 was established to analyze farmer level of income basing on the type of their houses’ roofing.

<table>
<thead>
<tr>
<th>Roofing type</th>
<th>Frequency</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron sheet</td>
<td>8</td>
<td>4.5%</td>
</tr>
<tr>
<td>Tile</td>
<td>180</td>
<td>95.5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>188</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Source: Primary data

From the data presented in the above table it is clearly indicated that all the farmer owning houses use prestigious and durable materials; 95.5% (Tile) and 4.5% (iron sheets). No one was found to be in hatched houses; though government initiative (bye bye Nyakatsi) highly participated towards elimination of thatched houses, it was found that people already participated in rice cooperative were able to have modern houses on their own. This implies that rice- CIP makes them able to get extra-income used even for a bit expensive basic needs (housing which in most cases take high portion of household income).

**Figure 9: Type of employment in the rice farmers cooperatives**
According to chart above, it was clearly indicated that most of the employment in rice farms is casual employment (91%). In the most cases small number of workers is needed in the rice farms just cater for small permanent work (9%). This implies that apart from income attributed to cooperative members as result of production price, CIP also do participate offering jobs to neighbors who will also get income to cater for their basic needs.

**Figure 10: Improvement in the farmers’ income after joining CIP**

According to the above chart, it was shown that majority of the respondents (74.2%) recognizes improvement in their level of income as result of being in rice farming cooperatives; 38.7% confirmed that their income was increased by a half; 32.3% confirmed that it was doubled, 25.8% confirmed that their income have increased but difficult to know the level their income
have increased while 3.2% confirmed that it was tripled. This is a good indication that rice CIP really participated in boosting farmers’ income hence, it is participating in poverty reduction.

**Table 7: Existence of saving accounts for the rice farmers in the selected cooperatives**

<table>
<thead>
<tr>
<th>Existence of saving accounts</th>
<th>Frequency</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>184</td>
<td>97.9%</td>
</tr>
<tr>
<td>No</td>
<td>4</td>
<td>2.1%</td>
</tr>
</tbody>
</table>

According to the above table, it was shown that majority of the respondents (97.9%) confirmed that they have a saving account. Other 2.1% reported that they don’t have a saving account due to the fact that they start cultivating recently and they are in process of opening it because after harvesting, they get paid through banks. Therefore, a part of having more income as founded previously, this implies that rice farmers are able to save some money and can even be able to cater for future investments.

**Figure 11: Access to bank loans**

![Pie chart showing 81% yes and 19% no]

**Source: Primary data**

From the data presented in the above chart it is clearly indicated that most of farmers (81%) having bank loans are become easier while (19%) reported no. during the research the researcher found that rice farmers being into cooperatives, the Management of cooperatives work together with Umurenge SACCO to facilitate rice farmers to get loan easily. The rest of farmers reported no, it is due to the fact that this Micro finance (UMURENGE SACCO) has limit(ceiling) is such
way it could not offer loans to all farmers at the same period. The time they went asking loans they found it has reached on the ceiling loan (Plafond) and are asked to wait for other time.

Table 15: Types of banking institutions used by rice farmers

<table>
<thead>
<tr>
<th>Bank account</th>
<th>Frequency</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Umurenge SACCO</td>
<td>182</td>
<td>97.8</td>
</tr>
<tr>
<td>Other Micro Finances</td>
<td>4</td>
<td>2.2</td>
</tr>
<tr>
<td>TOTAL</td>
<td>186</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Primary data

According to the data presented in table 15, most of farmers are using Umurenge SACCO this is because it is the nearest microfinance for rice farmers and it facilitate them to get loan easily. Apart from opportunity for quick and easy loan, the system facilitates farmers to even save very little money and this would be the best way to accumulate capital for future investments.

Figure 12: Investment in domestic animals

Source: Primary data

From the data presented in the above chart, it is clearly indicated that more than half (farmers) afford to have invested in cows (52%), followed by Got (22%), Pig (20%) and others (6%) that is rabbits, ducks and hens. This implies that CIP has improved food security to rice farmers not only in quantity but also in quality. Quality meals increase better nutrition for family members (meat & milk). Above that these pets provides manure and bio-gas. Therefore, in investing in domestic
animals improve the productivity of rice farmers hence increase in income.

4.3. Role of CIP in Rice value addition

To get into evaluation of role of CIP in rice value addition, it is necessary to focus on status of farmers in the rice cooperatives before and after joining CIP and finally gauge improvement in the rice farmers’ living standard as well as rice productivity.

Figure 13: Rice farming status before CIP

![Graph showing rice farming status before CIP]

Source: Primary data

According to the information presented from above chart, it is clearly that most of respondents (66.3%) worked into groups. Working into groups there were no belongingness among rice farmers which leads to laziness hence low productivity of rice. CIP has put rice farmers into cooperatives and give each rice farmer a plot of land to cultivate and this has increased the level of productivity as seen in graph13: Distributions of lands create a degree of responsibilities and belongingness.

Figure 14: Production improvement after CIP
Source: Primary data

From the above chart, most respondents (90%) confirmed that the production after CIP has increased on the same area of land as before. This is due that CIP has encouraged rice farmers to use selected seed and fertilizers. This implies that increase in rice production resulted in selling volume which in turn increased return to individual rice farmers.

Figure 15: Quality and Quantity of rice after CIP

Source: Primary data

According to the information presented from the above chart, most of rice farmers strongly agree and agreed (92%) that the quality and quantity of rice has improved, this result from the use of selected seed fertilizers and insecticides usually distributed by RAB through rice-crop intensification program. This implied that CIP contributed enough not only effective and
efficient management of rice farmers cooperative but also in facilitating farmers to get necessary inputs and this resulted in both quality and quantity improvement of rice productivity

**Figure 16: The price of rice**

![Price of rice chart]

**Source: Primary data**

According to the information presented from the above chart, most of rice farmers strongly agree and agreed (92%) that the price of rice has increased, this is due to the improvement of quality of rice. The price of paddy rice equivalent to 280 Rwf which is vary from one season to another. The price is determined by the management of cooperatives whereby they calculate all expected expenses incurred by rice farmers from one plot during a given season (they normally have two seasons A and B that is January and July) add some profit margin for rice farmers then they divide by the estimated yielding from one plot.

**Figure 17: Major challenges faced by the rice farmers in selected cooperatives**
Source: Primary data

Each respondents highlight one major challenge facing. According to the information presented from the above chart, it is clearly indicated that majority highlight low price of rice (28%), followed by getting manure easily (20%), third one lack of adequate infrastructure (20%) followed by land consolidation (10%), lack of market (5%), to get selected seed on time (5%), lack of knowledge (5%) and others (1%).

a) Low price of rice

Even though the rice farmers agreed that the price of rice has increased but they are still complaining that the price is still low compared to the efforts made to produce rice in terms of physical work and monetary expenditures; they getting small return due to the fact that production is being sold at its early stage of rice value chain (paddy selling). Farmers suggested that it would be good if they could be facilitated to have final rice sold in the market or to a bit increase price per kilogram paddy comensurating to efforts invest in rice production.

b) Straggle in getting fertilizers

MINAGRI through its Post harvesting programs import fertilizers and give them to the private distributors at certain fixed price to rice farmers. However, rice farmers feel that they getting fertilizer at very expensive price due to the fact that private distributors do
much cater for their profit margin which is even high rather than serving people. On the side of farmers, they suggested to let fertilizers be managed internally (at cooperative level).

c) Lack of adequate infrastructure

Cultivating and Harvesting are still done manually even threshing is still done by hands. It is very important to start using machines. The time of harvesting rice farmers don’t have enough space to store their yield and there have few shitting to dry the paddy rice. With interview with cooperatives managers confirmed stores and shittings are still major challenges for rice farmers; which at the end of the day resulted in substandard quality of rice compared to rice imports.

d) Land consolidation

Being the fact that the plot of land is given to those identified as poor family in order to develop them, there are others who wish to cultivate rice and are obliged to buy with ones who got the plot and not able to cultivate it. Another issue on land consolidation is that farmers are still reluctant in paying annual plot tax (2000 Rwandan francs per annum).

e) Lack of sufficient market

After harvesting rice farmers don’t sell the production immediately they have to wait cooperatives to get someone to buy paddy rice for all rice farmers at ago. These delay farmers who are in emergency need of money; their rice selling always passes through public tender process run at cooperative level. That is to say that they no open market for them in which they can express their price bargaining power.

f) To get selected seed on time

As per convenient interaction with rice farmers, it was realized that sometimes farmers fail to plant rice on time due to delivery delay of selected seeds; it was evident that delay in delivery results in long distribution channel (subsidized seeds are distributed from RAB to Cooperative management then finally to individual farmers) for rice selected and insufficient
selected seeds import at national level

g) Lack of knowledge

This challenge is associated with the fact that all rice farmers are not trained

4.5 Success factors and challenges to implement CIP

4.5.1 Success factors to implement CIP at national level

a. Supply and use of inputs: the improved and fertilizers were imported and distributed. Improved/selected seeds are distributed by Rwanda Agriculture Board (RAB) while fertilizers are distributed by private partners.

b. Development of Marchlands. CIP has already developed 2090 area (ha) in southern province for rice production.

c. Capacity building for farmers is trained to do agri-business instead of traditional agriculture.

d. Land consolidation, through CIP each plot of land are putted together according to Rwandan organic law in order to facilitate the management and the use of land in order to use it in the efficient manner.

e. Development of infrastructure to help farmers’ production

4.5.2 Success factors to implement CIP at field level

a. Development of Marchlands. CIP has already developed 2090 area (ha) in southern province for rice production

b. Land consolidation, each family rice farmer has a plot of land in a consolidated land and RAB have one technician (A2) for each consolidated 500 Ha.

c. Capacity building for farmers, CIP through RSSP has trained and educated rice farmers on techniques of firming rice. Now farmers are confident in using agricultural inputs such as
improved seed, fertilizers and pesticides. Agronomists work in hand with farmers, crops are followed up on the field and facilitate them and make sure that everything is done on time.

d. Crops are followed up on the field to insure the quality and quantity during harvesting.

e. All rice farmers are grouped into cooperatives. Southern province has now 11 cooperatives composed by 12,886 People. Where 5,867 are women and 7,019 are men.

f. All activities regarding rice farmers are done at the same time, like cultivating, wilding, application of pesticides and harvesting. For application of pesticides, cooperatives received machines to do it and you find this activity is done at the same within a consolidated land.

4.5.3 Major challenges to implement CIP at national Level

At national level CIP has a major challenge associated with limited quantity of improved seeds distribution according to the demand. To overcome this, RAB and some entrepreneurial farmers must multiply seed varieties.

4.5.4 Major challenges to implement CIP at field Level

a. there are some families who have many plots and you find it very difficult to them to finish their activities on time basis.

b. because there is not enough stores for yields cooperatives give the responsibility to farmers to take the yield at home. Then because of these farmers sometimes are in need of money, the sell to the illegal persons (abamamyi) and these are sold at a low price.
CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

This chapter summarizes outcomes from research made on Crop Intensification Program as a tool of poverty reduction in Rwanda and present conclusion drawn based on the findings in order to answer the research questions. It will also present the recommendations of the researcher that will contribute to the improvement of the CIP and to the agricultural sector development in general towards poverty reduction in Rwanda.

5.1 SUMMARY OF FINDINGS

The overall outcomes from research made on the Crop Intensification Program as a tool of poverty reduction in Rwanda (considering the case of rice farmers of southern province) can be summarized as below.

The role of the CIP is to achieve food security and uplifting the livelihood of Rwandan citizen especially those identified as poor people. A poor person is defined as someone who has small plot of land, live on his own labor and produces for household consumption only. With poor shelter, his or her children don’t attend school, and affording medical care and sufficient food is difficult is a challenge.

The researcher found that:

- The majority of farmers (90.4%) eat twice a day while only 6.4% do eat once a day. It was explained that the latter (6.4%) eat only once a day because of not only having enough food but also due to lack of time of preparation the food on their own as most of their time is spent in field work.
- The researcher found that before the CIP, more than a half of respondents (54.3%) were suffering from food insecurity. They hardly afford to feed their families before and revealed that food was not sufficiently available for them to eat.
- With the CIP, (88%) confirmed that, apart from having enough rice for daily home diet, they manage to have excess production which is taken to market. It
was found also that rice-crop intensification permit cooperative members to raise income that will be used to satisfy their daily basic needs.

- Majority of people having children in secondary education (68%) do pay school fees ranging from 60,000 Rwandan francs per term upwards. This is considerable amount for Rwandan farmer to get money above 180,000 Rwandan francs (equivalent to 300 Us Dollars) on annual basis. This is a good indication that Rice-CIP highly facilitates farmers to get income to cater for their basic needs including education costs of their families.

- Almost all rice farmers of selected cooperatives (94.7%) afford to have their own houses. This implies that having enough rice production is not only used for food purpose but also for economic purpose whereby farmers get money for basic needs including housing.

  It was found that rice farmers use improved and durable materials of roofing 95.5% use tile roofing and 4.5% use iron sheets. No one was found to be in hatched houses.

  It was found that 64.9% of selected farmers afford to pay health insurance for their respective families.

- The researcher found that the CIP increase job opportunities where 91% of rice farmers in the sampled cooperatives employ more than 2 casual staff during cultivation, wilding, and harvesting.

- It was found the CIP has increased the income of rice farmers where 38.7% confirmed that their income was increased by a half; 32.3% confirmed that it was doubled, 25.8% confirmed that their income have increased but it was difficult to know exactly the level at which their income have increased while 3.2% confirmed that it was tripled. Due to the increase of income of rice farmers 97.9% confirmed that they have saving accounts.

- During the research, the researcher found that rice farmers being into cooperatives, the Management of cooperatives works together with Umurenge SACCO to facilitate rice farmers to get loan easily as confirmed by farmers themselves.
During the research, researcher found that more than half (farmers) have afforded to invest in cows (52%), followed by Goats (22%), Pig (20%) and others (6%) that is rabbits, ducks and hens. This implies that the CIP has improved food security to farmers not only in quantity but also in quality. Quality meals have increased the quality of nutrition for family members (meat & milk). Above that, these animals provide manure and bio-gas for households.

It was found that the CIP has managed to put rice farmers into cooperatives and give each rice farmer a plot of land to cultivate and has increased the level of productivity per unit area. The CIP has encouraged rice farmers to use selected seed and fertilizers. The quality of rice produced has improved and its quantity as well. It was observed that the price of rice has increased as a result of its increased quality.

5.2 CONCLUSION

The research was conducted on the Crop Intensification Program as a tool of poverty reduction in Rwanda, considering the case of rice crop farmers in southern Province. The main purpose of this study was to show the contribution of Crop Intensification Program on poverty reduction. Specific objectives were to determine contribution of the CIP to the livelihood of rice farmers in southern province as well as the role of CIP for rice value addition in southern province highlighting the success factors and challenges faced by rice farmers and CIP implementers.

The constructive data were gathered through the use of interviews and questionnaires were distributed to the rice farmers from sample cooperatives so that reliable information is obtained.

It was found that the CIP has contributed positively to the improvement of livelihoods of rice farmers by achieving food security whereby 88% of respondents confirmed that apart from having food for daily diet, they managed to have excess rice which is taken to market. Those who have children in secondary schools are able to pay their school fees, 59% confirm that they have one child while 23% have two and majority pay above 60,000 Rwf per term and above.

94.7% are owners of their house covered with improved roofing materials where 95.5% of houses have tile roofing the rest are made by iron sheet. No one was found to be in thatched house. The CIP has increased the level of job opportunities where 91% revealed that they need
casual workers during the time of cultivating, wilding and harvesting of rice while 9% revealed that they need permanent workers for their daily activities.

The CIP has increased income for rice farmers and from the sampled cooperatives, 38.7% and 32.3% of respondent agreed that the level of their income has increased by a half and double respectively. 25.8% confirmed that their income has increased but find it difficult to tell the level it has increased while 3.2% confirmed that their income has tripled. Currently, rice farmers have access to banks loan and 81% agreed that it is easy for them to access to banks loans. This is due to the fact that they are grouped into cooperatives and the management of cooperatives works together with Umurenge SACCO to facilitate rice farmers opening the accounts (97.8% have SACCO account) where they are paid through after harvesting. Getting access to bank loans and getting more income have facilitated rice farmers buying some domestic animals such as cows, pigs, goats, hens, ducks, and rabbits.

The CIP has also encourages rice farmers to use selected seed and fertilizers which has increased the productivity of rice both in quantity and quality. This was confirmed by rice farmers from the sampled cooperatives where 92% agreed that the productivity of rice has increased both in terms of quality and quantity which has lead to the increase of the rice price.

Therefore, the CIP has impacted positively the livelihood of rice farmers in southern province of Rwanda. However, some challenges are highlighted by rice farmers, agronomists and managers of cooperatives and these include the price of rice still considered to be low by farmers, hurdles remaining to access organic fertilizers, lack of adequate infrastructure such as dryers and stores, insufficient selected seeds and need for additional training.

5.3 RECOMMENDATIONS

From the Interviews and questionnaires analyzed on the findings, the researcher suggests the following:

To the Government of Rwanda through MINAGRI:
Investors should be encouraged to locally establish chemicals industries producing fertilizers. This will diminish cost of importing fertilizers from outside of the country and farmers will get access to them at a low price.

Encourage farmers and Rwandan Institutions like ISAR to multiply varieties of seeds instead of importing them.

To continue sensitizing farmers to the level that they can sell their finished products instead of selling semi-finished products.

To build capacity of rice farmers to the level of exporting their products on their own.

Continuous mobilization of rice farmers until they leave the traditional subsistence farming to reach the level of agro-business.

**To the rice farmers:**

- To continuously partner with the government by participating in the programs designed to change traditional subsistence farming into of agro-business,
- To increase production, farmers grouped into cooperatives should also mechanize their labor force by buying machines instead of relying on human labor for cultivation.

**5.4 SUGGESTIONS FOR FURTHER RESEARCH**

- Further studies on contribution of Crop Intensification program should be done in other Provinces.
- Impact of CIP on cases of maize, wheat, Irish potato and cassava should also be analyzed.
- Study on Rice supply chain management should be done.
BIBLIOGRAPHY

✓ Action Plan for Agricultural Intensification and commodity Value Chain Development in RSSP2
✓ Agricultural Intensification in Rwanda: An Elusive Goal Fertilizer use and conservation Investment
✓ Poverty-Environment indicators and Strategies for monitoring them with the framework of the EDPRS(REMA,2007)
✓ C.Mark Blackden and Quentin Wodon”Gender,Time Use,and Poverty in Sub-Saharan Africa”
✓ Stokholm Environment Institute 2009, “Economics of climate change in Rwanda”,
✓ NISR, (2011). Evaluation of the progress made by the implementation of EDPRS .
✓ Sabiti F,(2006): Impact of aligning public investment in agriculture on poverty reduction in Rwanda
✓ Word Bank development report, 2008
✓ Hugues Dupriez & Philippe De Leener” Land and Life: Agriculture in African rural communitie
✓

Websites

✓ www.minecofine.gov.rw
✓ www.minagri.gov.rw
✓ www.rema.gov.rw
✓ www.unccd.int
✓ www.tradeoffs.montana.edu
✓ www.cababstractsplus.org
APPENDICES

1. QUESTIONNAIRES IN ENGLISH

Dear respondents,

In partial fulfillment of the requirements for an Outreach Master’s Degree offered by Maastricht School of Management (MSM) and School of Finance and Banking (SFB).

I am pursuing Master’s Degree in Business Management (MBA) Finance Option and I am conducting research on “CROP INTENSIFICATION PROGRAM AS A TOOL OF POVERTY REDUCTION IN RWANDA” A case study of rice crops in south province.

I would appreciate if you take a few minutes to read and respond to this questionnaire. The information you provide is totally sought for academic purpose only, and shall be kept strictly confidential.

Thank you in advance and your cooperation will be greatly appreciated.

Liliane Musabe Birasa
Researcher at MSM & SFB

<table>
<thead>
<tr>
<th>PART A : DEMOGRAPHIC DATA FOR RESPONDENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>(For this section, please write in the box the number corresponding to your answer)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>District</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Muhanga</td>
</tr>
<tr>
<td></td>
<td>Huye</td>
</tr>
<tr>
<td></td>
<td>Gisagara</td>
</tr>
<tr>
<td></td>
<td>Kamonyi</td>
</tr>
<tr>
<td></td>
<td>Nyanza</td>
</tr>
<tr>
<td></td>
<td>Ruhango</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Cooperative</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>KIABR/Rugeramigozi</td>
</tr>
<tr>
<td>2</td>
<td>COOPRORIZ-Cyili</td>
</tr>
</tbody>
</table>
|   | 3. COOPRORIZ-Abahuzabikorwa/ Mukunguri  
   | 4. COOPRORIZ-Busoro/Kinyegenyege |
|---|----------------------------------|
| 3. | Gender |
| 1. | Female |
| 2. | Male |
| 4. | Marital status |
| 1. | Single |
| 2. | Married |
| 3. | Widow |
| 4. | Divorced |
| 5. | Family size |
| 1. | 1-4 |
| 2. | 5-9 |
| 3. | 10 and above |
| 6. | Age |
| 1. | 20 and below |
| 2. | 21-30 |
| 3. | 31-40 |
| 4. | 41 and above |
| 7. | Education level |
| 1. | Never attended school |
| 2. | Primary school |
| 3. | 9 years basic education |
| 4. | Secondary school |
| 5. | Vocational training |
| 6. | Others (Specify) ____________________  
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>8.</td>
</tr>
<tr>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
</tr>
</tbody>
</table>
## PART B: TO DETERMINE THE CONTRIBUTION OF CIP TO THE LIVELIHOOD OF RICE FARMERS IN SOUTHERN PROVINCE.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>
| **1.** | How many times do you eat per day? | 1. Once  
   |   | 2. Twice  
   |   | 3. More than two  |
| **2.** | Before CIP, did you have enough food to feed your family? | 1. Yes  
   |   | 2. NO  
   |   | 3.  |
| **3.** | After production, do you get enough rice for your home and for to sell | 1. Yes  
   |   | 2. NO  |
| **4.** | Do you have children in secondary school? | 1. Yes  
   |   | 2. NO  |
| **5.** | How many? | 1. All of them  
   |   | 2. Only one  
   |   | 3. Two of them  
   |   | 4. No one  
   |   | 5. Others. Specify the number - ---- |
| **6.** | Who pays the school fees | 1. Your self  
   |   | 2. Sponsors  
   |   | 3. Others. Specify --------------- ------ |
| **7.** | If it is you pays how much do you pay per year | 1. 30,000 Rwf and less  
   |   | 2. 31,000 – 60,000  
<p>|   | 3. 61,000 and above  |
| <strong>8.</strong> | Are you able to pay mutuelle de | 1. Yes  |</p>
<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Santé for the whole family?</td>
<td>2. No</td>
</tr>
<tr>
<td>9. Do you own a house?</td>
<td>1. Yes</td>
</tr>
<tr>
<td></td>
<td>2. No</td>
</tr>
<tr>
<td>10. If yes, what is the roof of it?</td>
<td>1. Thatched</td>
</tr>
<tr>
<td></td>
<td>2. Metal</td>
</tr>
<tr>
<td></td>
<td>3. Tile</td>
</tr>
<tr>
<td>11. The time of cultivating and harvesting, do you need other workers</td>
<td>1. Yes</td>
</tr>
<tr>
<td>to help you?</td>
<td>2. No</td>
</tr>
<tr>
<td>12. How many are permanent and casual? Please write the number for</td>
<td>1. Permanent</td>
</tr>
<tr>
<td>each category</td>
<td>2. Casual</td>
</tr>
<tr>
<td>13. At what extent CIP has increased your income?</td>
<td>1. by a half</td>
</tr>
<tr>
<td></td>
<td>2. double</td>
</tr>
<tr>
<td></td>
<td>3. triple</td>
</tr>
<tr>
<td></td>
<td>4. don’t know</td>
</tr>
<tr>
<td>14. a. Do you have a saving account?</td>
<td>1. Yes</td>
</tr>
<tr>
<td></td>
<td>2. No</td>
</tr>
<tr>
<td>b. Which bank do you use</td>
<td>1. Umurenge SACCO</td>
</tr>
<tr>
<td></td>
<td>2. Micro finances</td>
</tr>
<tr>
<td></td>
<td>3. Commercial bank</td>
</tr>
<tr>
<td>15. Is it easy to get bank loan now?</td>
<td>1. Yes</td>
</tr>
<tr>
<td></td>
<td>2. No</td>
</tr>
<tr>
<td>16. Have you been able to buy domestic animal? Which one?</td>
<td>3. Cow</td>
</tr>
<tr>
<td></td>
<td>4. Pig</td>
</tr>
<tr>
<td></td>
<td>5. Got</td>
</tr>
<tr>
<td>Question</td>
<td>Options</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1. Before CIP did you plant rice</td>
<td>1. Individually</td>
</tr>
<tr>
<td></td>
<td>2. In groups</td>
</tr>
<tr>
<td>2. After CIP did your yield increased on the same land cultivated before?</td>
<td>1. Yes</td>
</tr>
<tr>
<td></td>
<td>2. No</td>
</tr>
<tr>
<td>3. Do you agree that CIP has improved the quality and quantity of rice?</td>
<td>1. Strongly agree</td>
</tr>
<tr>
<td></td>
<td>2. Agree</td>
</tr>
<tr>
<td></td>
<td>3. Not agree</td>
</tr>
<tr>
<td>4. Do you agree that because of CIP the price of rice has increased?</td>
<td>4. Strongly agree</td>
</tr>
<tr>
<td></td>
<td>5. Agree</td>
</tr>
<tr>
<td></td>
<td>6. Not agree</td>
</tr>
</tbody>
</table>

**PART D: TO FIND OUT THE CHALLENGES FACED BY RICE FARMERS**

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What are the major challenges you are facing to implement CIP</td>
<td>1. Land consolidation</td>
</tr>
<tr>
<td></td>
<td>2. To get selected seeds on time</td>
</tr>
<tr>
<td></td>
<td>3. To get manure easily</td>
</tr>
<tr>
<td></td>
<td>4. Lack of adequate infrastructure</td>
</tr>
<tr>
<td></td>
<td>5. Lack of market for rice</td>
</tr>
<tr>
<td></td>
<td>6. Low price of rice</td>
</tr>
<tr>
<td></td>
<td>7. Lack of knowledge</td>
</tr>
<tr>
<td></td>
<td>8. Others</td>
</tr>
<tr>
<td></td>
<td>9. Others</td>
</tr>
</tbody>
</table>

---
2. INTERVIEW GUIDE FOR CIP MANAGEMENT/RAB

1. What is the key role of CIP plays in rice value addition especially in managing rice farmers, planting of rice, harvesting and selling?

2. What are the success factors and challenges to implement CIP?

3. What are you proposing to overcome these challenges?
3. INTERVIEW GUIDE FOR COOPRTATIVES MANAGERS AND AGRONOMISTS

1. What are the majors’ challenges facing to implement CIP?

4. QUESTIONNAIRES IN KINYARWANDA

NITWA MUSABE B.LILIANE NDI UMUNYESHURI MURI SFB NKABA NDIMO GUKORA UBUSHAKASHATSI NDEBA UKO CIP YABA YARATEJE IMBERE ABAHINZI BUMUCERI MUNTARA Y ‘AMAJYEFO. AMAKURU MURI BUMPE AZANGIRIKA AKAMARO MURI UBU BUSHAKASHATSI KANDI AZAKORESHWA MURWEGO RWUBUREZI. MURAKOZE

ICYICIRO CYA 1 : AMAKURU AJYANYE N’IMIBEREHO Y’USUBIZA

(Muri iki cyiciro, andika muri buri kazu umubare ujyanye n’igisubizo)

<table>
<thead>
<tr>
<th></th>
<th>Akarere utuyemo</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Cooperative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Muhanga
2. Huye
3. Gisagara
4. Kamonyi
5. Nyanza
6. Ruhango

5. KIABR/Rugeramigozi
6. COOPRORIZ-Cyili
7. COOPRORIZ-Abahuzabikorwa/ Mukunguri
8. COOPRORIZ-

64
<table>
<thead>
<tr>
<th></th>
<th>Busoro/Kinyegenyeye</th>
<th></th>
</tr>
</thead>
</table>
| 3. | Igitsina cy’usubiza | 1. Gore  
2. Gabo |
| 4. | Irangamimerere y’usubiza | 1. Ingaragu  
2. Arubatse  
3. Umupfakazi  
4. yaratandukanye |
| 5. | Imyaka y’usubiza | 1. Munsi y’imyaka 20  
2. 21-30  
3. 31-40  
4. Hejuru y’imyaka 40 |
| 6. | Umubare w’abantu utunze murugo | 1. Munsi ya 5  
2. Hagati ya 5 kugeza 9  
3. Hejuru 10 |
| 7. | Amashuri yize | 1. Ntiyigeze agera mu ishuri  
2. Amashuri abanza  
3. Amashuri 9 abanza  
4. Amashuri yisumbuye  
5. Ubugenyi  
6. Ayandi--------Sobanura |
| 8. | Umwuga ukora | 1. Umuhinzi  
2. Umuhinzi mworozi  
3. Umuhinzi/Acuruza imyaka |

ICYICIRO CYA 2 : GUSESENGURA URUHARE RWA CIP MUGUTEZA IMBERE IMIBEREHO MYIZA Y’ABAHINZI BUMUCERI.
<table>
<thead>
<tr>
<th></th>
<th>Question</th>
<th>Options</th>
<th></th>
</tr>
</thead>
</table>
| 1. | Ufata ifunguro kangahe kumunsi?                                         | 1. Incuro imwe  
2. Incuro ebyiri  
3. Hejuru y’incuro ebyiri |   |
| 2. | Ese ufite ibiryo bihagije byo gutunga urugo rwawe?                       | 1. Yego  
2. Oya |   |
| 3. | Ese uarura umuceri uhagije w’urugo rwawe ugasagurira n’Isoko?            | 1. yego  
2. Oya |   |
| 4. | Ufite abana biga mumashuri y’isumbuye?                                  | 1. yego  
2. Oya |   |
2. Umwe  
3. Babiri  
4. Nta numwe  
5. Ibindi -------- vuga umubare wabo |   |
| 6. | Ninde wishyurira abo bana amafaranga y’ishuri                           | 1. Wowe ubwaye  
2. Abaterankunga  
3. Abandi ------------------------ (Bavuge) |   |
| 7. | Ni ba ari wowe wishyura amaranga y’ishuri, wishyura angahe kumwaka?     | 1. Munsi ya 30,000 Frw  
2. Hagati ya 31,000 Frw – 60,000 Rwf  
3. Hejuru ya 60,000 Rwf |   |
| 8. | Ushobora kwiishurira ubwishingizi byo kwivuza                           | 1. Yego  
2. Oya |   |
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>hamwe n’umuryango wawe?</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>9. Ese utunze inzu?</strong></td>
<td>1. Yego</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Oya</td>
<td></td>
</tr>
<tr>
<td><strong>10. Ni uyitunze isakaje iki?</strong></td>
<td>1. Ibyatsi</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Amategura</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Amabati</td>
<td></td>
</tr>
<tr>
<td><strong>11. Mugihe cy’ihinga n’isarura ujya ukenera abakozi bagufasha mu mirima</strong></td>
<td>1. Yego</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Oya</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Afafite agadahoraho</td>
<td></td>
</tr>
<tr>
<td><strong>13. Ni kurehe rugero CIP yazamuye umutungo wawe</strong></td>
<td>1. Kuri cyimwe cy a kabiri</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Wikubye kabiri</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Wikubye gatatu</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Ntabwo mbizi neza</td>
<td></td>
</tr>
<tr>
<td><strong>14. Ugira konte yo kuzigama</strong></td>
<td>1. Yego</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Oya</td>
<td></td>
</tr>
<tr>
<td><strong>15. A. Ubu kubona inguzanyo muri banki byaba bikorohera?</strong></td>
<td>1. Yego</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Oya</td>
<td></td>
</tr>
<tr>
<td><strong>B. Ukoresha iyihe bank</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>16. Guhinga umuceri byaba byaratumpye ushobora</strong></td>
<td>1. Inka</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Ingurube</td>
<td></td>
</tr>
<tr>
<td>Kwigurira itungo? Ni irihe</td>
<td>3. Ihene</td>
<td></td>
</tr>
<tr>
<td>--------------------------</td>
<td>--------</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Ayandi</td>
<td>-----------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(yavuge)</td>
</tr>
</tbody>
</table>

**ICYICIRO CYA 3: GUSESENGURA AKAMARO KA CIP MUKONGERA AGACIRO UMUCERI**

<table>
<thead>
<tr>
<th>Mbere ya gahunda ya CIP wahinga ha gute?</th>
<th>Uri wenyine</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Wabaga mwishyirahamwe</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ubu umusaruro waba wariyongereye</th>
<th>Yego</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Oya</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wemera ko CIP yaba yarongere ye umuceri agaciro mu bwinshi no mu bwiza</th>
<th>Ndabyemera cyane</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Ndabyemera</td>
</tr>
<tr>
<td></td>
<td>3. nsibyemera</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wemera ko CIP yazamuye igiciro cy’umureri</th>
<th>Ndabyemera cyane</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Ndabyemera</td>
</tr>
<tr>
<td></td>
<td>3. nsibyemera</td>
</tr>
</tbody>
</table>

**ICYICIRO CYA 4: INZITIZI ZA CIP NUKO ZABONERWA IGISUBIZO**

<table>
<thead>
<tr>
<th>Ni izihe nzitizi muhura nazo mugushira mubikorwa gahunda za CIP</th>
<th>Guhuza ubutaka</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Kubonera igihe imbuto zirobanuye</td>
</tr>
<tr>
<td></td>
<td>3. Kubona ifumbire muburyo bworoshye</td>
</tr>
<tr>
<td></td>
<td>4. Kubura ibikoresho bihagije</td>
</tr>
<tr>
<td></td>
<td>5. Kubura isoko ry’umuceri</td>
</tr>
<tr>
<td></td>
<td>6. Igiciro cy’umuceri kiri hasi</td>
</tr>
<tr>
<td></td>
<td>7. Ubumenyi bucye</td>
</tr>
<tr>
<td></td>
<td>8. Kubura abagoronome</td>
</tr>
<tr>
<td></td>
<td>9. Ibindi------------------- (bivuge)</td>
</tr>
</tbody>
</table>
5. RICE COOPERATIVES IN SOUTHERN PROVINCE

The Southern PROVINCE counts 11 subprojects under RSSP II financing dispatched up into 6 District and their direct beneficiaries are regrouped in 11 rice Cooperatives, as shown by the table below:

<table>
<thead>
<tr>
<th>No</th>
<th>Cooperative/Marshland</th>
<th>District</th>
<th>Crop</th>
<th>Area (ha)</th>
<th>Women</th>
<th>Men</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>COOPRORIZ-Nyarubogo</td>
<td>NYANZA</td>
<td>Rice</td>
<td>260</td>
<td>286</td>
<td>727</td>
<td>1,013</td>
</tr>
<tr>
<td>2</td>
<td>KIABR/Rugeramigozi</td>
<td>Muhanga</td>
<td>Rice</td>
<td>120</td>
<td>492</td>
<td>360</td>
<td>852</td>
</tr>
<tr>
<td>3</td>
<td>CORIBARU/Base</td>
<td>RUHANGO</td>
<td>Rice</td>
<td>170</td>
<td>335</td>
<td>440</td>
<td>775</td>
</tr>
<tr>
<td>4</td>
<td>COOPRORIZ-Cyili</td>
<td>HUYE-GISAGARA</td>
<td>Rice</td>
<td>250</td>
<td>646</td>
<td>762</td>
<td>1,408</td>
</tr>
<tr>
<td>5</td>
<td>CORIRU/Runukangoma</td>
<td>HUYE</td>
<td>Rice</td>
<td>100</td>
<td>332</td>
<td>655</td>
<td>987</td>
</tr>
<tr>
<td>6</td>
<td>COAIRWA/Rwasave</td>
<td>HUYE</td>
<td>Rice</td>
<td>187</td>
<td>568</td>
<td>966</td>
<td>1,534</td>
</tr>
<tr>
<td>7</td>
<td>COOPRORIZ-Abahuzabikorwa/ Mukunguri</td>
<td>KAMONYI</td>
<td>Rice</td>
<td>500</td>
<td>1650</td>
<td>1100</td>
<td>2,750</td>
</tr>
<tr>
<td>8</td>
<td>COOPRORIZ-Rusuli Rwanuginga &amp; Cyarubare</td>
<td>HUYE</td>
<td>Rice</td>
<td>160</td>
<td>942</td>
<td>778</td>
<td>1,720</td>
</tr>
<tr>
<td>9</td>
<td>COOPRORIZ-Agasasa</td>
<td>NYANZA</td>
<td>Rice</td>
<td>130</td>
<td>240</td>
<td>472</td>
<td>712</td>
</tr>
<tr>
<td>10</td>
<td>Coderika/Kanyegenyege</td>
<td>RUHANGO-NYANZA</td>
<td>Rice</td>
<td>35</td>
<td>143</td>
<td>200</td>
<td>243</td>
</tr>
<tr>
<td>11</td>
<td>COOPRORIZ-Busoro/Kinyegenyege</td>
<td>Nyanza/Ruhango</td>
<td>Rice</td>
<td>178</td>
<td>233</td>
<td>559</td>
<td>792</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>2,090</strong></td>
<td><strong>5,867</strong></td>
<td><strong>7,019</strong></td>
<td><strong>12,886</strong></td>
</tr>
</tbody>
</table>

ACTIVITIES SUPPORTED

The activities centred mainly on rural development by building capacity of rice cooperatives farmers, by developing marshlands, hillside development and rural infrastructures to help farmers to market their production.

These activities were done in partnership with mainly beneficiaries, local authorities, service providers, Consultants and contractors.