

**INFLUENCE OF VILLAGE COMMUNITY BANKS ON LIVELIHOOD
OUTCOMES IN RORYA DISTRICT, TANZANIA**

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS IN
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ABSTRACT

A number of Micro-Financial Institutions (MFIs) and Village Community Banks (VICOBA) have been working in Rorya District in providing financial services to support people's efforts to improve their livelihoods. However, the level of livelihood outcomes in terms of income, food security and housing is still low. Therefore, the study on which this dissertation is based was done with the main objective to determine the influence of Village Community Banks (VICOBA) on livelihood outcomes (income, food security and housing quality) in the district. The specific objectives were to evaluate services provided by VICOBA; to determine outcomes of activities undertaken by VICOBA members in terms of income, food security and housing quality; and analyse linkages between VICOBA delivered services and livelihood outcomes of VICOBA members. A cross-sectional research design was used, and probability and non-probability sampling methods were used to select wards, villages, Focus Group Discussants (FGDs), Key informants and respondents in six villages which had VICOBA groups. The sample size was 200 VICOBA members. In data collection, a questionnaire-based survey, key informant interviews and focus group discussions were used. The questionnaire based data were analysed using IBM SPSS Statistics Version 20 whereby descriptive analysis was done, and multiple linear regression was used to analyse the influence of VICOBA delivered services on livelihood outcomes among VICOBA members. The results showed that credit received, as a VICOBA service, had positive significant influence on household income ($\beta = 0.390$, $p \leq 0.001$) and on food security $p \leq 0.01$). Education of household head ($p \leq 0.001$) and household size ($p \leq 0.01$) had significant influence on the chances of owning a house roofed with an iron sheets roof. Conclusively, increased access to VICOBA services can boost livelihood outcomes in terms of household income, food security and housing

quality. Therefore, it is recommended that various actors should make more efforts in supporting VICOBA for the well-being of rural communities in Rorya District.

DECLARATION

I, **MWEMA DOTO SALUM**, do hereby declare to the Senate of Sokoine University of Agriculture that this dissertation is my own original work done within the period of registration and that it has neither been submitted nor being concurrently submitted in any other institution.

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Date

The above declaration is confirmed by:

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(Supervisor)

Date

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TABLE OF CONTENTS

| | |
|---|-------------|
| ABSTRACT..... | ii |
| DECLARATION | iv |
| COPYRIGHT | v |
| ACKNOWLEDGEMENTS | vi |
| DEDICATION | viii |
| TABLE OF CONTENTS | ix |
| LIST OF TABLES | xiv |
| LIST OF FIGURES | xv |
| LIST OF APPENDICES | xvi |
| LIST OF ABBREVIATIONS AND ACRONYMS | xvii |
| | |
| CHAPTER ONE..... | 1 |
| 1.0 INTRODUCTION..... | 1 |
| 1.1 Background to the Problem | 1 |
| 1.2 Statement of the Problem..... | 3 |
| 1.3 Justification of the Study..... | 4 |
| 1.4 Objectives | 5 |
| 1.4.1 Overall objective | 5 |
| 1.4.2 Specific objectives | 5 |
| 1.5 Study Hypotheses | 5 |
| | |
| CHAPTER TWO..... | 7 |
| 2.0 LITERATURE REVIEW | 7 |
| 2.1 The Concept of Microfinance | 7 |

| | | |
|--------------------------------------|--|-----------|
| 2.2 | Origin and Geographic Coverage of VICOBA | 8 |
| 2.3 | Livelihood | 11 |
| 2.3.1 | Livelihood assets | 12 |
| 2.3.2 | Livelihood activities..... | 13 |
| 2.3.3 | Livelihood outcomes..... | 14 |
| 2.3.4 | Livelihood outcomes indicators | 15 |
| 2.3.5 | Key livelihood activities and sources of income in rural areas | 15 |
| 2.4 | Does Microfinance VICOBA Influence the Livelihood Outcomes? | 16 |
| 2.5 | Theoretical Review..... | 17 |
| 2.5.1 | Microfinance theory of change (ToC) | 18 |
| 2.6 | Empirical Literature Review..... | 20 |
| 2.7 | Gaps in Literature | 24 |
| 2.8 | Conceptual Framework for the Study | 24 |
| CHAPTER THREE | | 26 |
| 3.0 RESEARCH METHODOLOGY..... | | 26 |
| 3.1 | Description of the Study Area | 26 |
| 3.2 | Research Design and Sampling | 27 |
| 3.3 | Sampling Techniques and Sample Size | 28 |
| 3.4 | Data Management..... | 30 |
| 3.4.1 | Determination of Adult Equivalent Units (AEU) | 30 |
| 3.4.2 | Food Security per adult equivalent per day | 31 |
| 3.4.3 | Determination of household income per adult equivalent per day | 32 |
| 3.4.4 | Determination of housing quality..... | 32 |
| 3.5 | Research Instruments and Data Collection..... | 33 |
| 3.5.1 | Research instruments | 33 |

| | | |
|---------------------------|--|-----------|
| 3.5.2 | Secondary information collection | 33 |
| 3.5.3 | Primary data collection | 34 |
| 3.5.3.1 | Pilot study | 34 |
| 3.5.3.2 | Operationalisation of the fieldwork | 34 |
| 3.6 | Data Analysis | 35 |
| 3.6.1 | Qualitative analysis | 35 |
| 3.6.2 | Quantitative analysis | 35 |
| 3.6.2.1 | Descriptive analysis | 36 |
| 3.6.2.2 | Inferential analysis | 36 |
| 3.6.2.3 | Multiple linear regression analysis | 37 |
| 3.8 | Limitations of the Study | 40 |
| CHAPTER FOUR | | 42 |
| 4.0 | RESULTS AND DISCUSSIONS | 42 |
| 4.1 | Socio-Demographic Characteristics of the Households Surveyed | 42 |
| 4.1.1 | Socio-economic characteristics of VICOBA respondents | 42 |
| 4.1.1.1 | Sex of household head | 42 |
| 4.1.1.2 | Age of respondents | 43 |
| 4.1.1.3 | Years of schooling of respondents | 44 |
| 4.1.1.4 | Marital status | 44 |
| 4.1.1.5 | Household size | 45 |
| 4.1.1.6 | Main occupation | 46 |
| 4.1.1.7 | Years of group operation | 47 |
| 4.2 | Services Provided by VICOBA | 47 |
| 4.2.1 | Services received by VICOBA members | 49 |
| 4.2.2 | Aim of the credit received | 51 |

| | | |
|---------------------------|--|-----------|
| 4.2.3 | Amounts of credit received by individuals | 52 |
| 4.2.4 | Livelihoods activities conducted after receiving VICOBA services | 53 |
| 4.3 | Outcomes of Activities Undertaken by VICOBA members | 54 |
| 4.3.1 | Outcomes of activities undertaken with respect to food security | 54 |
| 4.3.1.1 | Food security based on number of meals | 55 |
| 4.3.1.2 | Food Security Based on Caloric Food Poverty Line | 55 |
| 4.3.2 | Outcomes of activities undertaken with respect to income | 57 |
| 4.3.3 | Outcomes of activities undertaken with respect to housing quality | 61 |
| 4.4 | Linkages between VICOBA Services and Livelihood Outcomes of VICOBA Members..... | 63 |
| 4.4.1 | Monetary values of assets owned by members before and after VICOBA ... | 63 |
| 4.4.2 | Linkage between VICOBA services and incomes of VICOBA members | 64 |
| 4.4.3 | Linkages between VICOBA services and food security | 68 |
| 4.4.4 | Linkages between VICOBA services and housing quality | 71 |
| 4.5 | Relevance of Microfinance Theory of Change in Rorya District..... | 74 |
| CHAPTER FIVE | | 75 |
| 5.0 | CONCLUSIONS AND RECOMMENDATIONS | 75 |
| 5.1 | Conclusions..... | 75 |
| 5.1.1 | Conclusion delivered from the results meeting the first objective | 75 |
| 5.1.2 | Conclusion delivered from the results meeting the second objective | 75 |
| 5.1.3 | Conclusion delivered from the results meeting the third objective..... | 76 |
| 5.2 | Recommendations | 76 |
| 5.2.1 | Policy recommendation | 76 |
| 5.2.2 | District level recommendation | 76 |
| 5.2.3 | Community level recommendation | 77 |

5.2.4 Recommendation to NGOs..... 77

5.3 Recommendations for Further Research..... 77

REFERENCES 79

APPENDICES..... 98

LIST OF TABLES

| | | |
|-----------|--|----|
| Table 1: | Sample size of VICOBA members by villages in the study area (n = 200) | 29 |
| Table 2: | Adult equivalent scales for East Africa | 30 |
| Table 3: | Household economies of scale constants | 31 |
| Table 4: | Socio-economic demographic characteristics (n = 200) | 43 |
| Table 5: | VICOBA Services | 48 |
| Table 6: | Amounts of credit received by individual respondents (n = 200) | 52 |
| Table 7: | Livelihoods activities of VICOBA members (n = 200) | 54 |
| Table 8: | Food security determination based on incidence of food security per AE and number of meals (n =200) | 56 |
| Table 9: | Average of household food security per AE, income per AE per year and housing quality | 60 |
| Table 10: | Attributes of the houses in which the household head lived (n = 200) | 62 |
| Table 11: | Impact of some independent variables on income | 64 |
| Table 12: | Impact of some independent variables on food security | 68 |
| Table 13: | Influence of VICOBA indicators on chances of owning houses with iron sheet roofs | 72 |

LIST OF FIGURES

Figure 1: Conceptual framework for analysing VICOBA and Livelihood outcomes25

Figure 2: A Map of Rorya District showing the study Wards and Villages27

LIST OF APPENDICES

Appendix 1: Household questionnaire.....98

Appendix 2: Checklist for focus group discussion103

Appendix 3: Checklist of items for discussion with Key informants (leaders)104

Appendix 4: List of VICOBA groups interviewed.....105

Appendix 5: Tanzania Food Composition Table106

LIST OF ABBREVIATIONS AND ACRONYMS

| | |
|--------|---|
| AAEU | Adjusted Adult Equivalent Unit(s) |
| ADB | African Development Bank |
| AEU | Adult Equivalent Unit(s) |
| BOT | Bank of Tanzania |
| DCDO | District Community Development Officer |
| DCO | District Cooperative Officer |
| DDP | District Development programme |
| DEC | Dietary Energy Consumed or Consumption |
| DED | District Executive Director |
| FAO | Food and Agriculture Organization |
| FGD | Focus Group Discussion |
| GDP | Gross Domestic Product |
| IGAs | Income Generating Activities |
| IMF | International Monetary Fund |
| JENGA | Joint Encouragement of Gainful Activities Project |
| JOSACA | Jozani Savings and Credit Association |
| kCal | Kilocalories |
| Kg | Kilogramme |
| MDG | Millennium Development Goal(s) |
| MFI | Micro Finance Institution(s) |
| MLR | Multiple Linear Regression |
| MMD | Mata Masu Dubara (Hausa language of Niger). |
| NBS | National Bureau of Statistics |
| NGOs | Non-Governmental Organizations |

| | |
|--------|--|
| NSGRP | National Strategy for Economic Growth and Reduction of Poverty |
| OI | Opportunity International |
| PRIDE | Promotion of Rural Initiative and Development Enterprises |
| PRSP | Poverty Reduction Strategy Paper |
| RDC | Rorya District Council |
| SACCOS | Savings and Credit Cooperative Societies |
| SDGS | Sustainable Development Goals |
| SEDIT | Social and Economic Development Initiatives |
| SPSS | Statistics Package for Social Sciences |
| SSA | Sub-Saharan Africa |
| SUA | Sokoine University of Agriculture |
| TZS | Tanzanian shillings |
| UN | United National |
| UNDP | United National Development Program |
| URT | United Republic of Tanzania |
| VEO | Village Executive Officer |
| VICOBA | Village Community Bank |
| WB | World Bank |
| WEO | Ward Executive Officer |
| WFS | World Food Summit |

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the Problem

Historically, the microfinance sector has evolved and developed according to different patterns and growth paths in various countries and regions (Steel and Andah, 2003). Village Community Banks (VICOBA), like other micro-finance institutions, are considered to be ‘bankable’ micro-financial institutions for improving livelihoods of the poor in rural and urban areas (Kaberia and Allport, 2011). VICOBA, like other microfinance institutions, operate worldwide though in different names. In Asia, India and Bangladesh they are known as Self Help Groups (SHG). In Mozambique they are known as OPHIVELLA; in Uganda and Zanzibar they are known as JENGA and JOSACA respectively (Kihongo, 2005; URT, 2009; Khandker *et al.*, 2016). Moreover, VICOBA have proved to be the most effective lending model in Niger where they were established in 1991 under the name of MMD model (*Mata Masu Dubara*) which is literally translated as ‘women on the move’, founded by CARE International Niger (Mathenge and Mathenge, 2016).

In fact, the fast growing micro-finance/micro-credit programmes for the poor is based on a theoretical framework and a strong awareness that something needed to be done about the plight of the poor (Molenaar, 2009). According to Molenaar (2009), initially, most developing countries accepted microfinance as an instrument to combat poverty. Then it was acclaimed as an instrument to boost entrepreneurial initiatives. Subsequently, micro finance institutions (MFIs) developed comprehensive programmes offering a wider range of products and services to micro-entrepreneurs. Now, the sector is considered an industry, and legalization and regulatory frameworks have been developed and introduced in support of the sector.

Nevertheless, the importance of financial services to the poor, or “Microfinance”, remains internationally recognized as a means not only to fight poverty, but also to bring peace, as lasting peace cannot be achieved unless large population groups find ways in which to break out of poverty (Mader, 2016).

In the Tanzanian context, the lending model was firstly introduced in Zanzibar through CARE Tanzania in 2000, and later it was adopted by other conservation and community livelihood support projects in Pemba Island and Tanzania Mainland (Kihongo, 2005). In fact, VICOBA aims at empowering the less privileged community in urban, peri-urban and rural areas, both socially and economically (SEMIT, 2008; Ahlén, 2012). Also VICOBA in Rwanda and Uganda are viewed as an antipoverty, inclusive financial programme because they target and reach the poor, both men and women who often have limited access to formal financial institutions (Kitomari and Abwe, 2016).

Generally, VICOBA is a concept that empowers the vulnerable members of the community with knowledge and skills to fight poverty through mobilization of their own resources (i.e. savings) and utilization as loans to improve household livelihoods (Pissang, 2012) in terms of capabilities, assets, and activities required for a means of living (Chambers and Conway, 1992).

Livelihood outcomes (such as increased income, access to services, and improvement in general well-being, as well as sustainable use of natural resources) are directly influenced by dynamic changes of policies of financial and institutional factors (Scoones, 1998; Kollmair and Juli, 2002). However, the extent to which financial (micro-finances) factors, specifically VICOBA, influence household livelihood outcomes in terms of income, food security and housing quality is inadequately documented and empirically unknown in

Rorya District. Therefore, the aim of the study on which this dissertation is based was to determine the influence of VICOBA on the household livelihoods outcomes in Rorya district so as to contribute to filling in the above knowledge gap.

1.2 Statement of the Problem

Despite the presence of MFIs and VICOBA which have been working in Rorya District in providing financial services to support people's efforts to improve their livelihoods, the level of livelihood outcomes are still low. For example, in terms of income, 68% of the people lived under the national poverty line which is TZS 33,482 per adult equivalent per month in 2011/12 prices (NBS, 2014). In terms of food security the district was among food insecure districts (stressed) which required food aid intervention from the government (URT, 2012), and shelter (housing) is still low; about 64% live in grass thatched houses (only 36% live in houses with corrugated iron sheet roofs). Since 2000 the government, in collaboration with donor agencies, has been working to implement financial rural programmes with the goal of poverty alleviation. Some of these efforts include Village community Banks (VICOBA) and Savings and Credit Cooperative Organizations (SACCOs). Despite remarkable achievement of these initiatives, the majority of rural people still live under poor livelihoods (Mathenge, 2016).

Furthermore, existing literature in Tanzania shows that, in Babati and Arumeru districts, VICOBA have contributed to the livelihood improvement of poorer communities. The results show that VICOBA help to meet consumption needs, pay school fees and run small businesses (Ahlén, 2012; Bakari *et al.*, 2014). Moreover, a survey conducted by Taylor (2014) and Donaldson (2014) in Mvomero District revealed that VICOBA, apart from adding positive community impact, there was a need for more impact survey in order to corroborate the findings on a long-term. In addition, a report by CCT (2015) shows that, in

Rorya District, communities have been enjoying the presence of VICOBA as other districts in Mara Region with some outstanding stories of how poor community managed to improve their income and livelihood at large. However useful they are, it seems unclear in many of these studies on the levels of livelihood outcomes in terms of income, food security and shelter (housing). There is a need to understand the influence of VICOBA on livelihood outcomes. Therefore, the study on which this dissertation is based was intended to determine the influence of VICOBA on the household livelihoods outcomes in Rorya District so as to contribute to filling in the above knowledge gap.

1.3 Justification of the Study

Literature available on the influence of Village Community Banks (VICOBA) on livelihood outcomes is not sufficient. The available literature addresses the impact of VICOBA on long-term rural livelihoods (Taylor and Donaldson, 2014), including contribution of VICOBA to income (Ngalemwa, 2013); assessing the impacts of VICOBA in Babati District, Tanzania (Ahl'len, 2012); assessing the impact of VICOBA programmes in Rorya (CCT, 2015). Therefore, the study was undertaken in order to generate empirical information on the influence of Village Community Banks (VICOBA) on livelihood outcomes.

The study was important due to the fact that the findings of the study will contribute to the government's efforts in improving livelihoods of the people, which is needed by the majority of Tanzanians, especially the poor both in rural and urban areas. The findings of the study will also allow the providers of the financial support services such as government agencies, non-governmental organisations (NGOs) and the community to identify the areas of improvement in helping the VICOBA groups in Rorya and Tanzania in general.

The study also generated more information which is useful to development planners, policy makers and practitioners in relevant ministries and other bodies concerned in achieving livelihoods. Moreover, the study is in line with the Tanzania Development Vision (TDV) 2025, which intends to reduce income poverty through promoting sustainable development, employment enhancing development and Tanzania becoming a middle income country. The study was also in line with achieving the Sustainable Development Goals (SDGs), specifically goal number one which is aiming at ending poverty in all its forms and everywhere and goal number two which is aiming at ending hunger by securing food security and promoting sustainable agriculture.

1.4 Objectives

1.4.1 Overall objective

The overall objective of the research was to determine the influence of Village Community Banks on livelihood outcomes in Rorya District.

1.4.2 Specific objectives

Specifically, the study sought to:

- i. Evaluate services provided by VICOBA in Rorya District;
- ii. Determine outcomes of activities undertaken by VICOBA members in terms of food security, income and housing quality; and
- iii. Analyse linkages between VICOBA services and livelihood outcomes of VICOBA members.

1.5 Study Hypotheses

The study was also guided by research hypotheses for specific objectives two and three. The first hypothesis aimed at comparing monetary values of assets owned by VICOBA

members before and after undertaking activities done using support from VICOBA. The null and alternative hypotheses were:

H₀: Monetary values of assets owned by VICOBA members do not differ significantly before and after joining VICOBA.

H₁: Monetary values of assets owned by VICOBA members differ significantly before and after joining VICOBA.

The second hypothesis was to analyse influences of VICOBA services on livelihood outcomes of VICOBA members in terms of income and food security. The null and alternative hypotheses of this objective are presented below.

H₀: Village community Banks (VICOBA) factors do not have significant influence on household income and food security.

H₁: Village community Banks (VICOBA) factors have significant influence on household income and food security.

The third hypothesis aimed to find the influence of VICOBA indicators on housing quality. The null and alternative hypotheses for this objective are presented below:

H₀: VICOBA indicators do not have significant influence on chances of owning a house with an iron sheets roof.

H₁: VICOBA indicators have significant impact on chances of owning a house with an iron sheets roof.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 The Concept of Microfinance

Microfinance institutions have a history that goes the way back to the development and improvement of living standards of the people as well as livelihoods of the poorer in rural, peri-urban and urban areas (Molenaar, 2009). Microfinance is defined by various authors. According to Robinson (1998), microfinance is defined as a development tool that grants or provides financial services and products such as very small loans, savings, micro-leasing, micro-insurance and money transfer to assist the very or exceptionally poor in expanding or establishing their businesses. It is mostly used in developing economies where poorer people do not have access to other sources of financial assistance (Robinson, 1998). Along the same line, according to MoFEP (2008), “Microfinance encompasses the provision of financial services and the management of small amounts of money through a range of products and a system of intermediary functions that are targeted at low income clients. Microfinance refers to provision of small loans and other facilities like savings, insurance, transfer services to poor low-income household and microenterprises. Microcredit also refers to a small loan to a client made by a bank or other institutions”.

There are different providers of microfinance (MF) services, and some of them are: non-governmental organisations (NGOs), savings and credit cooperative societies (SACCOS), credit unions, government banks, commercial banks and non-bank financial institutions. The target group of such MFIs is self-employed low income entrepreneurs who are traders, street vendors, small farmers, hairdressers, rickshaw drivers, artisans, blacksmiths etc (Ledgerwood, 1999). Generally, micro-finance programmes are expected to improve the welfare of poor women and men by impacting the economically active poor who

would be helped to raise social welfare by promoting human capital investment (Kihongo, 2005).

In Africa, Microfinance Institutions emerged as a result of financial sector reforms, which took place in the 1990s aiming at developing sustainable, efficient and effective financial systems through intensification of monetary control, boosting deposit mobilization, enhancing the efficiency in financial services provision and financial resources allocation, structuring in debt banks and promoting the diversification of financial services hence leading to formation of informal financial institutions (Kibirango *et al.*, 1992). It was revealed that, in Africa, 27.9% of the low income communities who were previously un-served by formal financial institutions are now served by informal financial institutions such as Rotating Savings and Credit Association (ROSCAs), Village Savings and Loan Associations (VSLAs), and Village Community Banking (VICOBA) (Kitomari and Abwe, 2016).

2.2 Origin and Geographic Coverage of VICOBA

Historically, microfinance traces its origins to socio-economic and development objectives for poverty eradication among the very poor and vulnerable groups in communities. However, financial services available to the poor remain very limited, above all in Africa (Molenaar, 2009) such that convenient and affordable instruments for savings, credit, insurance, and payment transfers become essential both to cope with the economic fluctuations and risks that make the poor especially vulnerable, and to take advantage of opportunities to acquire productive assets and skills that can generate increased income (Steel and Andah, 2003).

VICOBA is a brain child of CARE's *Mata Masu Dubara* (MMD) project, a women's time-bound accumulating savings and credit association (ASCA) programme in rural Niger, where the project set the goal to help women cope with numerous and increasing responsibilities they faced in an increasingly unfavourable socio-economic and religious environment (Grant and Allen, 2002). In fact, *Mata Masu Dubara* (MMD, Ingenious Women or Women on the Move) which was designed by CARE International in 1991, in Niger, is the first version of Village Savings and Loans Associations (VSLAs) recognized as a strong model for delivering financial services in rural, remote areas (Hamadziripi, 2008).

The model was introduced in Tanzania as VICOBA by SEDIT, CARE and WCRP in 2002. However, apart from Tanzania, the model is in use in various countries like Mozambique where it is known as OPHIVELLA, in Uganda JENGA and Zanzibar JOSACA all of which are CARE International acronyms with modifications suiting local demands (Kihongo, 2005; URT, 2009; Ngalemwa, 2013).

There is evidence that the VICOBA concept was firstly introduced in Zanzibar before spreading to other parts of the United Republic of Tanzania (Ahlen, 2012) as being a grassroots based lending model, which focuses on fostering a participant's ability to innovate and manage viable income generating activities. From Zanzibar (Jozani-Chwaka Conservation Project) in year 2000, the lending model was later adopted by other conservation and community livelihood support projects in Pemba Island and Tanzania Mainland. The quick adoption and outspread of the model to various districts/projects is mainly due to the good results it has shown in the areas where it was initially introduced. The implementation of this model has penetrated almost all regions (19 out of 25 in 2009) in the United Republic of Tanzania where it attracted the government's attention (URT,

2009). In fact, the adoption of VICOBA is based on its suitability and effectiveness in catalyzing developmental initiatives (Ngalemwa, 2013).

Moreover, since its inception, the model has proved to be the most effective lending model in rural areas in various African countries such as Niger, Zimbabwe, Mozambique, Uganda, and Eritrea. According to Kaberia and Allport (2011), in the dry-lands of the Horn and East Africa, VICOBA/VSLA has shown to increase diversification of income leading to increased resilience to climate changes, specifically drought.

It is argued further that the VICOBA lending scheme has already proved to be one of the better tools for community emancipation socially and economically in Tanzania. The best performing cases identified include Ilala District VICOBA project with 18 groups between 2006 and 2008 which achieved an accumulation of approximately TZS 110 000 000.00 and gave out about TZS 120 000 000.00 as loans to its members in a period of eighteen months only. The Mtwara VICOBA project which covers Masasi, Newala and Nanyumbu Districts started in 2007 where groups' members raised about TZS 80 000 000.00 (SEDI, 2008). In Manyara too, the success in Loiborsiret Village, forced the Simanjiro District Council to give directives that even water schemes should be handed over to VICOBA groups. Currently, five villages have agreed to hand over livestock dips management to VICOBA i.e. Orkesmet, Naberera, Namalulu, Emboret and Komolo (SEDI, 2008).

Despite the efforts made through MFIs like VICOBA, there are various challenges and risks which hinder the expected progress. In fact, for decades, governments and donor agencies have been trying to establish viable financial systems to meet the productive needs of the populations in the rural areas across Africa. For a variety of reasons, few institutions have succeeded in sustainably delivering financial services to this target market (Grant and Allen, 2002).

The challenges/constraints noted in Tanzania by SEDIT (2008) include cultural constraints, educational level constraints, infrastructure constraints and lack of funds to contribute. Moreover, challenges like mushrooming of actors, lack of centralized documentation system, and different styles by different agencies targeting the same communities in Tanzania do affect the credibility of MFIs. VICOBA, like any other financial schemes, face a number of risks such as human capital which later affects agricultural productivity and the amount of money available for investment, limited access to markets and insecurity that undermine the functionality of VICOBA as they limit opportunities for investment or livelihood diversification (Kaberia and Allport, 2011). Nevertheless, the pillar of sustainability of VICOBA scheme depends much on the investment on the community's capacity building through training and support in establishment of communities savings and credit banking groups (Kaberia and Allport, 2011; SEDIT, 2008; Anglican Alliance, 2016).

2.3 Livelihood

Generally, little attention has been given to understanding people's livelihood (Levine, 2014). The hidden complexity behind the term 'livelihood' comes to light when governments, civil societies, and external organizations attempt to assist people whose means of making a living are threatened, damaged, or destroyed (International Recovery Platform, 2010). Extensively from literature (learning and practice), various definitions have emerged that attempt to represent the complex nature of a livelihood.

Livelihood is defined by Ellis (2000) as 'the asset, the activities and access that determine the living gained by the individual or household'. Chambers and Conway (1992) define livelihood as 'a means of gaining a living.' Moreover, according to WCED (1987), livelihood is 'adequate stocks and flows of food and cash to meet basic needs'. However,

Chambers and Conway (1992) modified the WCED (1987) panel definition and concluded that ‘A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living.’ Nevertheless, livelihood definition can be at different hierarchical levels, and the most commonly used descriptively is the household, usually meaning the human group which shares the same hearth for cooking (Chambers and Conway, 1992). Chambers and Conway (1992) added that a livelihood is sustainable when it can cope with and recover from stress and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base.

However, when it comes to an individual, a livelihood is the ability of that individual to obtain the basic necessities in life, which are food, water, shelter and clothing. Therefore, all activities involved in finding food, searching for water, shelter, clothing and all necessities required for human survival at individual and household level are referred to as a livelihood. It is worth noting that livelihoods are an important part of human existence, such that for a population to survive there is need for livelihoods that would sustain and support their households. However, rural livelihood is a complex structure comprising mostly agriculture, with part of the population diversifying into non-farm activities in order to attain a sustainable livelihood to get better income for their households (Mphande, 2016).

2.3.1 Livelihood assets

Assets are considered as people’s strengths, such that people endeavour to convert these strengths into positive livelihood outcomes, as it is believed that people require a range of assets to achieve positive livelihood outcomes. According to DFID (2000), the assets or capitals upon which livelihoods are built include: human capital (health, nutrition,

education, knowledge and skills, capacity to work, capacity to adapt), natural capital (land and produce, water and aquatic resources, etc.), social capital (networks and connections – patronage, neighbourhoods, relations of trust and mutual support, formal and informal groups, collective representation, participation in decision-making, leadership), physical capital (infrastructure–transport, secure shelter, water supply, energy; tools and technology–tools and equipment for production and agro-inputs), and financial capital (savings, credit/debt, remittance, pensions, wages).

Assets being stocks of directly or indirectly productive factors produce a stream of cash or in-kind returns (or what economic theorists typically call “endowments”) such as bank deposits, land, livestock, machinery, stores, transport equipment, etc. Indeed, asset and income distributions are analytically inextricable from one another (Barrett and Reardon, 2000), though there are different households with different access to livelihood “assets”, such that livelihood becomes affected by diversity of assets, amount of assets, and balance between assets. Moreover, there are a range and combination of multitude of different activities and choices that people make/undertake in order to generate positive livelihood outcomes and achieve their livelihood goals (DFID, 2000).

2.3.2 Livelihood activities

Livelihood activities refer to those activities involved in finding food, searching for water, shelter, clothing and all necessities required for human survival at individual and household level. According to Barrett and Reardon (2000), activities are particular uses to which productive assets are put, so activities are ex ante flows of asset services that map the stock concept of assets into the ex-post flows of income. For example, livestock can be allocated to crop production (plowing and manuring), to providing transport services (pulling carts), to milk production, or to reproduction (calf breeding), all activities that

generate income flows. Land can be allocated to crop production, livestock production, manufacturing, commerce, or services (e.g., recreation).

In addition, in the rural setting and populations, small-scale farming, fishing, raising livestock and doing non-farm activities are some of the common livelihoods that these populations survive on as a source of income (Mphande, 2016). Activities use productive assets, often a combination of multiple complementary assets, to generate incomes. For example, income from rice is a product of allocations of land, labour, and perhaps cash (transformed into purchased inputs), irrigation or other farm equipment or animals for traction and/or manure.

2.3.3 Livelihood outcomes

Livelihood outcomes are achievements or outputs of livelihood strategies, and poverty analyses have shown that people's ability to escape from poverty is critically dependent upon their access to assets. Different assets are required to achieve different livelihood outcomes (DFID, 2000).

Livelihood outcomes may possibly include higher levels of income, greater food security plus reduced vulnerability. Robinson (2001) and Zeller & Meyer (2002) state that microfinance has a positive influence on the livelihoods of women. Chowdhury & Bhuiya (2004) assessed BRAC's microfinance intervention in Bangladesh and came to a conclusion that microfinance led to an improvement in basic education, lower child survival rates, and children suffered less malnutrition related diseases than children of non-members.

Nevertheless, understanding livelihood outcomes should not be limited to assessing or measuring people's economic success; it can and should encompass all the dimensions of livelihoods which are most important to the people concerned, and be capable of guiding an understanding of the way in which people's economic and non-economic goals are intimately interrelated (Levine, 2014). Moreover, the understanding of outcomes, therefore, means being able to relate the outcomes, the choice of strategy and the various factors that are believed to be most likely to determine outcomes (Levine, 2014).

2.3.4 Livelihood outcomes indicators

Key livelihood outcomes indicators are meant to enable understanding of how an intervention or activities impact the lives of the poor people. These indicators need to represent the key components of livelihoods for the poor, measurement of which will allow to effectively ascertaining the intervention impact.

The livelihood outcomes indicators may include those related to various variables such as food security indicators which are quantity of food consumed per day, share of household budget or amount of money spent (expenditure) on food items, quality of the food or diet consumed, and food or diet diversity by type of household member(s). Economic security indicators include household income stream, household assets, and household debt levels, household savings levels. Shelter, water and sanitation security indicators include housing condition. Education security indicators include literacy rates, although other indicators related to variables such as gender do exist.

2.3.5.Key livelihood activities and sources of income in rural areas

In most rural areas of developing countries series of livelihood outcomes do emanate from the economic ways of life of farm households, and these outcomes lead to increased

financial ability of the households to acquire more land for farming, starting businesses, or hire more land for cultivation (Ndambiri *et al.*, 2012). Households are engaged in a number of livelihood activities such as agricultural production, and non-agricultural activities such as fishing activities, petty trading and provision of skilled and unskilled labour services (Balde *et al.*, 2014; Israr *et al.*, 2014). In most livelihood activities income has been said to be affected by various reasons such as seasonal changes (Dorward *et al.*, 2001). Also, income uncertainty can rise as a result of variability in a wide range of natural, market, social, or political variables (Dorward *et al.*, 2001). Nevertheless, the rural households diversify their income from both the farm and non-farm sources (Israr *et al.*, 2014) based on the assets at their disposal. Generally, there exists a relationship between assets with different functions and various livelihood activities and processes in pursuit of wellbeing (Dorward *et al.*, 2001).

2.4 Does Microfinance VICOBA Influence the Livelihood Outcomes?

Microfinance has become a buzz word in the credit markets as an effective tool for poverty reduction and socioeconomic development; yet, the impact is still questioned and varies from one country to another and from urban, peri-urban to rural areas (Samer *et al.*, 2015). However, according to Anand (2013), microfinance has the potential to become an important component of a successful and sustainable poverty alleviation programme. Generally, the livelihood outcomes are what poor households actually achieve by applying their livelihood strategies. The outcomes of livelihood would be sustainable if the people were able to ensure secure recovery from external stress and shocks and maintain or enhance its capabilities and assets (Anand, 2013). Moreover, Chowdhury and Bhuiya (2004) assessed BRAC's microfinance intervention in Bangladesh and came to a conclusion that microfinance led to an improvement in basic education, lower child

survival rates, and children suffered less malnutrition related diseases than children of non-members.

Similarly, Robinson (2001) noted that households of microfinance beneficiaries tend to have better nutrition, health education and health practices in comparison to households of non-microfinance beneficiaries. Also, Littlefield, Morduch, and Hashemi (2003) maintain that poor people with income obtained through microfinance activities invest in their children's education i.e. children are more likely to go to school and as well as stay longer in school in comparison to children of non-microfinance beneficiaries. Furthermore, Robinson (2001) and Zeller and Meyer (2002) pointed out that microfinance has a positive influence on the livelihoods of women. As access to microfinance leads to an enhancement in the quality of life of clients, a boost in self-confidence and has also helped in diversifying their sources of income, thereby increasing their income. For that matter, microfinance programme is generally perceived as one of the practical and attractive means for providing accessibility of the poor to credit and hence reducing poverty and achieving sustainable livelihoods (Anand, 2013). Nevertheless, Kitomari and Abwe (2016), in their study which was conducted in Meru District, concluded that some of the VICOBA (Microfinance) may not be considered as sustainable sources of livelihood strategies due to their failure to empower beneficiaries to cope with and recover from stresses and shocks.

2.5 Theoretical Review

The study on which this dissertation is based was guided by the Microfinance Theory of Change and the Sustainable Livelihood Theory. However, the Microfinance Theory of Change was found to be more appropriate to this study.

2.5.1 Microfinance theory of change (ToC)

The theory of change can be helpful for developing solutions to complex social problems. At its most basic, the theory of change explains how a group of early and intermediate accomplishments set the stage for producing long-range results (Anderson, 2004). Though the Theory of Change was popularized in the 1990s to capture complex initiatives, and outcomes-based according to Clark and Anderson (2004), the theory is quite useful in planning, participation, and evaluation such as in not-for-profit and government sectors to promote social change.

The mechanism by which VICOBA may affect people's lives can be thought of as a chain of events, with short-run behavioural changes from the programme, potentially leading to livelihood outcomes in the long-run. VICOBA have many factors, among which are savings, credit, training and a social welfare fund (insurance). Thus, by testing whether access to VICOBA leads to an overall change in the way VICOBA members manage their personal finances and the tools they use to finance expenditures and investments; these are short-run behavioural changes and immediate impacts of the outcomes.

If these changes occur as a result of the VICOBA programme, the expectation of members to save more also increases. Access to credit from VICOBA may lead to an overall addition of credit to individuals with no previous access to loans and an increase in the average loan amounts received by respondents. Credit could be used to invest in income generating activities, such as the purchase of agricultural and business inputs. Improved credit and access to the group's emergency or social funds may allow members to smoothen the impacts of economic shocks, unforeseen health expenditures and guarantee food security to the household. Higher investment of assets levels could lead to higher yields in agriculture and to growth in business ownership as well as increased income.

Access to VICOBA indicators may alleviate the impact of shocks on households, and easier access to lump-sums through savings, insurance, training and credit may lead to improvements in owning a house with an iron sheets roof and food security. The creation of livelihood outcomes in the longer term is largely dependent on the VICOBA programme's ability to lead to significant and relevant changes in short-term behavioural indicators, such as use of financial services to improve investments and smooth financial shocks and expenditures.

The variation of time to join a VICOBA programme placed the study sample at a point in the theory of change where we can test many of the behavioural impacts described above. It might be too early, however, to detect significant impacts in livelihood outcomes. Members might reasonably take two to three years before we could observe measurable changes in livelihood indicators.

Generally, the Microfinance Theory of Change describes a strategy or blueprint for achieving a given long-term goal. It identifies the preconditions, pathways and interventions necessary for an initiative's success. The classic microfinance theory of change is the same as the Theory of Change. However, it involves three steps that people from poor households are assumed to take to make the theory true (Dunford, 2012). First, they tap microfinance services (primarily as loans and/or savings); second, they invest this money in microenterprises; and third, they manage these microenterprises to yield enough returns on the investment to increase their household income and consumption-leading to poverty reduction. However, according to Dunford (2012), evidence to date makes the theory look problematic, first as many (perhaps half) of poor households don't tap microfinance services even when they are locally available; second, of those who do use microfinance services, many (perhaps half) do not invest part or any of their loans and/or

savings in microenterprises; and third, most of the microenterprises in which loans or savings are invested remain quite small with only modest returns on investment being generally not enough to lift the household out of poverty.

2.6 Empirical Literature Review

Studies have been conducted globally and to some extent locally (internationally and within the country) on the impact of microfinance (VICOBA) on improving livelihoods of people and poverty alleviation. Although micro-credit provides a paradigm shift in microfinance and contributed in defeating the notion of poor risk and not creditworthy when it is concerned about poor community (Akram and Hussain, 2015), some researchers have found a positive relationship, but others have found negative relationship and some others found mixed findings. Some of these empirical studies are discussed below, both from an international perspective and from a local perspective.

Akram and Hussain (2015), in a study to assess the contribution of microfinance in raising the living standard of low income people of District Okrara –Pakistan, reported a positive impact of microfinance on income level, and concluded that microfinance is efficiently serving the poor by increasing their income level. Moreover, satisfaction level about the services of microfinance institutions was also evidenced. Bhuiyan *et al.* (2012) revealed, in a study in Malaysia, that there is much contribution of microcredit towards the livelihood improvement of the poor borrowers. The study also concluded that microfinance is providing the poor with accessibility to credit to increase their Income Generating Activities (IGAs). ILO (1998) argues that micro-finance can positively impact on women's livelihood through raising their income which then helps them to better perform their reproductive roles and caring for the family. Increased incomes also enhance

their employment in micro enterprises and in improving IGAs, thus enhancing their self-confidence and status within the family as independent producers.

Obeng (2011) carried out a study on impact of microcredit on poverty reduction in rural areas: A case study of Jaman North District, Ghana. He used a questionnaire for data collection from programme beneficiaries and microfinance institutions and analyzed the data using tables, percentages and diagrams. The objectives of the study were to assess whether microfinance has engendered positive or negative outcomes in reducing poverty. The findings from the study were that people, especially vulnerable and marginalized ones, were getting access to credit which impacted positively on the poverty levels of the beneficiaries.

In a study conducted by Ezeh and Anyiro (2013) to determine the impact of micro-finance on poverty level of rural women farm households in Abia State, Nigeria, it was reported that the incidence of poverty or head count ratio was low (0.558) for the rural women farmers borrowers and high (0.933) for the rural women farmer non-borrowers. Also, poverty gap otherwise known as income short fall was low (0.4547) for the rural women farmer borrowers and high (0.6995) for the rural women farmer non-borrowers. They further concluded that the results showed that micro-finance impacted significantly on annual farm income of rural women farmer borrowers at given levels of significance, as well as recommending that increased funding by the micro-finance will significantly aim at reducing the poverty levels of these women.

Also, in a study to investigate the impact of microfinance on rural transformation in Nigeria, Odi *et al.* (2013) found that micro-finance had impacted positively on the rural poor by providing loans and advances for agriculture, investment opportunities, savings

mobilization and credit delivery, asset financing and community development financing. However, despite the achievements of microfinance in transforming the rural areas they have met with stiff difficulties like repayment problem, illiteracy among the poor and inadequate or non-monitoring of micro and small enterprises by the micro financial institutions.

Similarly, Boateng *et al.* (2015), in a study to assess the impact of microfinance on poverty reduction in Ghana, found that microfinance impacts positively and a majority of respondents reported their expectations were met, and they were satisfied with the efforts of the microfinance institutions. Moreover, 80% of the respondents reported an increase in their income levels after micro-finance. None of the respondents reported a reduction in income levels. Their data confirmed positive correlation between microfinance and income levels. In addition, the respondents further reported a relationship between microfinance and asset –housing, whereas 47% reported increased asset -housing. The data revealed that despite the respondents' access to micro-finance, a large portion of the loans went to businesses and family upkeep.

In Tanzania, Wairanyagania (2011) carried out a study to investigate the determinants of participation in microfinance and its impact on household poverty in Musoma District, Tanzania, Primary data were gathered from 116 households both members and non-members of VICOBA. The results indicated that characteristics of the household heads (gender, years of schooling, marital status and occupation), household characteristics (household size in terms of number of members) affected participation in microfinance. On the other hand, years of schooling, household participation in microfinance, distance from households to main roads and interest rates affect incomes. Of essence, participation in microfinance was seen to alleviate household poverty. In Newala District, Tanzania, a

study by Kambuga (2013) on contribution of VICOBA to supporting the Most Vulnerable Children (MVCs) found that members of VICOBA save money for improvement of their livelihood but they were also supporting MVCs, who were left by their parents who died from HIV/AIDS. He insisted that members of VICOBA are very careful on expenditures.

SEMIT (2014) argues that loans given by VICOBA groups are normally soft and affordable to the poor and are utilized to Support IGAs that are carefully selected, based on the demand of individual members, appropriate technology and locally available resources. Money accumulated is used in future as initial capital. Members save their money for not less than the first 3 to 4 months of the new cycle, then lending to group members starts (SEMIT, 2014).

Zeller and Sharma (1998) argue that microfinance can aid in the improvement or establishment of family activities, potentially making the difference between alleviating poverty through improving livelihoods and economically secure life. On the other hand, Burger (1989) indicates that microfinance tends to stabilize rather than increase income and tends to preserve rather than to create jobs. Facts by Coleman (1999) suggest that the village bank credit did not have any significant and physical asset accumulation. The women end up in a vicious cycle of debt as they use the money from the village banks for consumption purposes and are forced to borrow from money lenders at high interest rates to repay the village bank loans so as to qualify for more loans. The main observation from this study was that credit was not an effective tool to help the poor out of poverty or enhance their economic conditions. It was also concluded that the poor are too poor because of some other hindering factors such as lack of access to markets, price stocks, unequal land distribution but not lack of access to credit. This view was also shared by Adams and Von Pischke (1992).

2.7 Gaps in Literature

Many research projects have been conducted on linkage between independent and dependent variables, including the examples reviewed in Section 2.6 (the section of empirical review). However, in spite of substantial efforts which the researcher made to find previous related studies, in this study but such linkages with the dependent variable (income, food security and housing quality) were not found. That is why the research was undertaken.

2.8 Conceptual Framework for the Study

According to Smyth (2004), a conceptual framework is structured from a set of broad ideas and theories that help a researcher to accurately identify the problem they are looking into and frame their questions and find suitable literature. A conceptual framework helps the researcher to clarify the research questions and aims. Mugenda and Mugenda (2003) further add that a conceptual framework gives an explanation of how the researcher perceives the relationship between variables deemed to be important in a study.

Therefore, the main variables for the research were livelihood outcomes in terms of income, food security, and housing quality. These are dependent variables whose variations are hypothesised to be influenced by independent, intermediate and background variables. The independent variables (VICOBA indicators) are assumed to influence the dependent variables (increase/decrease of income, increase/decrease in food security and housing quality). The hypothetical relationships among the above groups of variables are illustrated in Fig. 1.

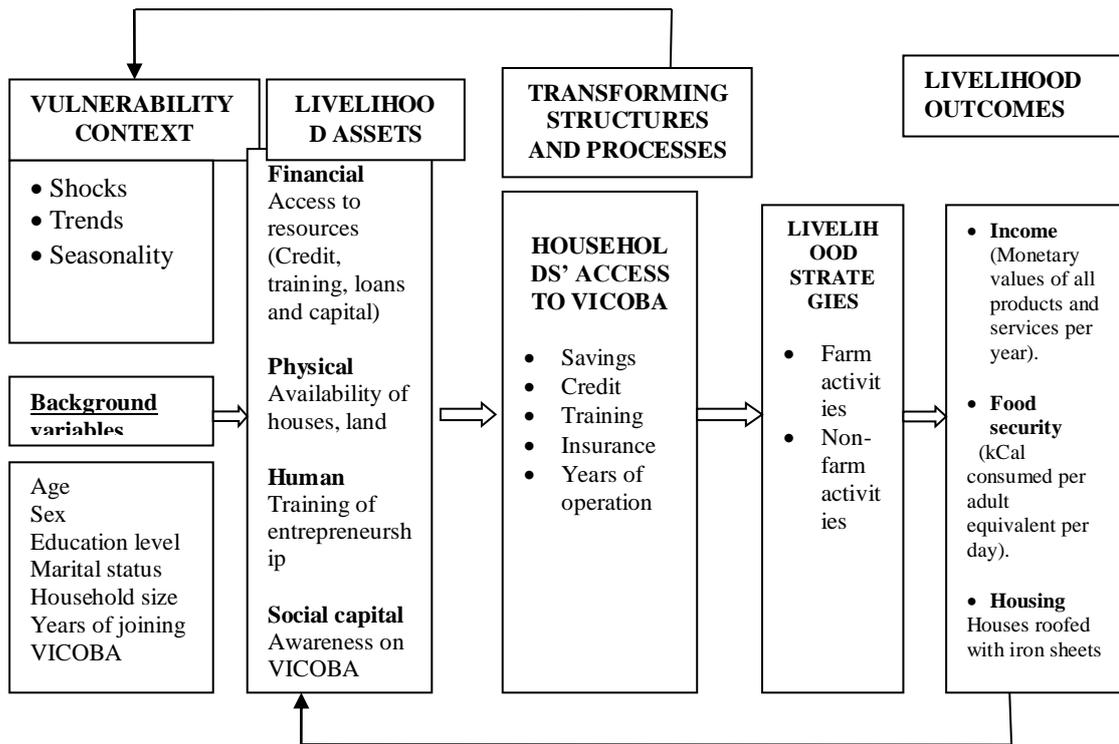


Figure 1: Conceptual framework for analysing VICOBA and Livelihood outcomes

Source: Adapted from DFID (2000)

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

This chapter contains details about the description of the study area, research design, target population, sample and sampling procedure, data validity and reliability, and data presentation. It also includes the data collecting instruments, data collection procedures, pilot testing procedures as well as a model for analyzing the data in order to come up with answers to the research questions.

3.1 Description of the Study Area

The study was conducted in Rorya District (Fig. 2), which is one among eight districts of Mara Region. The place was selected because it was one of the districts which were supported by SIDA to establish Village Community Banks (VICOBA) in 2007, before SEDIT took over after the phase out of District Development programmes (DDP) in 2008. The district is situated in the North of Tanzania (Fig. 2) and lies between latitudes $1^{\circ} 00''$ and $1^{\circ} 45''$ South and longitudes $33^{\circ} 30'$ to $35^{\circ} 00'E$. In 2012, the district had a total population of 265 241 people who included 126 247 males and 138 994 females, with an average household size of 5.0 (URT, 2013) The main economic activities are agriculture, livestock and fishing that do play a significant role in people's livelihoods and the economy of the district (RDC, 2014). Administratively, the district is divided into four divisions (Nyancha, Suba, Girango and Luoimbo), 26 wards, 86 villages and 576 hamlets (RDC, 2014). The study was done in 6 villages, which were selected from three wards of Kisumwa, Kirogo and Roche (Fig. 2). Those villages were Nyanchabakenye, Kisumwa, Kirogo, Nyabiwe, Roche and Osiri. The main inhabitants of Rorya District are the Luo, the Kurya and the Suba, with few people of other ethnic groups including the Sweta, Kine, and Luli who have immigrated into the area for the purposes of fishing activities.

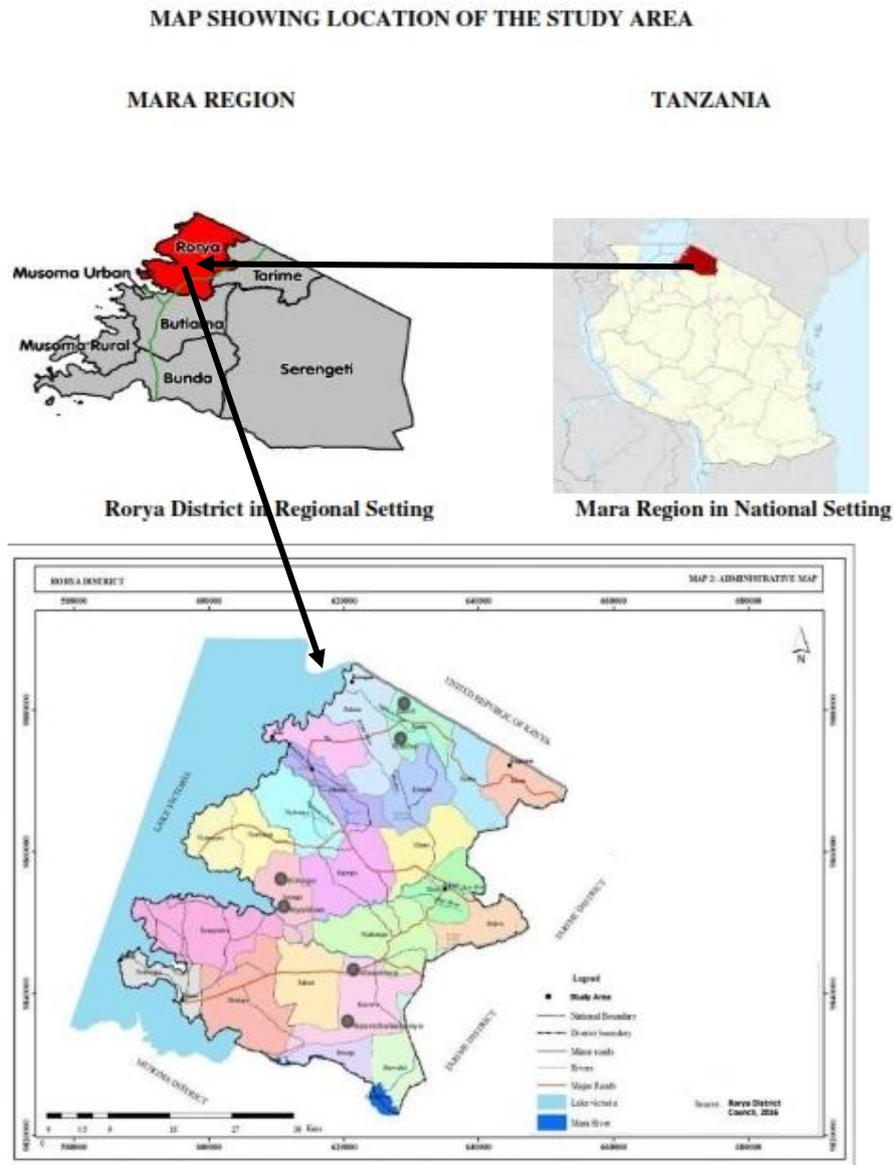


Figure 2: A Map of Rorya District showing the study Wards and Villages

Source: Land Department, Rorya District Council

3.2 Research Design and Sampling

A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine the research purpose with economy in procedure (Kothari, 2009). Given that this was a survey research, a cross-sectional research design was applied. The design was favourable because of various reasons, especially the nature of the study objectives, which allowed data to be collected at a single point in one time by using a structured questionnaire as described by Babbie (1990). Also, it was considered to

be a useful design because of time limitation, given that the registration for the Master's Degree was two years, the first one of which was for coursework. Furthermore, the nature of the study objectives necessitated the use of the design in order to compare livelihood outcomes before and after joining VICOBA. In addition, the design was selected for the reason that the nature of sampling technique which was used (probability sampling) is the sampling which deals with various characteristics of the population; hence it was technically sound to generalize results from the sample to the population from which the data were collected.

3.3 Sampling Techniques and Sample Size

The sampling frames from which the sample was drawn were six villages within three wards (Kisumwa, Roche and Kirogo). The population for this study comprised all members of VICOBA groups (Appendix 4) within the study area. The selection of three wards, and six villages was done in consultation with relevant officials of Rorya District.

A combination of simple random sampling (probability) and purposive sampling (non-probability) was used to select villages and respondents. Purposive sampling was used to select wards and villages based on the availability of VICOBA groups. The selection was purposive because only villages with large numbers of VICOBA groups in the study area were picked for the next stage of sampling. Purposive sampling was also employed to select some members for focus group discussions based on sex, age, experience, leadership and influence in the community. One focused group discussion (FGD) was conducted in each ward. Each group consisted of 8 people making a total of 24 people for all the three wards. That number of participants per FGD was within the range of 8 to 10 (Bryman, 2004; Willig, 2013) for the arguments that too few participants may not have enough knowledge to discuss difficult topics effectively, and that if the participants are too

many some of them may just remain silent. The main aspects discussed were how VICOBA influence livelihood outcomes (food security, income and housing quality) based on views of local communities (men and women).

The sample consisted of VICOBA members from the six villages mentioned above. VICOBA members were first stratified into male and female, and then simple random sampling using the lottery method was used to select male and female VICOBA members from their respective strata and the sampling unit of analysis was individual. Proportionate stratified sampling was employed to select the numbers of VICOBA members from each of the selected villages. Lists of VICOBA members registered by the village authorities for the years 2008 to 2016 were obtained from village Governments. The overall sample size, therefore, consisted of 200 (Table 1). The sample size of 200 cases was based on literature which says that regardless of the population size the minimum sample size for a study in which statistical data analysis is to be done should be at least 30 and that in most researches 100 cases are taken (Bailey, 1994). The sample size was also justified on the fact that “too large a sample implies a waste of resources, and too small a sample diminishes the utility of the results” (Cochran, 1977, cited by Bartlett *et al.* (2001).

Table 1: Sample size of VICOBA members by villages in the study area (n = 200)

| Names of divisions | Names of wards | Names of villages | Sub-sampling frames | sampling fractions | Sub-samples | Percent (%) |
|--------------------|-----------------|-------------------|---------------------|--------------------|-------------|--------------|
| Nyancha | Kisumwa(12,447) | Kisumwa | 2580 | 0.015 | 39 | 19.5 |
| | | Nyanchabakenye | 2709 | 0.022 | 59 | 29.5 |
| Luoimbo | Kirogo (7,250) | Kirogo | 1615 | 0.019 | 30 | 15.0 |
| | | Nyabiwe | 1402 | 0.019 | 26 | 13.0 |
| Girango | Roche (8728) | Roche | 3027 | 0.012 | 35 | 17.5 |
| | | Osiri | 2100 | 0.005 | 11 | 5.5 |
| Total | 3 | 6 | - | - | 200 | 100.0 |

3.4 Data Management

Determination of adult equivalent units, food security, income and housing quality are reported on in Sub-sections 3.4.1, 3.4.2, 3.4.3 and 3.4.4 respectively.

3.4.1 Determination of Adult Equivalent Units (AEU)

In order to calculate Adult Equivalent Units (AEU) units, the sex and age of every individual in the household must first be known. This is done because household size includes people with different ages and sex and household sizes are greater than AE units. This is because children, women and old people are less than average adults in terms of essential needs, especially dietary energy. AEs consider children to be equivalent fractions of adults. A two-step procedure is used; in the first step constants reflecting caloric requirements by age and sex are added up for every household member to get all the household members in terms of AEs. The constants are presented in Table 2. For example, if a household has six members who are: a) female aged 37 years, b) female aged 45 years, c) male aged 15 years, d) male aged 13 years, e) male aged 11 years and f) male aged 17; they are equivalent to 0.88 (First Person) + 0.88 (Second Person) + 1.20 (Third Person) + 1.00 (Fourth Person) + (Fifth Person 0.80) + 1.20 (Sixths Person)) = 5.96 adult equivalent units. However, the value 5.96 is not used directly as a denominator for computing values per adult equivalent because of economies of scale.

Table 2: Adult equivalent scales for East Africa

| Age group | Sex | |
|-----------|------|--------|
| | Male | Female |
| 0 – 2 | 0.40 | 0.40 |
| 3 – 4 | 0.48 | 0.48 |
| 5 – 6 | 0.56 | 0.56 |
| 7 – 8 | 0.64 | 0.64 |
| 9 – 10 | 0.76 | 0.76 |
| 11 – 12 | 0.80 | 0.88 |
| 13 – 14 | 1.00 | 1.00 |
| 15 – 18 | 1.20 | 1.00 |
| 19 – 59 | 1.00 | 0.88 |
| Above 60+ | 0.88 | 0.72 |

Source: Latham (1965, cited by Collier *et al.*, 1990)

After the above is done, the second step follows which involves adjusting the above adult equivalent units for economies of scale due to the fact that larger households need fewer amounts of resources per person due to sharing some facilities. The adjustment was done by multiplying the AE units by average cost constants given in Table 3. Therefore, since 5.96 is approximately equal to 6, then 5.96 was multiplied by 0.778, which is the average cost (Table 3) corresponding to six adults living together, in order to adjust 5.96 for economies of scale.

Table 3: Household economies of scale constants

| Household size (Number of adults | Marginal cost | Average cost |
|----------------------------------|---------------|--------------|
| 1 | 1.000 | 1.000 |
| 2 | 0.892 | 0.946 |
| 3 | 0.798 | 0.897 |
| 4 | 0.713 | 0.851 |
| 5 | 0.632 | 0.807 |
| 6 | 0.632 | 0.778 |
| 7 | 0.632 | 0.757 |
| 8 | 0.632 | 0.741 |
| 9 | 0.632 | 0.729 |
| Above 10+ | 0.632 | 0.719 |

Source: Deaton (1980, cited by Collier *et al.*, 1990)

Hence, the AE equivalent units are 4.63688, i.e. 5.96×0.778 . This should be the denominator for calculating values per AE in that household. The procedure was followed for every household in the sample for study on which this dissertation is based. If the six-people households consumed 9305 kcal per day, their DEC per adult equivalent per day would be $9305/4.64$, which 1166 kcal per AE per day.

3.4.2 Food Security per adult equivalent per day

In order to determine food security per adult equivalent per day, all food items consumed by all household members were used. Based on data collected using a household questionnaire, quantities of all food items consumed for 30 days were recorded. Quantities

of dietary energy consumed in all the food items were computed based on Tanzania Food Composition Tables Lukumanji *et al.* (2008) by multiplying kilograms of foodstuffs consumed by amounts of kCal contained in one kilogram of such foodstuffs. Dietary energy consumed per capita and per adult equivalent per day were obtained by dividing all kCal consumed per household per day by household size and by household's adjusted adult equivalent units respectively. Households were said to be food insecure if they had consumed less than 2100 kCal per capita per day or less than 2200 kCal per adult equivalent per day.

3.4.3 Determination of household income per adult equivalent per day

A household's annual income refers to the sum of earnings of a household from both off-farm and on-farm sources (Babatunde *et al.*, 2007). For this dissertation, a household's total annual income was calculated by taking the net monetary values of all the products (crops and livestock) which were obtained in question number 14 (in Appendix 1) per year, and all the net revenues obtained from all non-agricultural activities per year which were in question number 15 (in Appendix 1). This means that income was measured by using net monetary values of all products and services per year per capita and per adult equivalent. The calculation for obtaining income was as follows: Net annual household income = Net annual household obtained from agricultural activities (Net monetary value of all products and by-products) per adult equivalent unit (AEU) + Net annual household obtained from non-agricultural activities per adult equivalent unit (AEU).

3.4.4 Determination of housing quality

Housing quality has many elements and can be defined in many ways. A targeted definition of housing quality in this dissertation is based on the aspects of the house such as roof materials, wall materials, floor materials, window material, access to electricity

(main source of light) used in the light. On all these attributes, the respondents were asked in question number 18 (Appendix 1). In this study the quality of the house was measured by the type of roof which was used (A house roofed with iron sheets) because in Rorya District the roof is the most important/expensive part of other parts of a house.

3.5 Research Instruments and Data Collection

3.5.1 Research instruments

The study utilized three sets of research instruments to obtain the required information. A structured questionnaire with both open and closed ended questions was the main instrument. The questionnaire was designed to capture household demographic characteristics, services provided by VICOBA, all economic activities performed by VICOBA members, assets owned in households, and households' income. The other two instruments were a checklist of items for discussion with key informant interviews, particularly the District Community Development Officer and District VICOBA coordinator, and a guide for focus group discussions.

3.5.2 Secondary information collection

Secondary information from published and unpublished sources were obtained from different documents including reports from different sources as follows: Rorya District Council official reports, WDC and Village reports, statistical reports and annual reports of VICOBA groups which were obtained from the Department of Community Development in Rorya District. During data collection information was collected from Rorya District Council on the role of VICOBA on poverty reduction among rural women. The information was useful in establishing the background of the study. Secondary information also assisted in filling in gaps related to understanding the influence of VICOBA indicators on livelihood outcomes (income, food security and housing quality).

3.5.3 Primary data collection

Primary data are actual raw data that are collected by the researcher from subjects, objects or other units of measurement (Mugenda and Mugenda, 2003). To meet of the study's general and specific objectives, a questionnaire (Appendix 1) was used to collect data. Key informant interviews were also held with people who were considered to have in-depth understanding and knowledge on VICOBA in the district. The key informants included District Community Development Officers (DCDO), District VICOBA Coordinator (DVC), VICOBA Group Leaders, VICOBA Facilitators (VF) and Village Executive Officers (VEOs). Three focus group discussions were conducted in the 3 wards (1 FGD per ward) with 8 to 10 VICOBA members.

3.5.3.1 Pilot study

Before the instruments that were formulated for the research were used for actual data collection, they were pre-tested (pilot study) in Rorya District to ensure that any misunderstandings, anomalies and ambiguities in the questionnaire were identified and removed. In essence, the pre-testing helped to improve the research tools by enhancing clarity and ensuring that they were devoid of ambiguity, which might create problems during both the recording and analysis of data. In addition, the pre-testing helped to determine the validity of the questions in the questionnaire. Three VICOBA groups with 24 cases (an average of 8 credit beneficiaries from three VICOBA groups) were asked to participate in filling out the questionnaire copies during the pilot phase. For most questionnaires, the minimum number for a pilot study is 10 (Saunders *et al.*, 2000).

3.5.3.2 Operationalisation of the fieldwork

Fieldwork was conducted from October to December 2016. Appointments were made at least one day before the interview date, explaining the purpose of the study to relevant

authorities. The objectives of the study were explained to each respondent prior to interviews in order to create a common understanding between the interviewer and the interviewee. Individual VICOBA members were interviewed at their homes, and their responses were recorded immediately. To overcome language barrier, the interviews were conducted in both Swahili and Luo languages. The responses were recorded in English or Kiswahili, but they were entered into the computer in English.

3.6 Data Analysis

Quantitative primary data were coded and entered into IBM SPSS Statistics Version 20 Software after cleaning and compiling them. Qualitative and quantitative data analysis methods were employed as described below.

3.6.1 Qualitative analysis

Qualitative data from key informants and focus group discussions were analyzed using content analysis, which entails examining data items, themes and discourses (Wilkinson, (2004). Content analysis is a technique widely used in qualitative research to understand and interpret the content and internal features of a written text (Mugenda and Mugenda, 2012). In analyzing this information, emerging themes and sub-themes were developed in relation to the main variables that they addressed. Content analysis was done basically by analyzing verbal texts and written information from secondary sources, comparing them with other related sources of information.

3.6.2 Quantitative analysis

The primary quantitative data that were collected were analysed using the IBM SPSS Statistics Version 20 Software. Data were analysed by computing descriptive statistics to

determine frequencies, percentages, statistical means, and standard deviations of individual variables.

3.6.2.1 Descriptive analysis

Descriptive statistics included frequencies, percentages, minimum and maximum values, statistical means and standard deviations. These were used to describe specific objective one and two respectively, which were on evaluation of services provided by VICOBA and determination of outcomes undertaken by VICOBA members respectively.

3.6.2.2 Inferential analysis

Besides the above descriptive analyses, inferential analyses were done to test the three hypotheses of the research. In testing the first hypothesis, which stated that livelihood outcomes in terms of income, food security and housing quality do not differ significantly before and after joining VICOBA, a paired sample t-test was used to compare levels of the livelihood outcomes before and after joining VICOBA. Furthermore, the second hypothesis, which states that Village Community Banks (VICOBA) factors do not have significant influence on household income and food security was tested using multiple linear regression model (MLR), which was run two times determining the linkages between VICOBA services and income and security of VICOBA members. Moreover, on hypothesis three, the influence of VICOBA indicators on housing quality was determined using binary logistic regression model (BLRM) because housing quality was a dummy (house roofed with iron sheets = 1; Otherwise = 0).

3.6.2.3 Multiple linear regression analysis

Multiple regression analysis represents a logical extension of two variables regression analysis. Instead of a single independent variable, two or more independent variables are used to estimate the values of a dependent variable (Gupta, 1990).

For objective three, multiple linear regression was used. Before running it, multicollinearity diagnostics were tested in order to detect whether there was correlation among the independent (X_i) variables. According to Pallant (2005), Variance Inflation Factors (VIF) values above ten is a common cut-off point for determining multicollinearity; VIF values above ten indicate multicollinearity. For this case, variables that were highly correlated (credit provided and credit received) were not included in the analysis, indicating that VIF values for ten variables was around or less than ten; there was no multicollinearity observed in the results, which implies that there was no linear relationship between and among two or more of the independent variables.

Again Pallant (2005) argues that multiple linear regression requires variables to be entered in such a model to have normal distributions for both dependent and independent variables. Therefore, before running the regression analysis, transformation of skewed data was done to make them have normal distributions. Before running multiple regressions, the dependent variables and the independent variables were first checked for normality and multicollinearity. Normality was checked by computing distribution curves of all the variables and observing them visually to find whether any of them was skewed. Credit received was skewed; hence it was transformed by computing its Z-scores which were then used together with the other independent variables which were not transformed. Multicollinearity was checked by computing tolerances and variance inflation factors (VIF). According to Landau and Everitt (2004), tolerance values of less than 0.1 and VIF

values of more than 10 show that there is multicollinearity. Based on this study, the tolerance values were more 0.1 and above, VIF values were less than 10. This implies that there was no multicollinearity among the variables.

Multiple linear regression model was run to measure the influence of VICOBA services or factors as independent variables as well as determine the role of each variable in explaining the variances in the dependent variables. According to Pallant (2005), the number of independent variables that are required in the multiple regression analysis is calculated by the following formula $N > 50 + 8m$ (where m = number of independent variables). Therefore, in this study, according to the number of household included in the analysis, 10 independent variables were required for the analysis.

The multiple linear regression (MLR) model that was used was specified as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \varepsilon$$

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \varepsilon, \text{ where:}$$

Where: Y = Household income per year per adult equivalent and food security in terms of kilocalories consumed per adult equivalent per day¹.

X_1 = Sex (1 = Male; 0 = Female)

X_2 = Marital status (1 = Married; 0 = Otherwise)

X_3 = Received insurance (1 = Yes; 0 = No)

X_4 = Received training (1 = Yes; 0 = No)

X_5 = Education level (Measured in years of schooling)

X_6 = Credit received (1 = Yes; 0 = No)

X_7 = Having savings (1 = Yes; 0 = No)

¹ Multiple linear regression was run twice using the same independent variables on which livelihood outcomes (income and food security) were regressed differently.

x_8 = Household size (number of members)

x_9 = Age (measured in years)

x_{10} = Years of joining VICOBA group (measured in actual numbers)

β_0 = Constant

$\beta_1 \dots \beta_n$ = Coefficients

ε = An error term

Usually, the degree to which two or more predictors, independent or X variables are related to the dependent (Y) variable is expressed by the correlation coefficient R, which is the square root of R-square. The sign of regression coefficients β is used to interpret the direction of relationship, that is, if the coefficient is positive, then the relationship of this variable with the dependent variable is positive. This means that the better the VICOBA services the greater the achievement of livelihood outcomes.

Moreover, inferential analysis was done using binary logistic regression to determine the impact of VICOBA indicators on chances of owning a house with an iron sheets roof. By doing so, the third hypothesis of the research was tested. The statistical model and the variables that were used are presented below.

The binary logistic regression model was specified as follows:

Logit (π) = $\log(\pi/1-\pi) = b_0 + b_1x_1 + b_2x_2 + \dots + b_kx_k$ (Powers and Xie, 2000), where:

Logit (π) = $\ln(\text{odds}(\text{event}))$, that is the natural log of the odds of an event (chances of owning a house with an iron sheets roof = 1 and otherwise = 0) occurring

π = prob (event), that is the probability that the event will occur

$1-\pi$ = prob (non-event), that is the probability that the event will not occur

b_0 = constant of the equation

b_1 to b_k = coefficients of the independent (predictor, response) variables

k = number of independent variables

x_1 to x_i = independent variables entered in the model, which were:

X_1 = Marital status (1= Married; 0 = Otherwise)

X_2 = insurance received (1 = Yes; 0 = No)

X_3 = Training received (1 = Yes; 0 = No)

X_4 = Education level (Measured in years of schooling)

X_5 = Having savings (1= Yes; 0 = No)

X_6 = Household size (number of members)

X_7 = Credit received (1 = Yes; 0 = No)

X_8 = Age (measured in years)

X_9 = Years of joining VICOBA (measured in actual number)

3.8 Limitations of the Study

The study was faced by a number of challenges. The first limitation was based on both primary and secondary data. As regards primary data, some of the information required memory recall of amounts of assets or savings owned before joining VICOBA. The work of recalling information proved to be somehow difficult to some respondents; hence the data collected needed to be taken with great concern. The importance of recall data has also been pointed out by Gibson and Kim (2007), cited by Urassa (2010) that retrospective surveys are mainly used as a substitute for longitudinal data which involve high costs and are of limited availability, particularly in developing countries such as Tanzania. The current study tried to assist the respondents recall their assets owned by all household members by asking them to show the amounts and monetary values of assets owned by all household members before being a VICOBA members. This technique prompted the

respondents to think far to mention the assets they owned and the monetary values of the assets.

Another limitation relates to the fact that the majority of households in the study area do not keep records. Most of the respondents had to depend on memory recall. Probing was, therefore, employed to get more accurate information, especially when the respondents were asked Question Number 14 (Appendix 1) to talk about costs incurred to produce and amounts of products and by-products produced in the previous 12 months.

Finally, it was difficult to get some relevant information due to language barriers, because some of the VICOBA members were not familiar with the national language; they spoke the Luo language. This limitation was mitigated by requesting VICOBA facilitators (VF) who were conversant with the local languages to interpret the languages to the researcher.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSIONS

4.1 Socio-Demographic Characteristics of the Households Surveyed

4.1.1 Socio-economic characteristics of VICOBA respondents

The following socio-demographic characteristics of the households surveyed were analysed in the study: sex, age, number of years of schooling, marital status, household size, main occupation, residence location and year of group establishment. The results on the socio demographic characteristics are presented in Table 4.

4.1.1.1 Sex of household head

Sex of the household head plays an important role in providing the households with basic needs including food, shelter and clothing (Kuwornu *et al.*, 2012). The study results (Table 4) indicate that out of the 200 households, 69.5% were female headed households, while 30.5% were male headed households. This means that, mostly women are the participants and beneficiaries of VICOBA project in the research area. Similar, findings were reported by Ngalemwa (2013) who found that, in Rufiji Delta, 58% of women 42% of men were participating in VICOBA. Also, these results concur with results by Kihongo (2005) who observed that there are more women than men who participate in VICOBA projects. Kesanta and Andre (2015) also found that women were 67.5% of the respondents in Mbugwe Division, Babati District, who were participating in Village Savings and Loans Associations (whose model is used in VICOBA). Moreover, it has been found that typical microfinance clients are low-income persons who do not have access to formal financial institutions, and the majority of them are women in developing countries (Angko, 2013; Chiyah and Forchu, 2010; Maleko *et al.*, 2013).

Table 4: Socio-economic demographic characteristics (n = 200)

| Within ward of residence | | Percent (%) | | | |
|---|--------------------------------|-------------|--------|-------|-------|
| | | Kisumwa | Kirogo | Roche | Total |
| Sex of household head | Male | 32.7 | 26.8 | 30.4 | 30.5 |
| | Female | 67.3 | 73.2 | 69.6 | 69.5 |
| Age group of respondents | 15-35 | 23.5 | 46.4 | 15.2 | 28.0 |
| | 36-60 | 71.4 | 50.0 | 78.3 | 67.0 |
| | 61+ | 5.1 | 3.6 | 6.5 | 5.0 |
| Education level | No education | 21.4 | 7.1 | 15.2 | 16.0 |
| | Primary school | 75.5 | 85.7 | 73.9 | 78.0 |
| | Secondary school | 3.1 | 7.1 | 8.7 | 5.5 |
| | Tertiary education | | | 2.2 | 0.5 |
| Marital status of household head | Married | 77.6 | 80.4 | 76.1 | 78.0 |
| | Never Married | 6.1 | 1.8 | 4.3 | 4.5 |
| | Widowed | 16.3 | 16.1 | 19.6 | 17.0 |
| | Divorced/Separated | | 1.8 | | 0.5 |
| Household group size | 1-4 | 30.6 | 33.9 | 30.4 | 31.5 |
| | 5-8 | 58.2 | 53.6 | 50.0 | 55.0 |
| | 9-12 | 11.2 | 12.5 | 19.6 | 13.5 |
| Main occupation of household | Farming | 85.7 | 91.1 | 89.1 | 88.0 |
| | Business | 10.2 | 1.8 | 8.7 | 7.5 |
| | Motorcycle (bodaboda) business | 2.0 | 1.8 | 2.2 | 2.0 |
| | Food vending | 1.0 | 3.6 | | 1.5 |
| | Employee | 1.0 | 1.8 | | 1.0 |
| | | | | | |
| Category since the group established (in years) | 0-2 | 29.6 | 51.8 | 23.9 | 34.5 |
| | 3-5 | 69.4 | 44.6 | 76.1 | 64.0 |
| | 6-8 | 1.0 | 3.6 | | 1.5 |

4.1.1.2 Age of respondents

The results in Table 4 show that the minimum age of the respondents was 17 years while the maximum age was 73 years, with a mean age of 41.5 years. Two-thirds (67.0%) of the household heads were between the age of 36 to 60 were in the active and productive age range of less than 60 years, which is part of the working age population of 15-64 years, according to NBS (2014). In this observation, individuals with this age are expected to be very active on the farm and nonfarm activities in order to improve income and food security (livelihood outcomes). Moreover, the results show the cross tabulation between age and food security; the percentage household heads with 36 to 60 years who are food

insecure was higher (70.6%) than that of the food secure households (51.4%) of the same age group. These finding reveals that, as age of the household's head increases food insecurity at household level also increases. Along the same line, Lucas and Akarro (2016) found that VICOBA members in Ilala District had the mean age of 36.1 years. In fact, economic activities are very tough and require energetic people; hence as members become older, the ability to supply labour to various economic or income generating activities tends to decrease due to their low level of energy as reported by Sesabo *et al.* (2005).

4.1.1.3 Years of schooling of respondents

The results in Table 4 present the education level of respondents whereby above three quarters (78.0%) of the respondents had primary education, 16.0% of the respondents had no formal education, while 5.5% and 0.5% of the VICOBA members had O-level secondary education and tertiary education respectively. These results indicate that large number of VICOBA members (78.0 %) had primary education. The results are in agreement with that of Kesanta and Andre (2015) where it was reported that in Babati District, most (87%) of VICOBA members have primary education. Nevertheless, the level of education is one of the most important social factors that influence the formulations of economic groups. Education tends to stimulate adaptation to business skills and strategies which will lead to improved household livelihoods. It is expected that the extent which members were educated would tend to influence the ability to gain knowledge of financial management.

4.1.1.4 Marital status

The results in Table 4 show that (78.0 %) respondents were married and living together with their partners in the same house, 4.5%, were widowed, 17.0%, were separated and

0.5% divorced. These results indicate that most of respondents interviewed in the study area were married. Married couples are likely to be settled and more contented with various development activities like joining economic activities because of the existing family commitments. This is probably one of the reasons that forced them to join the VICOBA in order to increase their incomes for sustaining their families. Married people are less mobile compared to young people and therefore there is a possibility of being successful because of trust and unity that develop after working together in groups for a long time. The findings are also in line with findings by Lucas and Akarro (2016) who found that, in Ilala District, 70% of VICOBA members were married. Similarly, marital status of the respondents is important in that, to some extent, it affects household income. In relation to that, the findings in a study conducted by Mphande (2016) indicated that marital status has positive implication on social organization and economic activities such as agriculture and resource management; married couples are likely to be more productive than singles due to labour supply in farm activities and access to productive resources.

4.1.1.5 Household size

Household size refers to the number of persons who reside in the same homestead/compound but not necessary in the same dwelling unit, have same cooking arrangements and are answerable to the same household head. Average household size is calculated by dividing the total number of persons by the total number of household in a given population (Joyce and Akarro, 2016).

The mean household size of the respondents was 5.6 persons while the minimum and maximum household sizes were 1.0 and 12 persons respectively. The results in Table 4 show that the household size of 1 to 4 people accounted for 32.0% of the respondent households, while the household size of between 5 to 8 people accounted for 54.5% and

the household size of 9 to 12 people accounted for 13.5% of the respondent households. These results reveal further that more than half (52.6%) had at most seven household members. Generally, household size is important because decrease or increase in household size decreases or increases the number of consumers, thereby reducing or putting pressure on household resources, particularly food.

Furthermore, households with high dependency ratio are particularly prone to food insecurity. In fact, according to URT (2002), having a large household size is a typical characteristic of households in rural areas, as household size has an implication for family labour availability and production costs. Large household size is an important asset in household economic activities. However, this occurs where almost all of the household members take part in production and or service provision to contribute to the economy of the household as pointed out by Kayunze (2000). Nevertheless, Kitomari and Abwe (2016) reported that apart from many VICOBA members having a lot of dependents in their families, large number of members in the family cannot be engaged in economic activities, so the loan which is obtained from VICOBA acts as the only source of income in the family to solve different issues rather than channelling it in income generation.

4.1.1.6 Main occupation

About seven-eighths (88%) of the households were depending on farming activities as their main occupations. Other sources of income were small trade (7.5%), motorcycle hiring out business, popularly called *bodaboda* (2.0%), food vending (1.5%) and official employment (1.0%). This classification of respondents in terms of their occupations reveals that microfinance VICOBA clients were undertaking a variety of economic activities as the results show in Table 4. The findings of this study, though higher, but are in line with those reported earlier by Kesanta and Andre (2015) in Mbugwe Division, Babati District that 53% of the respondents were depending on farming as their main

source of income, and followed by small trade which was being done by 32% of the respondents. However, an observation from this study differed from the findings reported by Bakari *et al.* (2014) who reported that 51% of the respondents were entrepreneurs, against 12.5% who were farmers (depending on farming as their main source of income).

4.1.1.7 Years of group operation

On the number of years that the groups had been in operation, the results in Table 4 show that 64.0% of the respondents' groups were between 3 and 5 years old since they had started operating. However, 34.5% of the respondents' groups had less than three years in operation. The remaining respondents' groups (1.5%) were found to have been in operation for about 10 years. It can, therefore, be said that, since the majority of the groups were still young, it could not be easy for one to conclude on the benefits which the respondents obtained from being VICOBA members, although for those who had been in VICOBA for about ten years of operation it was possible to note some physical benefits which they had attained, such as modern houses, farms, livestock, etc.

4.2 Services Provided by VICOBA

The Village Community Banks (VICOBA) groups which were visited provided various services, just like other banks or financial institutions using a distinctive unique procedure which is very useful to low income earners.

Table 5: VICOBA Services

| Service Provided by VICOBA | | Ward of Residence | | | | Service Received by Members | | Ward of Residence | | | |
|----------------------------|-----|-------------------|--------|-------|-------|-----------------------------|-----|-------------------|--------|-------|-------|
| | | Kisumwa | Kirogo | Roche | Total | | | Kisumwa | Kirogo | Roche | Total |
| Credit | Yes | 100.0 | 100.0 | 100.0 | 100.0 | Credit | Yes | 100.0 | 100.0 | 95.7 | 99.0 |
| | No | 0.0 | 0.0 | 0.0 | 0.0 | | No | 0.0 | 0.0 | 4.3 | 1.0 |
| Training | Yes | 87.8 | 37.5 | 87.0 | 73.5 | Training | Yes | 62.2 | 28.6 | 73.9 | 55.5 |
| | No | 12.2 | 62.5 | 13.0 | 26.5 | | No | 37.8 | 71.4 | 26.1 | 44.5 |
| Savings | Yes | 99.0 | 100.0 | 100.0 | 99.5 | Savings | Yes | 96.9 | 100.0 | 91.3 | 96.5 |
| | No | 1.0 | | | 0.5 | | No | 3.1 | 0.0 | 8.7 | 3.5 |
| Insurance | Yes | 58.2 | 66.1 | 87.0 | 67.0 | Insurance | Yes | 2.0 | 8.9 | 6.5 | 5.0 |
| | No | 41.8 | 33.9 | 13.0 | 33.0 | | No | 98.0 | 91.1 | 93.5 | 95.0 |
| Other services | Yes | 3.1 | 3.6 | 10.9 | 5.0 | | | | | | |
| | No | 96.9 | 96.4 | 89.1 | 95.0 | | | | | | |

The findings from the study (Table 5) illustrate that all (100%) of the VICOBA members interviewed agreed that credit, which was one among the services offered by microfinance institutions (VICOBA), was provided to all 18 VICOBA groups in all of the three wards where the research was done (Kisumwa, Kirogo and Roche). Slightly less than three-quarters (73.5%) of the respondents, as seen in Table 5, admitted that training sessions were provided in their VICOBA groups. However, the rest (26.5%) said that there was no training offered in their VICOBA groups. Moreover, the training sessions offered focused on entrepreneurship and business establishment, record keeping skills, good governance and Gender-Based Violence (GBV). The overall objective of these sessions was to equip the group members with relevant skills and knowledge in managing the loan they received and how the training influenced income, food security and housing quality. A study by Joyce and Akarro (2016) in Ilala District, Tanzania observed that over three-quarters, 76.3% (255/334), of VICOBA group members who had obtained a loan were trained on business management and banking operations and the training was useful in their businesses and loan repayment.

Furthermore, regarding savings as among the services offered by MFIs (VICOBA) in the study area, 99.5% of the respondents answered that savings in VICOBA was among services offered, and they were familiar with it. In one of the focus group discussions in Kisumwa village one woman said:

“Due to savings, we can get credit at a low interest rate which we would never get before from other financial institutions as most of us lack assets that would act as collateral. In fact VICOBA have played a great role in our life, and that is why we are encouraged to save. In this ward, savings is one of the criteria for one to join a VICOBA group and be considered an active member” (A 33 years old woman from Kisumwa village interviewed on 19th October 2016).

Moreover, savings are an important service in efforts towards reduction of poverty as argued by Mkombe (2005) that savings are among the most important aspects to investment and to come out of income poverty through savings to invest in income generating activities. Furthermore, insurance also was mentioned as among the services offered. The results in Table 5 show that 67% of the respondents answered that insurance was among the services which were provided by VICOBA in the study area.

4.2.1 Services received by VICOBA members

Services delivered by VICOBA members are an essential tool used in improving livelihood among the marginalized and poor rural communities. The results in Table 5 show that the majority of the respondents indicated that the main services offered by VICOBA (microfinance institution) in the study area included credit (99.0%) and savings (96.5%). It is, therefore, important to note that VICOBA promotes not only credit services, but also inculcates in the minds of financial services recipients the habit of having savings that lead to accumulation of assets for poor people. The findings of this study are in line

with the observation made by Muhoho and Wawa (2016) that savings, credit, and payment services have been cited in policies as demanded by low income earners. Generally, low income people need savings services so as to protect themselves against periods of low income, specific emergencies, and to cover large anticipated emergencies. They also need credit facilities to finance their businesses or household consumption. In addition, the services provided by VICOBA and other MFIs as confirmed by the respondents were meant to be useful in fighting against poverty and improving the livelihoods of people.

On the aspect of training, Table 5 results show that 55.5% of the respondents said that they had received very little training concerning business management, cooperation or entrepreneurship skills whereas 28.6% of the respondents said that they had not been given any training on the activities performed. However, the remaining 15.9% confirmed that they had attended several training programmes. In fact, training not only helps in provision of knowledge and skills in management of businesses, but also assists the members in expanding their capital (Maleko *et al.*, 2013). Training in business skills is one way of increasing management and planning capacity for women; most of whom are active in informal business. This will help to increase their ability to save and invest in profitable income generating activities. Related findings were also reported by Kitomari and Abwe (2016) in Meru, who noted that lack of training in economic activities performed, led to underproduction. This indicates that the VICOBA members, when performing their activities, do not have necessary skills due to the fact that they lack training. Moreover, some VICOBA members indicated that lack of business education and entrepreneurship skills both for group leadership and group members was a major problem.

Insurance was among the VICOBA services in the study area. Table 5 shows that only 5% of the respondents had received insurance and 95% had not received any insurance until

the time of data collection for the study on which this dissertation is based. During a focus group discussion (FGD), respondents appreciated that insurance from VICOBA helped them to solve social problems. The appreciation was also demonstrated by one of the interviewees from Kirogo village who argued as follows:

“I used the money which I got from VICOBA insurance to pay school fees for my children and medical services” (A 30 years old young man from Kirogo village interviewed on 26th October 2016).

The results are similar to those of a study by Jain and Jain (2014) who found that poor people are exposed to monetary shocks, but the current microfinance programme is just focused on regular savings and micro-credit. However, some of the MFIs have started providing insurance services to the poorer, but the efforts are still at an experimental stage.

4.2.2 Aim of the credit received

The main goal of the credit received by the respondents indicated was to expand and improve their businesses. It was found that more than two-thirds (68.5%) of the respondents interviewed pointed out that the aim of the credit given was to expand and improve their business. Only 31.5% of the respondents said that the credit they received helped them to open their new businesses. This means that the majority of VICOBA members operated their business through their own capital and when they got credit which they invested in improving business. Similarly, results of a study by Lukas and Akarro (2016) showed that the respondents take credit for the purpose of expanding their businesses.

4.2.3 Amounts of credit received by individuals

The amounts of credit which were received by members of the household which were sampled are presented in Table 6.

Table 6: Amounts of credit received by individual respondents (n = 200)

| Variables | Amounts of TZS received as a Credit | Frequency | Percent |
|--|-------------------------------------|-----------|---------|
| Credit received by individual | <100000 | 65 | 32.5 |
| | 100001-500000 | 89 | 44.5 |
| | 500001-2000000 | 38 | 19.0 |
| | 2000001-10000000 | 8 | 4.0 |
| Credit used in IGAs | Amounts of TZS used in IGAs | | |
| | <100000 | 98 | 49.0 |
| | 100001-500000 | 75 | 37.5 |
| Number of time respondents received credit | Number of times | | |
| | 1 | 114 | 57.0 |
| | 2 | 52 | 26 |
| | 3 | 13 | 6.5 |
| | 4 | 8 | 4.0 |
| | 5 | 13 | 6.5 |

The findings in Table 6 show that the minimum and maximum of credit received by respondents were TZS 477 495 and TZS 5 720 000 respectively. While 44.5% of the respondents had received credit ranging between TZS 100 001- 500 000/=. Moreover, 32.5% of the respondents had received less than TZS 100 000/= as credit from VICOBA. However, 19% of the respondents had received credit ranging between TZS 5 000 001 - 2 000 000. Yet, 4.0 % of the respondents had received credits of TZS 2 000 001 -10 000 000. This means that the majority of the VICOBA members in the study area had received credit ranging between TZS 100 001.00 – 500 000.00/= as their capacity to borrow which seems having a reasonable amount of money in rural areas for carrying out economic activities. The results from the study were different from results of a study conducted by Lukas and Akarro (2016), who reported that among members of VICOBA who had got

loans, 69.1% had got less or equal to one million. Few (1.5%) VICOBA members had got large loans of TZS 5 000 001- TZS 15 000 000.

Furthermore, the results in Table 6 show that 49% of VICOBA members used less than TZS 100 000/= as part of credit for Income Generating Activities (IGAs) such as opening new businesses and improving previously existing ones; 37.5% used TZS 100 001 – 500 000/= and 13.5% used the credit they borrowed for IGAs. This means that most businesses of VICOBA members were not productive enough to cover their livelihood outcomes due to some of them using credit on other activities apart from IGAs. As a result, many of them tended to depend on other sources including salaries, relatives and friends. Similar results were observed in VICOBA at Ukonga Mazizini, where 77.5% of loan recipients used their loans for business expansion (Kihongo, 2005; A'hlen, 2012).

On the other hand, in discussions with key informants, it was said that, at the beginning, most households were unwilling to join VICOBA programmes because marginalized individuals have a tendency of protecting all little assets they have, rather than risking their savings by taking microcredit. Therefore, poor people are reluctant. But after community mobilization and formation of joint groups as well as entrepreneurship training, they were able to start their micro-enterprises which resulted in more income.

4.2.4 Livelihoods activities conducted after receiving VICOBA services

After receiving VICOBA services, the respondents managed to conduct various livelihood activities as it is indicated in Table 7 that 34.5% of the respondents agreed that VICOBA services influenced farming and livestock keeping. However, household consumption, food vending, fishing activities and housing construction respectively 25.0%, 14%, 13.5%, and 13% respectively were said by the respondents to be the main livelihoods activities

that they did to improve their livelihood outcomes. This means that the majority of the VICOBA members were engaged in a mixture of livelihood activities. The results are consistent with those reported earlier by A'hlen (2012) that, apart from using VICOBA services in establishing and opening business, they are also used in other activities like farming, paying for health services and school fees.

Table 7: Livelihoods activities of VICOBA members (n = 200)

| Livelihoods activities | Frequency | Percent |
|--|------------------|----------------|
| Farming and livestock keeping | 69 | 34.5 |
| Housing construction | 26 | 13.0 |
| Fishing activities | 27 | 13.5 |
| Food vending and paying health services | 28 | 14.0 |
| household consumption and paying for school fees | 50 | 25.0 |
| Total | 200 | 100.0 |

4.3 Outcomes of Activities Undertaken by VICOBA members

Outcomes of activities undertaken by VICOBA members were determined with respect to food security, income and housing quality. The outcomes are reported in the following sub-sections.

4.3.1 Outcomes of activities undertaken with respect to food security

Food security is not a new concept; it has been defined in a variety of ways by different authors and organizations, but the most acceptable definition of the concept is that food security is achieved when “all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (FAO, 2015).

4.3.1.1 Food security based on number of meals

The number of meal(s) taken in a household per day and in the previous 30 days is an indicator of the household's food security. The assumption is that members in the VICOBA programme were in a position to improve their household meals (diet) and were less vulnerable to food shortage and shocks. The responses of VICOBA members in the study area about the numbers of meals taken are presented in Table 8.

The results show that about one third only (34.5%) of the respondents had consumed three meals per day as compared to 63.5% and 1.5% of the respondents who had consumed two meals and one meal per day respectively. In addition, 0.5% of the respondents reported to have consumed more than three meals per day. It was learned from key informants that those respondents who managed to eat three meals per day had invested their loans in farming and IGAs activities. Such activities to some extent enabled the respondents to improve their household's wellbeing including food security. On the other hand for those who consumed two meals per day, the results are in line with those reported in a study by Angko (2013) that majority of the VICOBA member's consumed a minimum of three meals per day. However, a number of reasons were given for the failure of VICOBA members to manage consumption of three meals per day, such as investing accessed loans to unsustainable economic activities hence reduction in member's income.

4.3.1.2 Food Security Based on Caloric Food Poverty Line

The minimum and maximum amounts of kCal consumed per capita per day were 420 and 11 259 respectively, and the mean was 1800. The minimum and maximum amounts of kCal consumed per adult equivalent per day were 675 and 10772 respectively and the mean was 2307. On the bases of those kilocalories, the proportions of food secure and food insecure household is as presented in Table 8, which also contains results on levels of

food security based kilocalories consumed per capita per day and per adult equivalent per day.

Table 8: Food security determination based on incidence of food security per AE and number of meals (n =200)

| Incidence of food security | Food insecure | | Food secure | |
|---|-----------------|-----------|-------------|---------|
| | Frequency | Percent | Frequency | Percent |
| Food insecure based on the 2100 kCal per capita per day cut off | 158 | 79.0 | 42 | 21.0 |
| Food secure based on the 2200 kCal per adult equivalent per day cut off | 129 | 64.5 | 71 | 35.5 |
| Number of meals eaten per day for the previous 30 days | Number of meals | Frequency | Percent | |
| | | 1 | 3 | 1.5 |
| | | 2 | 127 | 63.5 |
| | | 3 | 69 | 34.5 |
| | | 4 | 1 | 0.5 |

Based on the results in Table 8, food security incidence was higher (35.5%) using the 2200 kCal per adult equivalent per day cut off compared to food security incidence using the 2100 kCal per capita per day cut off. The reason is that the method of determining food security incidence using the 2100 kCal per capita per day cut off tends to exaggerate food insecurity (Kayunze, 2000; Mende *et al.*, 2014; Kingu, 2015). Therefore, in Table 8 the food security incidence based on the 2200 (35.5%) kCal per adult equivalent per day cut off is more realistic.

Nevertheless, the food security incidence (35.5%) is much less than the national (Tanzania) food security incidence which is 92.8% (NBS, 2014). Based on the socio-economic activities of the people in Rorya District including agriculture and fishing activities, the low level of food security in comparison with the national food security levels is not surprising. According to the focus group discussion participants and key informants the food insecurity was due to various reasons including an increasing/high

human population which resulted into continuous land fragmentation hence land shortages for crop production, and soil fertility depletion caused by continuous crop cultivation without fertilization. In addition, the focus group discussion participants said that the problem of food security was also due to high influx of immigrants from Kenya who were offering high prices for foodstuffs at the market places.

Moreover, it was noted that the coming of enforcing the Fisheries Act country wide, especially from the early 2010s, did affect fishing population in Rorya District. As stipulated in the fisheries Act No. 22 of 2003, and its Regulations of 2009, the minimum gill net mesh size should be eight inches for tilapia and Nile perch fishing. This law, therefore, forced smallholder fishers out of fishing because they could not afford buying the said acceptable fishing nets as they are expensive. As a result, household incomes for fishing household declined significantly, and this severely affected their wellbeing and food security.

“One of the fisherman at Kirogo village vehemently said that the government should have enforced the law regarding net mesh size gradually while sensitizing the fishers on their importance, but the abrupt enforcement forced some of us out of fishing activities and these affected our income, household food security and wellbeing of the people” (A 45 years old fisherman from Kirogo village, interviewed on 26th October 2016).

4.3.2 Outcomes of activities undertaken with respect to income

Average annual income refers to the sum of earnings of a household from both agriculture and livestock activities and non-agricultural activities. The results as presented in Table 9 show that the minimum and maximum amounts of annual income were TZS 400 000 per adult equivalent unit per year and TZS 9 380 000 per adult equivalent unit per year

respectively. As presented in Table 10, the income levels of the respondents show that household with an income of less than the mean income of TZS 945 870 were 69.5%. The rest 30.5% of the respondents were from those with an income of more than the mean income of TZS 945 870 per year. The majority of the households in the study area earned low income compared to the mean annual income of TZS 945 870.

The observation from the study also showed that the incidence of food insecurity was higher among those households with an income of less than TZS 945 870 per year whose proportion was 64.5%, and a bit higher percentage of food security among those households with an income of more than Tshs 945,870 per adult equivalent per year who were 35.5% of all the respondents surveyed. The implication of the finding is that VICOBA participants with additional income per year had the capacity or an added advantage of accessing enough food to secure their households and therefore had higher probability of being food secure compared to those with low income (below TZS 945 870 per year).

The participants during focus group discussions argued that they were faced by a variety of problems such as lack of enough capital to run non-agriculture activities rather than depending only on VICOBA. Also, inadequate rainfall for crop production in the previous three years was mentioned as a source of food insecurity in the study area.

These observations were confirmed by the District Community Development Officer (DCDO) (one of the key informants) as shown in the quote below;

“And this could be linked to less than three meals per day by majority of the household in the study area because majority of the household in the study area had financial problems and in adequate capital to invest in non agricultural activities.

The findings from this study are inconsistent with those by Dallimore (2013) who observed that the main benefit or the purpose of micro-financial institutions is its usefulness in being changeable into other asset types, its direct use in achieving a livelihood outcome, i.e. purchasing food to achieve food security and increasing household income. That being the case, members of VICOBA were expected to implement profitable IGAs so as to improve their wellbeing.

Table 9: Average of household food security per AE, income per AE per year and housing quality

| Dependent variable | n | Minimum | Maximum | Mean | Std. Deviation | Dependent variables | Frequency | Percent |
|---|----------|----------------|----------------|-------------|-----------------------|---|------------------|----------------|
| Food security | | | | | | Food security | | |
| Kilocalories consumed per capita per day | 200 | 420 | 11259 | 1799.54 | 1592.743 | Food insecure based on 2200 kCal AE per day | 129 | 64.5 |
| kCal consumed per AEU per day/ by AEU | 200 | 675 | 10772 | 2307.46 | 1541.179 | Food secure based on 2200 kCal AE per day | 71 | 35.5 |
| Household income per adult equivalent per year | | | | | | Income | | |
| Income per adult equivalent per year | 200 | 400000.00 | 9380000.00 | 945870.8832 | 1084176.05648 | Below mean income | 139 | 69.5 |
| | | | | | | Above mean income | 61 | 30.5 |
| Housing quality | | | | | | Houses roofed with an iron sheets | | |
| Housing roofed with iron sheets | 200 | 0.00 | 1.00 | 0.4700 | 50035 | Thatch/soil/timber | 106 | 53.0 |
| | | | | | | Asbestos/cement/iron sheets | 94 | 47.0 |

4.3.3 Outcomes of activities undertaken with respect to housing quality

Housing quality has many elements, and can be defined in many ways. A wider definition of housing quality may include features of the neighbourhood and concepts such as environmental sustainability. Housing quality is referred to as housing condition or housing habitability. However, housing condition has many indicators, and in this study roofing material (such as iron sheets) and of course walls, and floor types, were among the indicators for measuring housing quality.

In the process of assessing the housing quality, the respondents were asked whether they owned the houses they lived in, whether the walls of the houses were constructed of brick or something else, whether floors were plastered, types of roofing materials of the houses, types of windows of the houses, main source of light used in the houses, and main source of energy for cooking. The results are presented in Table 10 and show that 48.5% of the respondents' houses were constructed using mud bricks, and only 31.0% used cement blocks or burnt bricks. The results also revealed that 69.0% of the respondents' houses' floors were plastered with mud/soil. Further, the results showed that 53.0% of the respondents' houses' were grass thatched. This clearly indicated that most of the respondents in the study area used locally available and affordable resources such as clay soil and grass for construction of residential houses.

On the other hand, it was said by the majority of the respondents that corrugated iron sheets were too costly to purchase and unaffordable for most of them. Also, cement for bricks making and plastering of house walls was said to be so costly that most of the respondents could not afford buying them. Furthermore, the study findings showed that income was the major factor which influenced the ownership of a house roofed with iron sheets in the study area. Moreover, the study findings revealed that the majority of the

VICOBA members were still faced with the problem of inadequate income to enable them to sustain their livelihoods. This was shown by the inability to construct house roofed with iron sheets among the VICOBA members due to its costs (being expensive). Hence, it can be said that the higher the income of household the higher the possibility of owning a house roofed with iron sheets. Similar findings were reported by Mattsson (2009) when studying rural housing in Mamba, Kilimanjaro Region, Tanzania where it was found that people use readily available and affordable materials for construction of residential houses. The attributes of the respondents' houses are summarized in Table 10.

Table 10: Attributes of the houses in which the household head lived (n = 200)

| Variables | Frequency | Percent (%) |
|--|------------------|--------------------|
| Owner of the house | 194 | 97.0 |
| Rent | 6 | 3.0 |
| Type of floor | | |
| Soil | 138 | 69.0 |
| Wood | 5 | 2.5 |
| Floor tiles | 4 | 2.0 |
| Cement | 53 | 26.5 |
| Type of walls | | |
| Block or burned bricks | 62 | 31.0 |
| Mud bricks | 97 | 48.5 |
| Iron sheets/soil and withies (<i>fito</i>) | 11 | 5.5 |
| Grass thatch | 10 | 5.0 |
| Wood slabs (<i>mabanzi</i>) and soil | 20 | 10.0 |
| Types of window | | |
| Having windows which can be opened | 139 | 69.5 |
| Having windows which cannot be opened | 35 | 17.5 |
| Having no windows | 26 | 13.0 |
| Roofing materials | | |
| Abstors/cement/iron sheets | 94 | 47.0 |
| Thatch/soil/timber | 106 | 53.0 |
| Lighting source | | |
| Electricity/Solar power | 73 | 36.5 |
| Lantern lamp | 63 | 31.5 |
| Small kerosene lamp (<i>Kibatari</i>) | 64 | 32.0 |
| Energy source for cooking | | |
| Electricity/Gas | 6 | 3.0 |
| Fire Wood | 165 | 82.5 |
| Wood charcoal | 29 | 14.5 |

4.4 Linkages between VICOBA Services and Livelihood Outcomes of VICOBA Members

Linkages between VICOBA services and livelihood outcomes of VICOBA members were determined with respect to monetary values of assets owned by members before and after undertaking VICOBA, income per adult equivalent per year, food security per adult equivalent per day, housing quality and relevance of the Microfinance Theory of Change to Rorya community. The linkages are reported on in Sub-sections 4.4.1, 4.4.2, 4.4.3, and 4.4.4, respectively.

4.4.1 Monetary values of assets owned by members before and after VICOBA

The findings showed that VICOBA services had contributed to increase of assets owned by VICOBA members before and after joining VICOBA. A paired sample t-test was used to determine whether monetary values of the assets owned by VICOBA members were significantly different before and after joining VICOBA. The results showed that the mean value of assets before VICOBA was TZS 4 447 655.1 while the mean value of assets after joining VICOBA was TZS 7 400 095.51. The difference between the two means was highly statistically significant ($p \leq 0.001$, $t = 14.460$).

The VICOBA members having more valuable assets after joining VICOBA than before implies that, by joining VICOBA, the members had an advantage of gaining economically through an increase in monetary values of their assets. In addition to that, a large amount of assets owned in the sample included land, cattle and other livestock kept, houses for household members, chickens, bicycles, and hand hoes which were productive assets. The assets could be sources of household income. During key informant interviews and FGDs the respondents argued that some of the money they received from VICOBA as credit was

used to buy livestock like sheep, goats and even cattle as they said livestock keeping was an important element for household income generation.

“Just because I got the hens it does not mean that I will stop working in farming activities. A lot of women who got assets (from VICOBA) say that they don’t have time to work on farm. But I am doing it, and I am managing it well. If I work on farm I earn food for my family. I put that money in my savings account with VICOBA. The more savings I have, the better it is for me. I can do big things in the future with that money,” (said one woman aged 49 years old woman from Roche village, interviewed on 3rd November 2016).

4.4.2 Linkage between VICOBA services and incomes of VICOBA members

Income per adult equivalent per day of VICOBA members was regressed on the ten independent variables which are seen in Table 11.

Table 11: Impact of some independent variables on income

| Independent Variables | Unstandardized Coefficients | | Standardized Coefficients | | | Collinearity Statistics | |
|-------------------------|-----------------------------|-------|---------------------------|----------|--------------|-------------------------|-------|
| | B | Std.E | Beta | T | Sig. | Tolerance | VIF |
| (Constant) | -0.054 | 0.145 | | -0.372 | 0.710 | | |
| Sex of HH | -1.456E-05 | 0.052 | 0.000 | 0.000 | 1.000 | 0.940 | 1.064 |
| Marital status | 0.037 | 0.057 | 0.031 | 0.645 | 0.520 | 0.942 | 1.062 |
| Insurance | -0.079 | 0.069 | -0.079 | -1.142 | 0.255 | 0.454 | 2.201 |
| Training | -0.125 | 0.109 | -0.126 | -1.145 | 0.254 | 0.178 | 5.609 |
| Education level | 0.333 | 0.097 | 0.338 | 3.440*** | 0.001 | 0.225 | 4.448 |
| Credit received | 0.368 | 0.138 | 0.373 | 2.663** | 0.008 | 0.110 | 9.056 |
| Having savings | 0.042 | 0.128 | 0.016 | 0.329 | 0.742 | 0.959 | 1.043 |
| Household size | 0.284 | 0.081 | 0.288 | 3.513*** | 0.001 | 0.323 | 3.100 |
| Age of HH head | 0.015 | 0.053 | 0.014 | 0.289 | 0.773 | 0.935 | 1.069 |
| Years of joining VICOBA | -0.015 | 0.013 | -0.058 | -1.170 | 0.244 | 0.877 | 1.141 |

Dependent variable: Income. Model summary $R^2=0.961$, $R^2=0.922$, Adjusted $R^2=0.919$

*** Significant at $p \leq 0.001$, significant at $p \leq 0.01$

The coefficient of determination (R^2) was 0.924, and the adjusted R^2 was 0.919, which means that the ten independent variables that were entered in the multiple linear regression model accounted for 91.9% of variation in the dependent variable, income. The remaining 8.1% was probably due to other independent variables which were not included in the model and errors in the research. The statistical tests of the model itself showed that the explanatory power of the model was highly significant ($p \leq 0.001$).

Three variables (education level, credit received and household size) showed positive significant influence on income as seen in Table 11. The levels of significance were as follows: education level ($p \leq 0.001$), credit received ($p \leq 0.01$) and household size ($p \leq 0.001$). These results mean that the three variables were the main ones which contributed to increase in income. About education level of household head having positive significant impact ($p \leq 0.001$) on income, this means that education attainment by the household head could lead to awareness of the possible advantages of receiving VICOBA skills and knowledge on entrepreneurship and diversification of household income sources, which in turn would enhance household income. For the surveyed sample, the findings indicated that there was a significant association between education level of the household head and income of the households ($p \leq 0.001$) (Table 11). The possible reason for this relationship is that high education enables household heads to manage well credit. This conforms to the findings which suggest that literacy status of the household head might have an effect on household income.

About credit having positive significant influence on household income, in practice, VICOBA encourage individuals with otherwise inaccessible funds that will expand their business options while also reducing risk. In this study credit is expected to make a significant contribution to income because most of the VICOBA members demanded

credit in order to set up or expand Income Generating Activities (IGAs) related to livelihoods activities such as agricultural activities and non-agricultural activities. Therefore, in the study area, it was found that some VICOBA members used part of the credit to buy agricultural inputs, fishing inputs and livestock (cattle) which they used subsequently in production and hence increased income. Similarly, Boateng *et al.* (2015), in a study to assess the impact of microfinance on poverty reduction in Ghana, found that credit impacts income positively. The majority of the respondents reported that their expectations were met, and they were satisfied with the efforts of the microfinance institutions. Moreover, 80% of the respondents reported an increase in their income levels after micro-finance.

About household size having shown positive significant impact ($p \leq 0.001$) on income, this means that as a household size gets larger, income also increases. Availability of economically active human resource helps to carry out VICOBA activities timely and effectively. The respondents might also be involved in additional income generating activities (IGAs), farm and non-farm activities, and thereby diversifying and increasing income sources of the household. These results are in consistency with URT (2002) that having a large household size is a typical characteristic of households in rural areas, as household size has an implication for family labour availability and production costs.

Based on the findings, the majority of VICOBA members had large household size which is an important asset in household economic activities. But this depends on the household size composition; households with a high dependency ratio spend most of their income on feeding family. This outcome is consistent with the findings from a research conducted by Aidoo *et al.* (2013). Households with farming as their primary occupation and with many years of farming experience are also more likely to get low income, as most rural farmers

are subsistence or semi-subsistence farmers. Despite being involved in agricultural activities and related activities, their productivities are so low that they can barely feed their families.

Training showed negative, but insignificant influence ($\beta = -0.126, p > 0.05$) on income per adult equivalent. This implies that when the VICOBA members are trained their income decreases, although the influence was not significant. The possible explanation is that training is part of inputs in capacity building to the members. Although training was provided to them, but the resources such as agriculture and fishing inputs were so expensive that they could not afford to buy them. ILO (2002) defines 'training' as "a process of acquiring knowledge, skills, and attitude that are needed to fill the gap between what people want to do, and what they are able to do now". However, most of the VICOBA groups provide various training sessions to their members, although the majority of the population served by the VICOBA are illiterate or semi-literate, making it more challenging in managing their businesses to improve their income.

Nevertheless, some previous researches elsewhere have shown positive impact of training on income. For example, Maleko *et al.* (2013) reported that training in business skills is one way of increasing management and planning capacity for women, most of whom are active in informal business. This will help to increase their ability to save and invest in profitable income generating activities. Similarly, a study by Ngalemwa (2013) on the contribution of village community banks to income poverty alleviation in Rufiji delta, Tanzania, found that training is very important as it does enable members to save, which may then help them in future to meet investment costs of IGAs or even expansion of their current enterprises.

However, variables such as age of household head, sex of household head, insurance, marital status, training, having savings, and years since joining VICOBA did not have statistically significant influence on income; they were not good predictors of income status in the study area.

4.4.3 Linkages between VICOBA services and food security

As in sub-section 4.4.2, multiple linear regression was also used to determine influence of VICOBA services on food security. The multiple linear regression model was specified as seen in the methodology part, and the results are seen in Table 12. Food security in terms of kCal consumed per adult equivalent per day was regressed on the same ten independent variables as seen in Table 12.

Table 12: Impact of some independent variables on food security

| Independent Variables | Unstandardized Coefficients | | Standardized Coefficients | Collinearity Statistics | | | |
|-------------------------|-----------------------------|--------|---------------------------|-------------------------|-------|-----------|-------|
| | B | Std. E | | t | Sig. | Tolerance | VIF |
| (Constant) | 0-.055 | 0.063 | | -0.869 | 0.386 | | |
| Sex of HH | 0-.007 | 0.023 | -0.007 | -0.323 | 0.747 | 0.940 | 1.064 |
| Marital status | -0.019 | 0.025 | -0.015 | -0.746 | 0.456 | 0.942 | 1.062 |
| Insurance | -0.002 | 0.030 | -0.002 | -0.060 | 0.952 | 0.454 | 2.201 |
| Training | -0.098 | 0.048 | -0.098 | -2.057* | 0.041 | 0.178 | 5.609 |
| Education level | 0.389 | 0.042 | 0.389 | 9.191*** | 0.000 | 0.225 | 4.448 |
| Credit received | 0.390 | 0.061 | 0.390 | 6.448*** | 0.000 | 0.110 | 9.056 |
| Having savings | 0.041 | 0.056 | 0.015 | 0.727 | 0.468 | 0.959 | 1.043 |
| Household size | 0.342 | 0.035 | 0.342 | 9.674*** | 0.000 | 0.323 | 3.100 |
| Age of HH head | 0.019 | 0.023 | 0.017 | 0.835 | 0.405 | 0.935 | 1.069 |
| Years of joining VICOBA | 0.002 | 0.006 | 0.009 | 0.432 | 0.666 | 0.877 | 1.141 |

Dependent variable food security, Model summary R= 0.770, Rsquare = 0.593, Adjusted R = 0.669, Std error = 0.325, F = 24.907, ***Significant level at $P \leq 0.001$, ** Significant level at $p \leq 0.01$, * Significant level at $p < 0.05$.

The dependent variable, food security per adult equivalent, was regressed on the ten independent variables which were thought to account for more of variation in household food security per adult equivalent. The independent variables were ten of VICOBA factors; sex of the household head, marital status of the household head, insurance,

training, education level of household head, credit received, having savings, household size, age of the household head and years of joining VICOBA. The coefficient of determination, R^2 , was 0.593, and the adjusted R^2 was 0.569, which means that the ten independent variables that were entered in the multiple linear regression model accounted for 56.9 % of variation in the dependent variable, food security per AE. The remaining 43.1% was probably due to other independent variables which were not included in the model and errors in the research. The statistical tests of the model itself showed that the explanatory power of the model was highly significant ($p \leq 0.001$). With regard to influence of independent variables on food security per adult equivalent, the results in Table 12 indicate that three out of the 10 independent variables had significant positive influence on the food security. The levels of significance were as follows: education level ($p \leq 0.001$), credit received ($p \leq 0.001$) and household size ($p \leq 0.001$).

Education level having positive significant influence on food security takes place when educated persons have ability to make the right decisions on credit investment on assets such as cattle and land and also during the selection of livelihood activities to be conducted after receiving credit. In this study, it was found that VICOBA members with better education and other forms of human capital stood a better chance of accessing credit; hence their income was high, and they were more food secure compared to VICOBA members who had lower education, and hence lower food security. In addition, education level of household head was used as an indicator of institution because education attainment by the head of household head could lead to awareness of the possible advantages of diversification of household income sources, which in turn would enhance household's food security. Similarly, Urassa (2010) argues that households with more education or other forms of human capital stand a better chance of accessing non-farm income or credit and. Therefore, they could be more able to afford buying

agricultural inputs. For that reason, VICOBA households members with more education had a higher possibility of obtaining higher production of crops and become more food secure.

Credit received having positive significant impact on food security implies that households that have access to credit are more likely to get different types of diet (food security) and increase numbers of meals per day and hence consume more kCal due to positive effects that credit has on household level incomes. Credit influences food security by providing access to buy food or food production resources. Credit facilities can also play roles in assisting households to build their assets and improve food. Moreover, it was found that VICOBA services helped the majority of household members in the study area to invest in livestock keeping (cattle), farm activities (land) and improving their income generating activities.

The results are in line with those of a study conducted by Anand (2013) who reported that access to credit leads to an enhancement of the quality of life of clients, a boost in self-confidence and helps in diversifying their sources of income, thereby increasing their income and food security. Furthermore, the results in this objective show that VICOBA factors had significant influence on household food security and household income. In view of the above results, the null hypothesis which said that Village Community Banks (VICOBA) factors do not have significant influence on household food security was rejected.

Household size having positive significant impact on food security implies large sized households are expected to influence easy supply of labour required for various livelihoods activities. This is happens where there is high participation of labourers in

agricultural activities and income generating activities (IGAs) such as food vending, poultry keeping and tailoring which can influence food security. The possible reason is that, in the findings, it was found that the majority of VICOBA members in the study area were in the category of 5 to 8 members within the household. Therefore, if all the members were involved in diverse economic activities this would make them more food secure than smaller households. These results are contrary to results of some previous researches; for example Kayunze (2000), Kamuzora (2001) and Mende (2014) who reported that, in rural areas, the larger the household size, the higher people are better off, including being more food secure. The explanation for this result was that it occurs when households have more labour force in terms of a larger proportion of adult members participating in various activities which are sources of income and food security.

Kayunze (2000) adds that in households where just few adults work while the majority of other household members depend on them, the higher the household size, the worse the household are, including being less food secure. This argument is also supported by findings of some other studies such as a study by Amaza *et al.* (2009) who found that households with large sizes had higher probabilities of being food insecure than those with smaller sizes, and vice versa. This is obvious because the larger the household size, the greater the responsibilities, especially, in a situation where many of the household members do not generate any income but only depend on the household head.

4.4.4 Linkages between VICOBA services and housing quality

For this study, binary logistic regression analysis was used to test Hypothesis Number Three which states that VICOBA indicators do not have significant impact on chances of owning a house with an iron sheets roof. Considering the summary in Table 13, Log likelihood (90.460), Cox & Snell R Square (0.606), Nagelkerke R-Square (0.809), the

variation in the dependent variable was explained by the binary logistic regression model. The Nagelkerke R^2 value was 0.809 which means that the independent variables entered in the model explained 80.9% of variance in the dependent variable. Garson (2008) notes that Nagelkerke R^2 is normally higher than Cox-Snell R^2 and is the most-reported of the pseudo R^2 estimates.

The results, as presented in Table 13, show that out of eight independent variables entered in the model three; education of household head ($p \leq 0.001$), household size ($p \leq 0.01$) and age of household head ($p \leq 0.05$); had significant influence on the chances of owning a house roofed with iron sheets.

Table 13: Influence of VICOBA indicators on chances of owning houses with iron sheet roofs

| Variables in the Equation | Variables in the Equation | | | | | |
|-----------------------------------|---------------------------|-----------|--------|----|-------|----------------|
| | B | S.E. | Wald | Df | Sig. | Exp(B) |
| Marital status of household head | 0.712 | 0.742 | 0.922 | 1 | 0.337 | 2.038 |
| Insure received | 0.289 | 0.785 | 0.135 | 1 | 0.713 | 1.335 |
| Training received | -19.018 | 11710.761 | 0.000 | 1 | 0.999 | 0.000 |
| Education level of household head | 2.330 | 0.723 | 10.370 | 1 | 0.001 | 10.273 |
| Credit received | 20.791 | 11710.761 | 0.000 | 1 | 0.999 | 1069948675.094 |
| Having savings | 1.479 | 1.133 | 1.705 | 1 | 0.192 | 4.388 |
| Household size | 2.000 | 0.662 | 9.125 | 1 | 0.003 | 7.388 |
| Age of household head | 0.030 | 0.014 | 4.645 | 1 | 0.031 | 1.031 |
| Years of joining VICOBA | -0.277 | 0.174 | 2.515 | 1 | 0.113 | 0.758 |
| Constant | -29.073 | 40192.991 | 0.000 | 1 | 0.999 | 0.000 |

a. Variable(s) entered on step 1: marital status, insure, training, Education level, credit received, having saving, household size, sex and years of joining VICOBA. Module summary -Log likelihood (90.460), Cox & Snell R Square (0.606), Nagelkerke R Square (0.809). The dependent variable was dummy (chances of owning a house with an iron sheets roof =1 and otherwise = 0)

Education level was a significant predictor at ($p \leq 0.001$) of owning a house roofed with iron sheets. As education level increased by one unit (one year of schooling), the Exp (B) value indicated that the probability of one to own a house roofed with an iron sheets increase by 10.273 times, that is the odds ratio. Urassa (2010) found that ability to read and write was an important factor in the adoption of a technology whose dissemination

demands simple leaflets, newspapers or any other simple written material. Therefore, household members with formal education are likely to own a house roofed with an iron sheets compared to those with no formal education.

Household size was a significant predictor at ($p \leq 0.01$) of owning a house roofed with iron sheets; the Exp (B) value was 7.388 indicating that when the size of the household got large by one unit (one person) the chances of one to own a house roofed with iron sheets roof increased by 7.388 times, that is the odds ratio.

Age of the household was a significant predictor at ($p \leq 0.05$) of owning a house roofed with iron sheets. As the age of household head increased by one unit (number of years), the Exp (B) value indicated that the probability of one to own a house roofed with an iron sheets roof increased by 1.031 times, that is the odds ratio.

Wald coefficients associated with individual independent variables help us realize the relative importance of each independent variable. A greater Wald statistic implies that the independent variable associated with it has a higher contribution to the happening of the dependent variable. In Table 13, the Wald statistic value of education level of households head that was Wald = 10.370 was the maximum and statistically significant at $p \leq 0.001$. Also, household size that had a Wald statistic value 9.125 was the second highest and statistically significant at $p \leq 0.01$, and lastly the Wald statistic value of age the households head was Wald = 4.645 and statistically was significant at $p \leq 0.05$. The suggestion of this finding is that as the level of education of household head increases the likelihood of having a house roofed with an iron sheets increases also.

Similarly, large households are likely to have a house roofed with an iron sheets and vice versa. One possible explanation is that when a household has a big number of active members contributing income there is a possibility of having a house roofed with an iron sheets. A study by Kayunze (2000) reported that large household size is an important asset in household economic activities. However, this occurs where almost all of the household members take part in production and or service provision to contribute to the economy of the households. However, the findings of this study are contrary to those reported by Hemed (2015) that large family is taken as an indicator of poverty. This means that a big family affects the ownership of modern house due to the fact that households with large sizes use most of family income for other basic needs such as food and hence little is left for investing in house construction.

4.5 Relevance of Microfinance Theory of Change in Rorya District

According to Micro finance theory of change, in order to make a group come together and achieve long-term goals or expectations socially, economically, and financially there should be three steps: First, they tap microfinance services (primarily as loans and/or savings); second, they invest the money in microenterprises; and third they manage these microenterprises to yield enough return on the investment to increase their household income and consumption, leading to poverty reduction) that governing the members in efforts towards achieving their livelihoods through VICOBA services. The theory was found relevant in Rorya District since it helped empirically to realise that when all the three steps were effectively followed they led to a positive influence on achieving income, food security and housing conditions. However, only credit received had significant ($p \leq 0.01$) influence on livelihood outcomes. Furthermore, education of household head and household size were also found to have positive influence on livelihood outcomes.

CHAPTER FIVE

5.0 CONCLUSIONS AND RECOMMENDATIONS

This chapter gives conclusions derived from the findings of the study. The study was conducted in order to determine the influence of Village Community Banks (VICOBA) on livelihood outcomes in Rorya District. Specifically, the study aimed at evaluating the services provided by VICOBA; determining outcomes of activities undertaken with respect to income and food security (based on dietary energy consumed (DEC) per adult equivalent per month, kCal per AE per day, and in terms of number of meals taken per 24 hours); and lastly analyze the linkages between VICOBA services and livelihood outcomes of VICOBA members. The conclusions given are based on the findings of this study, and recommendations given are based on the conclusions.

5.1 Conclusions

5.1.1 Conclusion delivered from the results meeting the first objective

On the basis of the study findings from the first objective, it was found that provision of VICOBA services (savings, insurance, training and access to credit) were among the major factors which influence members to join VICOBA. Based on these results, it is concluded that credit is the most important service for improving both income, food security and housing quality in the study area.

5.1.2 Conclusion delivered from the results meeting the second objective

The findings meeting the second objective showed that the majority of the VICOBA households (69.5%) were below mean income per adult equivalent per year, food insecure (64.5%) per adult equivalent per day and the majority of the people (53%) still lived in thatch-roofed houses. Due to these findings, it is concluded that livelihood outcomes in

terms of income, food security and housing quality are low among the households surveyed.

5.1.3 Conclusion delivered from the results meeting the third objective

The findings as per the third objective showed that education level of household head, credit received and household size had significant influence on income, food security and housing quality. On the basis of these finding, it is concluded that VICOBA services can play a significant role in helping households to increase income, food security and own houses with iron sheets roofs.

5.2 Recommendations

Based on the results, discussion and conclusions, the following recommendations are given in order to inform strategies for supporting Village Community Banks (VICOBA) to improve livelihood outcomes of communities in Rorya district.

5.2.1 Policy recommendation

Based on services provided by VICOBA, credit was important in improving business and also improving both income and food security in the study area; it is recommended that the government, through the Micro-finance policy of 2000, should create a room for supporting informal Micro-Finance Institutions (MFIs) like VICOBA, since the current microfinance policy in use favours formal and semi-formal financial institutions which are legally registered.

5.2.2 District level recommendation

In line with the second conclusion, it is recommended that Rorya District council, local NGOs and communities should find a mechanism of supporting Village Community

Banks efforts financially such that the funding level to its members is increased. In fact an increase in the volume of credit distribution to members will have positive effects that will enable them to meet their financial needs and ensure achieving better livelihood outcomes by improving income, food security and housing.

5.2.3 Community level recommendation

In line with the conclusions, it is recommended that community members need to embrace the schemes like VICOBA which could enable them increase income, food security and improve housing quality hence becoming better-off.

5.2.4 Recommendation to NGOs

Based on the third conclusion, it is recommended that development partners including NGOs should consider VICOBA; especially amount of credit, level of education and household size; in designing programmes to enhance VICOBA sustainability so as to achieve better livelihood outcomes (income, food security and housing quality).

5.3 Recommendations for Further Research

In view of the above mentioned conclusions and recommendations, the study has created a room that calls for further investigation on VICOBA to be carried out. It is, therefore, recommended that further studies should be conducted on:

- i. Replicating this study in other wards in Rorya District is required because these results may not be representative of the influence of VICOBA on livelihoods outcomes of VICOBA members across Rorya District. Therefore, extending this study to cover other divisions and wards of the districts is necessary.

- ii. Influence of VICOBA factors on food security among male and female headed households in Rorya District should be researched on. This is needed because, based on the national food poverty lines and kilocalories consumed per adult equivalent per day, the study on which this dissertation is based found that the majority of the sampled households in the study area were food insecure.

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APPENDICES

Appendix 1: Household questionnaire

VILLAGE COMMUNITY BANKS AND LIVELIHOOD OUTCOMES IN RORYA DISTRICT, TANZANIA

A. PROFILE OF THE RESPONDENTS

1. Name of Ward
2. Name of Village
3. Household members

| HH members' serial numbers | 1 (Household head) | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|--|-----------------------|---|---|---|---|---|---|---|---|----|----|----|
| Name (Only one, Optional) | | | | | | | | | | | | |
| Sex (1 = M; 2 = F) | | | | | | | | | | | | |
| Date of birth | | | | | | | | | | | | |
| Yrs of schooling | | | | | | | | | | | | |
| Marital status (1=Married, 2 = Never married, 3=Widowed, 4=Divorced/separated) | | | | | | | | | | | | |
| Main occupation | | | | | | | | | | | | |

B. PROFILE OF VICOBA GROUP

| | |
|-----------------------------|--|
| Name of the VICOBA group | |
| Location , physical address | |
| Total members of the group | |
| When established | |

C SERVICES PROVIDED BY VICOBA

4. Which of the following services are provided by VICOBA at your place? (*Tick all applicable*)

| S/N | Services provided by VICOBA | <i>(Tick all applicable)</i> |
|-----|-----------------------------|------------------------------|
| 1 | Credit | |
| 2 | Training | |
| 3 | Savings | |
| 4 | Insurance | |
| 5 | Others (specify) | |

5. Which was among the services above in Qun 4 have you received?
6. In what ways do the above services in Qun 5 helped you improve your Income?
7. (a) How much money did you receive individually as a credit? TZS
(b) Out of the credit, how much did you invest in income generating activity(ies) in TZS

8. How many times have you received credit from the VICOBA from 1/11/2015 to 31/10/2016?
 (1) Once (2) Twice (3) Three times (4) More than three times
9. What was the aim of the credit? (Mention the activities conducted after receiving credit), ,.....,.....
10. In what way(s) do the activities mentioned in Qun 9 contribute in improving your food security?
11. Have you received any training provided by VICOBA? 1 Yes 2No
12. I f yes, mention the types of training you have attended (tick appropriate) and their outcomes

| S/N | The attended training of VICOBA (Tick the training you attended)) | Outcomes of the training |
|-----|--|--------------------------|
| 1 | | 1 2 |
| 2 | | 1 2 |
| 3 | | 1 2 |

13. How many training sessions in Qun 12 have you received from 1/11/2015 to 31/10/2016 ?

D OUTCOMES OF ACTIVITIES UNDERTAKEN BY VICOBA MEMBERS

14. Crops and livestock produced for the past 12 months from 1/11/2015 to 31/10/2016 and inputs used

| Crop/livestock | Costs incurred to produce | Amount of products and by-products produced | Monetary value of all the products |
|-----------------|---------------------------|---|------------------------------------|
| Maize | | | |
| Rice | | | |
| Cassava | | | |
| Sorghum/millet | | | |
| Beans | | | |
| Sweet potatoes | | | |
| Bambara nuts | | | |
| Cattle | | | |
| Sheep and goats | | | |
| Chickens, ducks | | | |

15. Which among the following non-agricultural activities are you doing after receiving a credit from VICOBA?

| S/N | Activities done after receiving VICOBA services (credit) | (Tick all applicable) | All costs incurred on doing the activities from 1 st January to 31 st October 2016 | | | All gross revenue obtained from all the activities from 1 st January to 31 st October 2016 | | |
|-----|--|-----------------------|--|---------------------|-----------------------|--|---------------------|-----------------------|
| | | | Per month | For how many months | For all the 10 months | Per month | For how many months | For all the 10 months |
| 1 | Farming activities | | | | | | | |
| 2 | Food vending | | | | | | | |
| 3 | Fishing activities | | | | | | | |
| 4 | Small and medium entrepreneurs (Kiosk) | | | | | | | |
| 5 | Establishing of IGAs | | | | | | | |
| 6 | Others (mention) | | | | | | | |
| 7 | Other sources of income (eg remittances, rentals, etc) | | | | | | | |

16. Other benefits of the activities conducted after receiving VICOBA services?

- 1
- 2
- 3

17. (a) For the last 30 consecutive days until yesterday, how many meals did you eat?

(b) Among those meals, in which of them did you eat the foodstuffs listed in the following table?

| Protein foodstuffs | | | Carbohydrate foodstuffs | | | Protein foodstuffs | | | Carbohydrate foodstuffs | | |
|--------------------|-----------------------|---------------------|-------------------------|-----------------------|---------------------|--------------------|-----------------------|---------------------|-------------------------|-----------------------|---------------------|
| Food type | Number of times eaten | Kg eaten every time | Food type | Number of times eaten | Kg eaten every time | Food type | Number of times eaten | Kg eaten every time | Food type | Number of times eaten | Kg eaten every time |
| Chicken meat | | | Rice | | | Pigeon peas | | | Cassava stiff porridge | | |
| Goat meat | | | Maize stiff porridge | | | Cassava leaves | | | | | |
| Beef | | | Buns | | | Sardines | | | Boiled cassava | | |
| Fish | | | Rice buns | | | Green gram | | | Sweet potatoes | | |
| Beans | | | Bread | | | Shrimps | | | Banana | | |
| Vegetables | | | | | | | | | | | |

| | | | | | | | | | | | |
|--|--|--|-----------------------------|--|--|---------------------------------|--|--|--------|--|--|
| Other high quality protein food stuffs | | | Round potatoes/French fries | | | Other low quality protein foods | | | Others | | |
| Others | | | Others | | | Others | | | | | |

18. Attributes of the house in which the household members live

| House | Attributes of the house |
|---|---|
| 1. Whether the household owns the house | 1 = Yes; 2 = No |
| 2. Floor of the house | 1= Soil, 2= Timber, 3= Floor tiles, 4= Cement, 5=Others |
| 3. Walls of the house | 1 = Block or baked bricks, 2 = Mud bricks, 3 = Iron sheets/Soil + timber, 4 = Thatch/Boxes, 5 = Wood and soil, 6 = Others |
| 4. Windows of the house | 1=Having windows which can be opened, 2=Having windows which cannot be opened, 3=Having no windows |
| 5. Roof of the house | 1 = Roofing tiles/Cement, 2 = Iron sheets/Asbestos, 3 = Timber/Soil/Thatch, 4 = Others |
| 6. Main source of light used in the light | 1 = Electricity/Gas/Solar power, 2 Lantern lamp, 3 = Small oil lamp (<i>Kibatari</i>), 4 Fire wood, 5 = Wood charcoal, 6 = Others |
| 7. Main source of power for cooking | 1 = Electricity/Gas/Solar power, 2 = Fire wood, 3 = Wood charcoal, 4 = Others |

E LINKAGE BETWEEN VICوبا DELIVERED SERVICES AND LIVELIHOOD OUTCOMES

19. Have you done any kind of improvements in your business after joining MFIs (VICوبا)?

1. Yes [], 2 No []

20. If yes, show the types of assets owned by all household members

| Asset owned | Before being a VICوبا member | | After being a VICوبا member | |
|-----------------|------------------------------|----------------|-----------------------------|----------------|
| | Amount | Monetary value | Amount | Monetary value |
| Land | | | | |
| House | | | | |
| Automobile | | | | |
| Motor cycle | | | | |
| Bicycle | | | | |
| Cattle | | | | |
| Cellular phones | | | | |
| Chickens | | | | |
| Cupboard | | | | |
| Donkeys | | | | |
| Ducks | | | | |

| | | | | |
|----------------|--|--|--|--|
| Fan | | | | |
| Goats | | | | |
| Hand hoe | | | | |
| House | | | | |
| Machete | | | | |
| Mattress | | | | |
| Mosquito net | | | | |
| Pigs | | | | |
| Press iron | | | | |
| Radio receiver | | | | |
| Refrigerator | | | | |
| Satellite dish | | | | |
| Sewing machine | | | | |
| Sheep | | | | |
| Sofa set | | | | |
| TV set | | | | |
| Watch | | | | |
| Wooden bed | | | | |
| Others | | | | |

21. Do you have personal savings? (1) Yes [] (2) No []
22. If yes, what type of savings do you have? (1) Ordinary Savings [] (2) Fixed Savings (3) None
23. Before joining VICOBA what was the amount you could save per year? TZS.....(year), and after joining VICOBA, how much can you save per year(2016)
- 24 Do you earn interest on the savings? (1) Yes [] (2) No []
- 25 Does savings and share contribute to improving living conditions (housing) among members?
- 26 If yes, how?

THANK YOU FOR YOUR COOPERATION

Appendix 2: Checklist for focus group discussion

VILLAGE COMMUNITY BANKS AND LIVELIHOOD OUTCOMES IN RORYA DISTRICT, TANZANIA

A. PROFILE OF VICOBA GROUP

| S/N | Particulars | Responses |
|-----|-----------------------------|-----------|
| 1 | Name of the VICOBA group | |
| 2 | Location (physical address) | |
| 3 | Total members of the group | |
| 4 | When established | |

5 When did VICOBA starts in your area?

6 What are the services provided by VICOBA in your area?

7 Which of the (6) above mentioned services provided by VICOBA are the most important?

8 Why do you think the (7) above services are more important compared to others services?

9 What is the status of food security in your area?

10 How would you describe income in your area?

11 Does VICOBA in your area have the possible of increasing ones income?

12 What is your general view of VICOBA in your area?

13 Are there any community initiated actions to address VICOBA issues? If none why?

14 When you compare men and women who participate most in VICOBA activities?

15 On what items do most households spend their income from VICOBA?

16 Do you think VICOBA activities could interfere with community culture and beliefs?

17 What are the activities undertaken by VICOBA groups?

18 What problems do VICOBA members encounter in joining VICOBA?

19 What is definition of food security in your community?

20 How can the poor in your area get out of their poor living standard?

THANK YOU FOR YOUR PARTICIPATION

Appendix 3: Checklist of items for discussion with Key informants (leaders)

1. Name of District
2. Name of (ward, village).....
3. Respondent's designation.....
4. Do you know the household sources of incomes in your area?
5. How many VICOBA groups do you have in your area?
6. In (5) above name them
7. Please can I know the amount of the evolving fund and the total number of VICOBA members in your area? Amount TZS.....
8. Total members.....
9. To what extent has the VICOBA succeeded in improving livelihoods in your area so far? Excellent = or > 75% [], Very good 70% -75% [], Good 60% - 69% [], Fair 50% - 59%, [] Failure 50% [], NULL = 0 [], others = 1
10. What are the challenges you are facing on working with these VICOBA groups?
11. What are the opportunity do the VICOBA members have?
12. Do you think is there any achievable for increasing number of VICOBA groups in your area?
13. How can you explain the involvement of VICOBA to improvement income?
14. What do you think are the meaning of food security in your area?
15. In what ways do VICOBA contribute to food security (vis-à-vis other factors) in terms of food and cash to buy food?
16. What are the roles of NGOs and other development agencies in the supporting VICOBA through financial and training in your area?
17. What could be the reasons for some of the community members not joining the VICOBA groups?
18. Suggestions/ Recommendations for further effective

THANK YOU FOR YOUR COOPERATION

Appendix 4: List of VICOBA groups interviewed

| S/Number | ward | Name of the groups | Sex | |
|----------|-----------|-----------------------|------|--------|
| | | | Male | Female |
| 1. | 1 Kisumwa | Upendo | 32 | 65 |
| | | Mshikamano | | |
| | | Umoja | | |
| | | Juhudi C | | |
| | | Muongano A | | |
| | | Muongano A | | |
| 2. | 2. Kirogo | Kirogo | 15 | 38 |
| | | Ukombozi | | |
| | | Tumaini | | |
| | | Ufunuo | | |
| | | Jikomboe | | |
| | | Jipemoyo | | |
| | | Faraja | | |
| | | Upendo Kirogo | | |
| | | Baraka | | |
| 3. | 3. Roche | Migekeo IR VICOBA | 14 | 36 |
| | | Amani IR VICOBA | | |
| | | Nyamidakola IR VICOBA | | |
| | | Juhudi | | |

Appendix 5: Tanzania Food Composition Table**Cereal and Cereal products**

| S/Number | Name of Foodstuffs (Macronutrients) | Energy (kCal) |
|-----------------|--|----------------------|
| 1 | kCal eaten chicken, boiled or roasted | 2850 |
| 2 | kCal eaten goat meat | 2690 |
| 3 | kCal of beef ,liver cooked | 1910 |
| 4 | kCal of fish, raw eaten | 1120 |
| 5 | kCl of beans, kidney mature seeds, raw | 3330 |
| 6 | kCal of Amaranith, leaves, raw | 2300 |
| 7 | kCal of rice, white, grain raw | 3580 |
| 8 | kCal of maize, flour, dry | 3620 |
| 9 | kCal of buns | 4162 |
| 10 | kCal of rice buns | 4162 |
| 11 | kCal of bread white | 2740 |
| 12 | kCal of potatoes, English, cooked | 9300 |
| 13 | kCal of cassava leaf | 3430 |
| 14 | kCal of fish, sardines | 1120 |
| 15 | kCal of bean, kidney green cooked | 1660 |
| 16 | kCal of cassava, dried | 3140 |
| 17 | kCal of cassava, raw eaten | 1600 |
| 18 | kCal of sweet potato, fresh-EP | 1030 |
| 19 | kCal of banana cooked | 1160 |