

**MICROCREDIT AND MAIZE PRODUCTIVITY: THE CASE OF VILLAGE  
SAVING LOANS (VSL) IN THE SOUTHERN ULUGURU MOUNTAINS,  
TANZANIA**

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**DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE  
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## ABSTRACT

The main objective of this study was to determine the impact of village saving loans (VSL) in improving maize productivity. Specific objectives of the research were to i) Determine the extent of using VSL in accessing agricultural inputs ii) Assess the impact of VSL in productivity of maize at household level iii) Examining the challenges facing the implementation of VSL. The study was conducted in the southern side of the Uluguru Mountains specifically in Koleru, Kassanga, Temkelo and Lubasazi villages. A cross sectional design was adopted. A representative sample of 120 respondents was randomly drawn comprising members and non-members of VSL. Both qualitative and quantitative methodologies were used. The methods used under qualitative methodology were Focus Group Discussion and observation. Under quantitative methodology, a questionnaire with closed and open ended questions was used to collect data. The Statistical Package for Social Science (SPSS) was used for data analysis. The results show that VSL has not been successful in increasing agricultural productivity of its members. However, the program has an overall positive impact on various indicators of household and individual welfare, including asset expenditure levels, the development of income-generating activities (IGAs), education expenses, and access to health services, nutritional levels and quality of housing. It is further recommended that for the groups to be successful the leadership of the groups should be improved and also more education should be provided to the members and non-members to increase group's sustainability, membership rate and the number of groups. The government on the other hand should improve the land ownership policy to enable larger number of farmers to own land and improvement of rural network system to enable expansion of agricultural markets.



## DECLARATION

I, FATUMA SAID MNIMBO, 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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(MA. Rural Development)

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Date

The above declaration is confirmed

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Prof D. Mwaseba

(Supervisor)

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Date

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## **DEDICATION**

This study is dedicated to the Almighty God, creator of the universe and source of all knowledge, who has enabled me to pursue studies up to the higher degree level at the University. It is also dedicated to My Late Sister Amina whom I wish was here to share my achievements and to my parents Said and Magreth Mnimbo for their support in my life.

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**LIST OF ABBREVIATIONS**

AGENT	Agribusiness Entrepreneur Network and Training
ASCA	Accumulating Saving and Credit Association
BRAC	Bangladesh Rural Advancement Committee
CA	Conservation Agriculture
CGAP	Consultative Group to Assist the Poor
FSD	Financial Sector Deepening
GDP	Gross Domestic Product
GSL	Group Saving Loans
HYV	High-Yielding Varieties
IDRC	International Development Research Center
ISAL	Internationals Internal Savings and Landing
ROSCA	Rotating Savings and Credit Association
TSHS	Tanzania Shillings
UN	United Nations
UNFPA	United Nations Population Fund
URT	United Republic Of Tanzania
USD	United State dollar
VICOBA	Village Community Banks
VSL	Village Saving Loans



## CHAPTER ONE

### 1.0 INTRODUCTION

#### 1.1 Background Information

The term microfinance was first introduced in 1990 with the specific connotation of encompassing micro-credit and micro savings as well as other financial services. Microfinance is that part of the financial sector which comprises formal and informal financial institutions, small and large, that provide small-size financial services in theory to all segments of the rural and urban population. In practice however mostly to the lower segments of the population (Dieter, 2007).

Microfinance is defined in various ways, according to the microfinance Gateway (,2008), microfinance means providing very poor families with very small loans (microcredit) to help them engage in productive activities or develop their tiny businesses .The Consultative Group to Assist the Poor (CGAP), defines microfinance as the supply of loans, savings and other basic financial services to the poor, including working capital loans, consumer credit, pensions, insurance and money transfer services. Similarly, (Hossain, 2002) defines microfinance as the practice of offering small, collateral free loans to members or cooperatives that otherwise would not have access to capital necessary to begin small business or other income generating activities.

According to the United Nations (2002), almost one fifth of the world population live under extreme poverty that is about (1.3 billion people) earning less than one US dollar a day that is less than 2000 Tshs. As a way of reducing the number of poor people it has been argued that microfinance is a perfect instrument to combat extreme poverty

(Morduch, 2000). Thus the UN declared 2005 as the International Year of Microcredit in which the UN believed that through microfinance it will be much easier to attain the Millennium Development Goal as agreed by international leaders at the Millennium International Summit in 2000 during which they agreed at halving extreme poverty by 2015 (Hermes *et al.*, 2007).

At global level, microfinance institutions have made an outstanding contribution in eradicating poverty. About 2186 million microfinance institutions have been established worldwide out of them 230 are in Africa, reaching about 54.9 million people whereby, 4.5 million are in Africa with about 26.8 million of microcredits reaching people whom were among the poorest (Salehuddin, 2002). Many countries have included microfinance as a policy for eradicating poverty and improving quality of life of people with limited access to permanent financing by creating the ability to empower people to work their own way out of the poverty trap (Hossain *et al.*, 2001).

Agriculture continues to be a fundamental instrument for sustainable development and poverty reduction. It is the sources of employment to the world's largest population and between 60-99% of people depend on agriculture as the main source of income and food (FAO, 2006). Among them 2.1 billion live in rural areas, living on less than two US dollars a day and 880 million on less than one US dollar a day (Byorlee *et al.*, 2008). However in most cases agriculture is characterized by low productivity due to low levels of investment in inputs (fertilizer, and herbicides) or in equipment. This could be reversed if famers are provided with access to financial services such as medium or long term loans in the form of agricultural investments.

Due to the vast role that microfinance has played in reducing poverty in the past twelve or so years, many countries in the world saw the need of promoting microfinance to support agriculture basing on its contribution to national development. Thus many countries decided to integrate agriculture into their development programs as a way of achieving the Millennium Development Goal that calls for halving the share of people suffering from extreme poverty and hunger by 2015 (World Bank, 2008).

Tanzania is no different from the rest of the world as agriculture is the largest income generating activity and the back bone of country's economy. It employs about 70% of the population living in rural areas who are among 80% of the poor population living below the poverty line of US dollar 0.65 per day (URT, 2001). Agriculture contributes about half of the country's GDP and 60% of export earnings and about 95 to 97% of the food consumed in the country. Sale of agricultural products accounts for about 70% of rural household incomes.

The major constraints impeding a rapid growth of the agriculture sector in the country include low levels of technology, excessive reliance on rain fed agriculture, and insufficient agricultural extension services. However other constraints are low labor productivity, deficient transportation and marketing infrastructure and facilities, post-harvest management, marketing, and gender access to inputs and ownership of the means of production access to capital and the biggest challenge being access to credit to most farmers (Shetto *et al.*, 2007).

Between 1960s and 1970s the main focus on rural development was agricultural production. Agriculture financing was all about providing inputs to farmers with many

governments leaving the role of providing agriculture loans to agricultural development banks and projects. Banks and projects were provided with loans to run agriculture financing and as a service and not a business, as a result many farmers did not pay back the loans, bribery was practiced in getting these financial services. The loans did not reach the intended group that is the farmers as a result agricultural banking failed (Zeller, 2003). Due to the failure of the rural financial services the need for establishment of rural financing was inevitable. Considering the sensitivity of agriculture, the financial services were expected to enable farmers to secure loans that will enable them to finance agricultural activities.

Rural financial services are the informal financial services in rural areas which offer financial services to low income populations (Tenaw *et al.*, 2009). World Bank (2007) defines rural finance as a financial intermediation outside of urban areas, including deposits, loans, payment and money transfer systems, trade credit, and insurance, to rural households as well as to farm and non-farm enterprises. Rural financing aim at providing means for the rural poor to survive during large shocks like helping them to have money, and conducting agricultural activities. However other contribution of rural financing includes providing means to pay for school fees, medical issues and to have enough income to meet their day to day activities, thus increasing their household's risk bearing ability, enabling them to investment in more profitable activities and avoid drastic actions such as distress sales of land and draft animals that can permanently damage future earning potential (Adato *et al.*, 2004).

Among these rural financial services is the Village Saving Loans (VSL) model which was first introduced by CARE international in Niger in 1991. It has spread to 61 countries in

Africa, Asia and Latin America, with over [6 million active participants worldwide](#) (CARE, 2009). A village saving loan is a time bond accumulating saving and credit association (ASCA) in which 15 to 30 people save regularly and borrow from the group fund (Anyango *et al.*, 2002). VSL is an improvement of the traditional Rotating Savings and Credit Association (ROSCA) systems widely used in Tanzania and throughout Africa.

The VSL is a self-managed and self-capitalized microfinance methodology which does not depend on external sources of income. Members contribute their own funds and they can take small loans from their group in order to meet their day to day needs. VSL offers savings, insurance and credit services in markets outside the reach of formal institutions. The main difference between the VSL and MFIs is that the former deals with people with very low incomes which microfinance do not consider lendable (Allen *et al.*, 2002).

In Tanzania, the VSL was established by CARE International in 2009 in the implementation of the Conservation Agriculture (CA) Project which focuses on the Southern part of the Uluguru Mountains in Morogoro Rural District. Specifically the project has been implemented in 14 villages located in Kasanga and Kolelo wards in Morogoro Region (CARE, 2009). The overall objective of the project is to improve viable and sustainable resource conservation in order to support the livelihood security of smallholder men and women farmers. Generally, the establishments of VSL aimed to enable farmers to have access to capital for improving their farming activities by enabling farmers to join as individuals or as groups. It has guaranteed farmers to have access to credit facility and thus engage in various enterprises either individually or in groups (CARE, 2009).

## **1.2 Problem Statement**

Despite the rapid development of financial services, most poor people in Tanzania and other parts of the world have no access to loans from institutions offering financial services such as banks, credit unions, cooperatives, Microfinance Institutions (MFIs) or insurance companies due to the precarious nature of agricultural production. Farmers cannot put up acceptable collateral, and due to bureaucratic procedures in the formal financial sectors, banks do not consider lending to this group profitable. In most cases the land owned by the farmers is not considered collateral and the means of repaying the loans by most farmers is still poor. As a result, they continue to rely on informal services which are usually scarce (Hermes *et al.*, 2007; Rweyemamu *et al.*, 2003; Greeley, 2003; Allen, 2002).

Thus the introduction of rural financing, including VSL aimed to bridge the gap that other forms of microfinance have failed, by providing the rural poor with the service that will enable them to have access to funds that they can use for agriculture (Allen, 2005). Despite the apparent success and popularity of VSL in supporting agricultural activities, no clear evidence yet exist on how the VSL contributes to improve agricultural productivity (Morduch, 2005, Armendariz, 2010). Therefore this study intends to bridge the present information gap on how the VSL improves agricultural productivity in Tanzania.

## **1.3 Justification**

The growth of the microfinance industry has attracted much attention from policy makers, donors and private investors, on claims that microfinance successfully alleviates poverty

and help farmers to increase their productivity (Greely, 2003). Therefore, this study intends to empirically examine the role of VSL in improving maize productivity and to bridge the information gap available.

The results from this study will add positively to existing literature and bridge the existing knowledge gap on the impact of VSL in improving agriculture productivity, Also it will offer an insight on the establishment and reformation of rural financial services, furthermore the results are intended to assist CARE and other affiliated organizations to better understand the dynamics and impact of VSLA to its members

## **1.4 Objectives**

### **1.4.1 General objective**

The general objective of this study was to assess the impact of village saving loans (VSL) in improving maize productivity.

### **1.4.2 Specific objectives**

- (i) To determine the extent of using VSL in accessing agricultural inputs for Maize crop.
- (ii) To assess the impact of VSL on productivity of maize at household level.
- (iii) To examine the challenges facing the implementation of VSL in Kolero and Kasanga villages.

## **1.5 Research Questions**

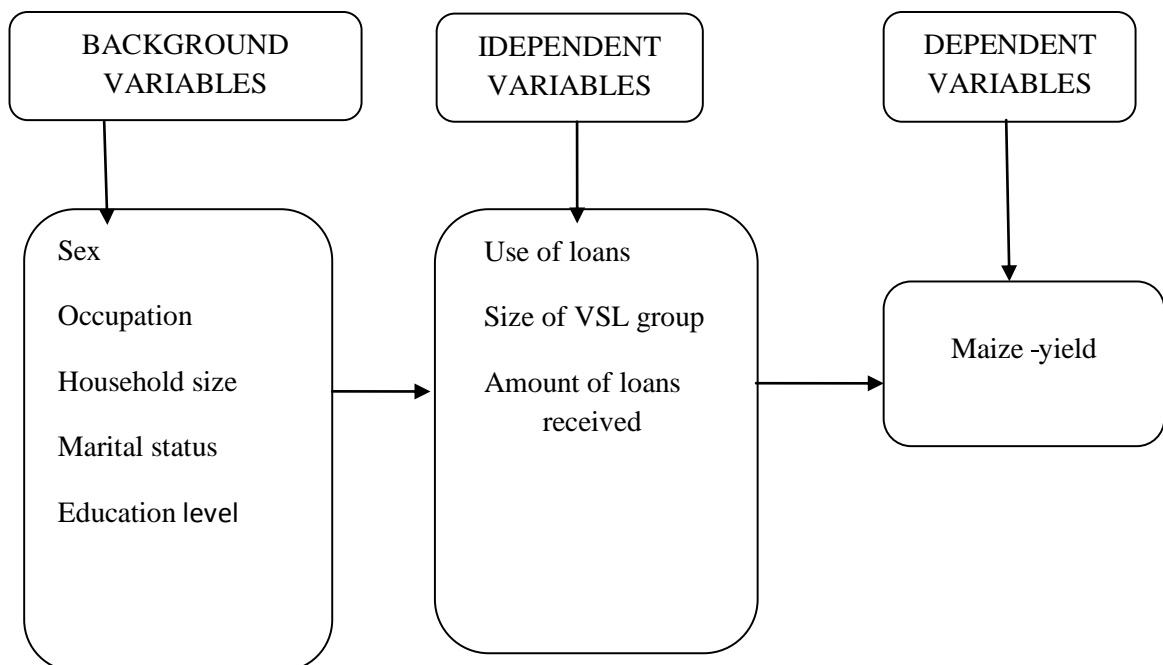
The research was guided by the following questions

- (i) Has participation in the VSLA program resulted in accessing agriculture inputs?

- (ii) Has participation in the VSLA program resulted in increase in maize productivity?

### 1.6 Conceptual Framework

This conceptual framework has been adopted and modified from the Microfinance Triangle Model cited in Zeller (, 2003) and Meyer (, 2002). According to this model, in order for any kind of microfinance program to deliver expected results, there should be three things namely wide of outreach, financial sustainability, and poverty impact (welfare impact). Outreach is measured by how deep microfinance has enabled the poor to get out of their situation in terms of numbers and depth of poverty. Financial sustainability means enabling the project running in the long run and not fail to operate after a short period of time (meeting operating and financial costs over the long term), and impact is measured by looking at clients quality of life after joining microfinance. Thus for microfinance to be successful it should expand all sides of that triangle. This model has been used to evaluate the impact of VSLs in improving agricultural productivity of the members.





**Figure 1: Conceptual framework**

## **CHAPTER TWO**

### **2.0 LITERATURE REVIEW**

#### **2.1 Agricultural Productivity**

Agricultural productivity may be defined as the total agricultural output per unit of cultivated area, per agricultural worker or per unit of input in monetary values. These may be separately called land productivity labour productivity and capital productivity. Agricultural productivity is generally the result of a more efficient use of the factors of production, and environment, arable land, labour, capital and the like. Any changes in these factors can results to increase or decrease in the level of productivity (World Bank, 2008).

Agriculture productivity can be measured by one of these methods, by assessing the value of agricultural production per unit area, measuring production per unit of farm labour, input output ratio, expressing production as grain equivalents, carrying capacity of land in terms of population, total production of all crops converted in terms of money, computing the intensity and spread indices of three variables, that is yield, grain equivalents and cropping system (Tiwari *et al.*, 1997). For this study purpose agriculture productivity is used as total output per unit area.

#### **2.2 Village Saving Loans (VSL): the concept**

CARE International has developed VSL as a complementary of MFIs, when MFIs have a conventional belief is that credit is the most important service that they can offer, to enable the poor to invest their way out of poverty, VSL believe that what poor people require are

the means to build their assets through savings rather than increase their risk exposure by taking out loans. Thus VSL model intends to provide the rural poor and the urban very poor with savings services as well as insurance and credit that can be delivered cost effectively, provide a secure place to save, the opportunity to borrow in modest amounts, easy to understand and transparent in its operations (Allen, 2006; Fowler *et al.*, 2011).

VSL groups are self-managed and self-capitalized, the members decides who joins the group, the group elects their own leaders, money counters and group managers, The group saves their money in special lockable cash boxes which surplus cash and records are kept. In most cases the box has multiple locks in which the keys are distributed to separate members appointed by the group. In addition to the savings fund, the cash box holds the social fund and the education fund. The social fund is a self-insurance mechanism, which can provide members with a small amount in the case of emergencies. Each member contributes a set value every week, usually between Tsh 200 (USD0.18) and Tsh 400 depending on the group (Branen, 2010).

In the event of an emergency such as a fire or death of a family member, the fund dispenses a fixed amount, generally between Tsh 10 000 (USD 9) and Tsh 20 000 (USD18), the social fund is managed separately from the savings and loan fund and is not shared out at the end of the cycle and is thus carried over to the next cycle (Mutesasira, 1999). Record keeping is done in one of the three basic approaches, memorization (usually used by a group with low literacy level),using passbooks and recordings of ending fund balances only or by central lagers to track financial activity through group secretary (Panetta *et al.*, 2010).

The VSL groups are organized by members contributing their own cash in the group, members can increase their capital through weekly purchase of 'shares' (less than USD1.00) on a weekly basis members are allowed to borrow a certain amount of money with a specified interest rate agreed by the members in weekly meetings. Each member can borrow up to three times the value of their accumulated savings at outset of usually after a year. At the end of the financial cycle all the financial assets are divided among the members according to their savings. The group normally reforms immediately and starts a new cycle of savings and lending (Anyango *et al.*, 2002, CARE, 2008).

Each group is able to set their own repayment terms. Moreover, a VSLA never fine borrower for late loan repayment as this may aggravate any underlying crisis the household may be facing. The VSLA boost on its ability to be adapted easily and transparently to its members even the illiterate ones .All operations (deposits, withdrawals, loan repayments) occur at weekly meetings with the entire group present so that all activities remain transparent (Allen and Staehle, 2007; Training Guide, 2004).

In comparison with other forms of rural microfinance VSL has the following qualities. VSL is a saving, based financial services with no external borrowing or donation to the loan portfolio. Self-management, simplicity and transparency of operation, flexibility in loan sizes and terms, very low group management cost more through group earnings and earnings retention in the group and local communities, program flexible adaptation of the basic model (Allen, 2002, CARE, 2009).As a complimentary to other forms of microfinance, Village saving loans deal with the very poor and people living in very

remote areas whose income are low and irregular, people with the need to save cash in small amounts and limited demand because the market for their products are not available (Singer, 2005).

### **2.3 Village Saving Loans (VSL) in Africa**

As the main objective of microfinance is to alleviate poverty it is widely believed that microfinance programs will raise incomes and broaden financial markets to small scale entrepreneurs (Morduch, 2000). In view of this many countries in Africa, Asia, and Latin America have included microfinance as policy variables to eradicate poverty (Hossain and Rahman, 2001). Thus microfinance is a tool used to improve the quality of life of people with limited access to permanent financing. There is an almost global consensus which shows that, microfinance, to the poor, is viewed to achieve equitable and sustainable gains for economic and social development in the twenty-first century (Mayoux, 1999).

VSL has been implemented by 22 African countries including Angola, Burundi, Cote'devour, Eritrea, Kenya, Lesotho, Malawi, Mozambique, Rwanda, Uganda, Zambia and Zimbabwe to mention a few so as to help rural poor in securing loans to be able to support their various activities (CARE, 2010). It has been also adopted by different Non-Governmental Organizations such as Plan International, Oxfam, Catholic Relief Services (CRS), and The Agha khan Foundation reaching approximately 2 million very poor people (Grant, 2002).

The agricultural system across Africa is broken. A large number of smallholder farmers are poor and getting poorer that means in few years to come a large number of African

countries will be hungry with lack of enough food to feed the population. For Africa to prosper, millions of smallholder farmers must be able to access, among other things, capital to be able to carry out agricultural production activities. Currently low interest loans and capital that would trigger growth are rarely provided to farmers. Most African countries have thus adopted VSL hoping to find a perfect and long term solution to the problem of rural financing (Hayley *et al.*, 2002).

#### **2.4 Impact of Village Saving Loans on Agriculture**

Many studies have been conducted to investigate the impact of microfinance on agriculture and many have come up with the conclusion that agricultural loans have a positive impact on agriculture. A study by Alam (1988) sought to measure the productivity growth of the Grameen Bank members, his findings suggest that as a result of participating in the bank, farmers have allocated a higher percentage of their land for the cultivation of high-yielding varieties (HYV) and have improved their agricultural productivity, which they were unable to afford before joining the Grameen bank due to their low income level. Therefore joining the Grameen Bank credit programs has increased their income and since they work in groups, it is relatively easier for them to obtain HYV inputs at a low average cost and accordingly, members of all programs in general, have achieved a higher agricultural productivity in terms of per acre yield.

Similarly a study conducted by Allen (2005) about the impact of several west Nile Saving Groups on agriculture, used a change in a mix of indicators to measure impact; the indicators included the use of productive and nonproductive assets, nutrition, consumption of services and social capital. The study shows that members of the group came up with large sum of money which was used in investing in maize. Sumay (1999)

also reported the need for credit in improving land buying inputs and other forms of farm investments. The conclusion from the study shows that agriculture requires large sums of money in purchasing inputs and also to finance its productive capacities. Therefore loans are very crucial since a lot of farmers do not have enough money to buy inputs and depend on external sources of income.

The experience of CARE international's Internal Savings and Lending (ISAL) and Agribusiness Entrepreneur Network and Training (AGENT) projects in Zimbabwe provide evidence that saving groups enhance the capacity of smallholder farmers to purchase agricultural inputs (Fowler *et al.*, 2011). Since the implementation of the project farmers have improved their productivity in a large percentage compared to the past. This is due to the fact that they were financed in buying inputs for their agricultural activities.

However, some studies argue that provision of small and medium loans to farmers only cannot guarantee increase in the level of productivity. Yunus (2004), argues that the supply of loans to farmers should be supported by provision of extension services, marketing and storage facilities which can be provided by the government or the institution that is offering the credit. This will help in increasing the level of productivity of farmers. Other studies suggested that there is no direct linkage between provision of loans and agricultural productivity arguing that loans only improve the standard of living and not agricultural productivity.

A study by Dunn *et al.* (2001) in Lima Peru on Maize project, focused on two groups of farmers one group consisting of farmers who are in the project and the other with farmers

who are not in the project. They found that the farmers who were in the project obtained over 50% higher income than non-participants. Zaman (2000), who examined the Bangladesh Rural Advancement Committee (BRAC)'s impact on the welfare of its clients, found that participation in micro-credit program reduces vulnerability by smoothing consumption, building assets, providing emergency assistance during natural disasters.

## **2.5 Challenges of Village Saving Loans VSL**

Organizations that offer village saving and loans such as CARE face a number of challenges. Basing on the nature of the loans provided, it is difficult to invest in the long term activities such as cash crop agriculture hence investment is limited only to short term activities such as trading, food processing and food crop agriculture (FSD, 2010).

A study by Mushendwa (2011) on the contribution of VICOBA on community development in Chunya District came up with the conclusion that the main challenges facing VICOBA groups were delayed loan repayment and inadequacy of basic knowledge and skills among others. Similarly, a study by Mosha (2012), on the contribution of IR-VICOBA to the improvement of its members' livelihood concluded that the main problems facing VICOBA are structure, leadership and coordination environment. Thus the rate of growth of member's shares is not in line with the structure of groups this leads to failure in operation of many groups. Another problem which the study revealed is the low level of education of majority of members. Thus they lacked entrepreneurial skills which led to low investment whilst deterioration of repayment of the loans in time contributed much to high dropouts in the groups. On the coordination side, the study revealed that the project lacked motivation to facilitators, proper venues for meetings, lack



of enough training for both facilitators and group leaders and lastly there was no constant visitation of the leaders to the groups hence they lacked information on how the groups were proceeding.

CARE has also had its fair share of failure over the 10 years of its work in Africa .It has become very clear that while it is possible to create a successful and profitable microfinance institution the challenge of capitalization and sustainability push inexorably towards the establishment of large scale regulated financial institutions empowered to mobilize saving from the general public (CARE, 2009).

VSL as any other form of loan faces the challenge of most farmers being scared of taking a loan with the worry that by taking a loan they will be increasing the level of liabilities hence they will not be able to repay and also the fact that most farmers have no source of insurance that they can pay on time. In this regard, Allen (2002) has commented that, it is important that before anyone takes a loan calculation and the probability of being able to repay to be done.

Village saving loans are faced with the challenge of illiteracy- as many people living in the rural areas do not know how to read and write. This brings a problem to the group in mathematical calculations and in record keeping as well as in keeping accurate track of members loan balances to ensure that groups quickly become independent (Panetta *et al.*, 2010).

Generally, illiteracy level poses a threat to VSL objective of increasing productivity as most farmers will borrow money and not use it for investment in agriculture but use it for other things which do not produce desirable outcomes. Inflation also affects small loans to farmers. A study conducted by Financial Sector Deepening (FSD) in 2010, observed the difficulties that the Group Saving Loans (GSL) have faced as a result of inflation. It drove up the prices of basic supplies including food, fertilizers and seeds. Hence the loans provided to farmers are not enough in meeting the needs of farmers to secure inputs for agricultural production. Similarly, a research by Hulme and Mosley (2002) shows that the impact of credit on BRAC 20 members' monthly incomes has been limited, particularly when inflation is taken into account, income increases of members are negligible.

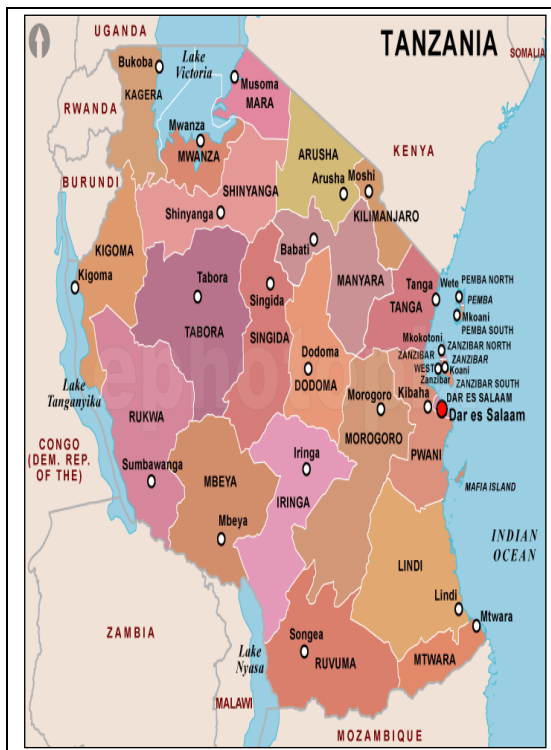
## **CHAPTER THREE**

### **3.0 MATERIAL AND METHODS**

#### **3.1 Description of the Study Area**

This study was conducted in the Southern part of the Uluguru Mountains, situated about 120 kilometers from Morogoro District and inhabited by approximately 151 000 people in 50 villages. Specifically the study was conducted in the southern side at Kasanga and Kolero wards. Kasanga and Kolero wards were selected because as per CARE policy, Morogoro Southern village are among the poorest areas in Morogoro District and thus the results can be observed more clearly. Moreover , the area is selected due to the fact that there is a project linking agriculture and VSL and the project has been implemented for a number of years and thus appropriate to provide enough evidence of whether there is a positive change or otherwise.

Four villages were selected for the study basing on attitude of the area with the main assumption that high land areas will have different levels of productivity from the lowland areas, the lower land villages selected were Kolero (410 m.a.s.l) and Lubasazi (338m.a.s.l), and highlands villages are, Kasanga (814m.a.s.l) and Temekelo (1186m.a.s.l). There are about 97 270 hectares of cultivated land in the Uluguru Mountains, with average holdings of two hectares per household. The main food crops grown in the area are maize (with a very low average yield of 100-500kg/acre), cassava, upland rice, and fruits (CARE, 2008).



**Figure 2: Map of Tanzania and Morogoro showing study villages**

**Source:** Survey and Mapping Division Ministry of Lands and Human Settlement Development (2008)

### **3.2 Research Design**

The research design employed during this study is cross-sectional design. This design is suitable for descriptive statistics and allows collection of data from different groups of respondents at a time (Bailey, 1995). Cross-sectional research is considered to be favorable since it is economical and allows comparison of the variables of interest (Babbie, 1990).

This design involved collection of information by asking questions to a representative sample of the population at a single point in time. Instruments used for collecting information and data were questionnaire and checklists.

### **3.3 Research Process**

Research was divided into two phases which were grouped according to type of data and data collection procedures as discussed in the subsequent sections.

#### **3.4.1 Phase I: Qualitative data collection**

This phase focused on collection of data from key informants, and focus group discussions (FGDs). It also involved pre-testing of questionnaire to check its relevance and correction respectively. Pre-testing was carried in Kolero village.

#### **3.4.1.1 Focus group discussion**

A total of four (4) FGDs were held involving one (1) FGD in each village with 10-20 (ten to twenty) participants. Participants comprised both project beneficiaries and non-beneficiaries. All participants sat in a circle to facilitate a round table discussion. The researcher was the moderator while the assistant (VSL group leader) assisted in recording the discussions. Each FGD was held for 1 hour.

#### **3.4.1.2 Key informants**

In conducting the research several key informants were interviewed including a number of CARE international staffs who were conducting monitoring and evaluation of the project, community-Based officers. (Selected individual who had received special training from CARE and were training other villages) and the Village leaders who were relevant for the introduction and the sampling of the non-members to participate in the project.

### **3.4.2 Phase II: Quantitative data collection**

#### **3.4.2.1 Primary data**

Primary data was collected from individual respondents and key informants using semi-structured questionnaire comprised of both open and closed ended questions and enumerated to both VSL members and non-members. Non-members were individuals who lived in the same villages as members and could reasonably be expected to be aware of the VSL. They were interviewed in order to make comparison between members and non-members, as well as to gain an approximate picture of how their characteristics and views were similar or different (on dimensions of relevance to the study) from those of members. Kiswahili language was used in the administration of the questionnaire to overcome the language barrier.

#### **3.4.2.2 Sampling strategies for questionnaire survey**

A multi-stage sampling technique was employed to get households from different villages. According to IDRC (2003) this technique is useful in large and diverse population. The actual sampling unit was the household. In selecting the village and households, simple random sampling was used. An equal number of respondents participating in the project and those who are not participating were selected for the study purposes. At this point a list of project beneficiaries and those who are not beneficiaries was created. From the list simple random sampling was employed to select sixty respondents from each group.

**Table 1: Summary of the selected respondents for the study sample**

Ward Sample Frame	Selected Villages	Number of Households	No. of selected Household	%
Kolero	Kolero	580	30	5.2
	Lubasazi	525	30	5.7
Kasanga	Kasanga	549	30	5.5
	Temekelo	625	30	4.8
<b>Total</b>		<b>2 270</b>	<b>120</b>	<b>5.3</b>

### 3.5 Data Processing and Analysis

Data collected was summarized, coded and then analyzed using Statistical Package for Social Science (SPSS). Inferential statistics were used to test for significance of variables influencing productivity. A t-test was employed in making inferences on maize productivity between those people who are involved in VSL and those who are not by using the method proposed by Kapoor *et al.* (2005) Statistics particularly mean, frequencies, percentages, minimum and maximum values were computed and used to describe available data.

Thus

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}} \dots\dots\dots(1)$$

Where as

$\bar{x}_1$  = mean of maize productivity among farmers involved in VSL

$\bar{x}_2$  = mean of maize productivity Farmers not in VSL

$n_1$  = number of farmers in VSL

$n_2$  = number of farmers not in VSL

$s_1^2$  = variance of maize productivity among farmers involved in VSL of maize

$$\frac{\sum(x_2 - \bar{x}_2)^2}{n_2} \dots\dots\dots(2)$$

The level of significance required ( $p = 0.05$ ) will be chosen and read off the tabulated  $t$ -value.



## **CHAPTER FOUR**

### **4.0 RESULTS AND DISCUSSION**

#### **4.1 Demographic Characteristics of Respondents**

This study was conducted in the Southern Uluguru Mountains area at Kolero and Kasanga wards where two villages from each ward were selected into the study. A total of 120 respondents were interviewed who were grouped into two main categories for example members of village saving loans and non-members. The study respondents comprised of 60% males and 40% females. The number of males and females seems to differ owing to the fact that women in the southern Uluguru mountains area are not used to involving themselves in project activities therefore they were difficult to mobilize.

The results show that the minimum age of the respondent was 25 years where 6.6% of the respondents fall under this age category and the maximum age was 65 where only 2.5% of the respondents were found about 61.6% of the respondents were between the age of 25-35 which is the economically active group and able to participate in agricultural activities. Whilst 31.0% of the respondents were in between the age of 26 to 50 years, this was the age group that comprised of members who had been in village saving loan groups for at least three years thus the impact of VSL was expected to be more prominent.

Education level attainment is one of most important attribute of the study. Knowing the level of education one attained is significant in knowing the influential factors for joining or not joining Village saving loan groups. According to National Strategy for Growth and Reduction of Poverty (NSGRP) (URT, 2005), education is identified to be one of the

priority sector considered to have great impact on poverty reduction. The study revealed that 20% of the people from Kolero, had no formal education meaning they did not attend any formal schooling and none of the respondents from the other villages had formal education. Only about 70% of the respondents from Kolero, 90% from Lubasazi, 86.6% from Kasanga and 93.3% from Temekelo had attended primary education and these were the middle aged respondents ranging from 25-35 years. Among all the 120 respondents interviewed for the study, 10% of them from Kolero, 10% from Lubasazi, 13.3% from Kasanga and 6.6% from Temekelo had attained secondary education. However, the study revealed that the number of people who had attended secondary education is small due to the fact that educated people decide to mostly pursue other professions and not agriculture hence a large number have migrated to urban areas.

The study revealed that 8.3% of the respondents interviewed in all the four villages were divorced and had families to take care after, 1.6% of the respondents were single, 80.8% of the respondents were married, and 9.1% of the respondent were widowed. It was further revealed that one of the reasons for one to be a member is to be able to take care after one's family.

**Table 2: Demographic characteristics of respondents**

Demographic characteristics	Villages			
	Kolero (n=30)	Lubasazi (n=30)	Kasanga (n=30)	Temekelo (n=30)
Education				
Primary School	23	27	29	28
Secondary School	1	3	0	2
No education	6	0	1	0
Marital Status				
Married	26	24	22	25

Divorced	0	4	2	2
Widow	4	2	4	3
Widower	0	0	2	0
Sex of the respondents				
Male	17	16	19	16
Female	13	14	11	14

**Table 3: Membership in village saving loan groups**

	Kolero (%)	Lubasazi (%)	Kasanga (%)	Temekelo (%)	Total
Members	15.4	13.2	17.6	15.4	61.6
Non-Members	9.5	10.5	8.5	9.5	38.3
Female members	6.2	6.4	6.0	6.2	25
Male members	12.15	9.15	9.15	7.15	36.6
Female non-members	6	3	7	4	20
Male non-members	4.5	5.2	3.4	5.2	18.3

## 4.2 Extent of using VSL in Accessing Agricultural Inputs

### 4.2.1 Membership in village saving loan groups

The study revealed that 61.6% respondents were members of VSL while 38.3% were not members. The result in Table 3 shows that 36.6% of respondents were male members while female members were only 25%.

Male members were more than female members due to the fact that men were the ones who control major means of production and household income. Therefore, they are the ones who decide whether to join VSL groups or not. On the other hand women required permission to join the groups from their husbands and most husbands did not provide permission to do so. Kolero and Kassanga villages had more members because are centers with many social institutions including schools, markets and hospitals.

#### 4.2.1.1 Nonmembers of VSL

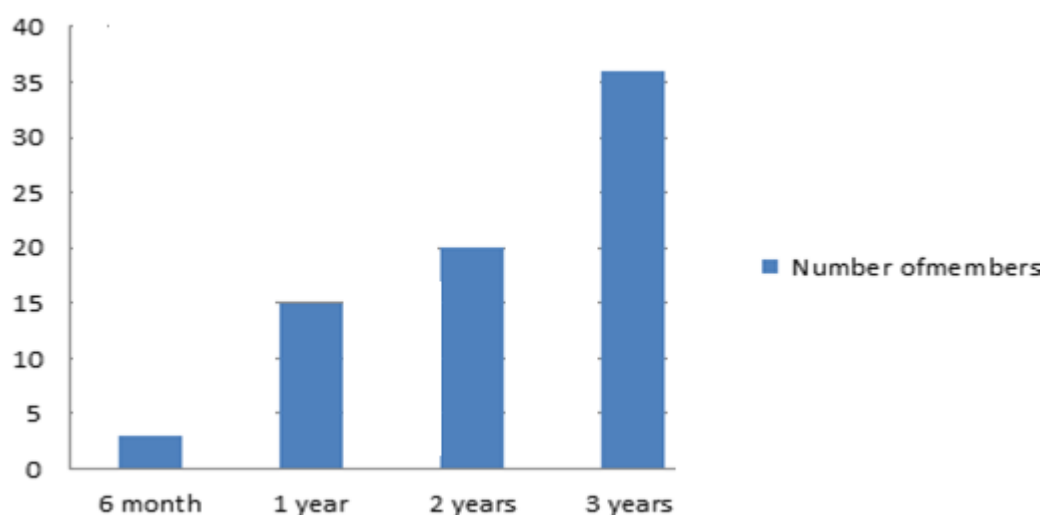
Table 4 presents the reasons for not joining VSL groups. According to the Table the major reason for not joining the groups is the widely held belief that CARE dealt with witchcraft. Other reasons were lack of reliable sources of income (21.7%) ,lack of collateral (8.6%) and lack of time to join village saving groups (4.3%).

**Table 4: Reasons for non-involvement in VSL groups**

Description	%
Belief in witchcraft	60.8
Lack of collateral	8.6
No time to join	4.3
Lack of reliable sources of income	21.7
<b>Total</b>	<b>100.0</b>

#### 4.2.1.2 Membership period

Fig. 2 shows the membership period of the respondents which varied from three years to one month. According to fig 2 majority of the members have been in the groups for 3 years.



**Figure 3: Membership period in VSL groups**

#### 4.2.2 Sources of loans for non-members

Village saving groups are the only sources of loans available in Kasanga and Kolero ward. Therefore, it was important to know if there were other loan sources for farmers. Table 5 shows only 6.8% of the non-members got loans from sources other than VSL including family and friends whilst, 93.2% were not able to get loans.

**Table 5: Membership period respondents in VSL groups**

Received Loan	Percent
Yes	6.8
No	93.2
Total	100

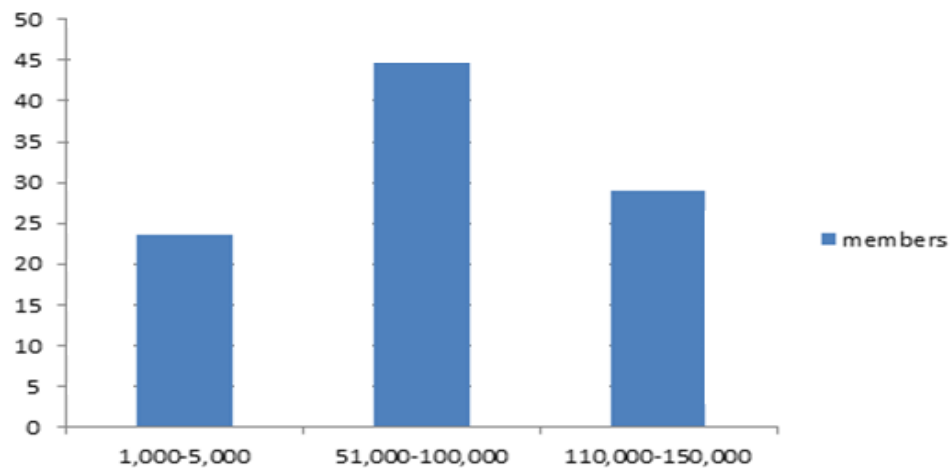
#### 4.2.3 Amounts of loans given to members

The loan sizes given to the members varied from 10 000 to 150 000. This was also observed by Mutesasira *et al.*, 2003, in their study of savings groups in West Nile, Uganda. They observed that most savings groups were comprised of very low-income people whose loans ranged from US dollar 2.50 (5000 Tshs) to US dollar 25 (50 000 Tshs).

The size of the loan given depended on how much is available at the time one requested for a loan. If many members borrowed at a time the possibility of getting smaller loans is bigger as the loan will be divided amongst members in need. The findings suggest that 44.7% of members borrowed from 51 000 Tshs to 100 000 Tshs from their groups, while

28.9% borrowed from 110 000 Tshs to 150 000 Tshs and 23.7% of the members borrowed from 10 000Tshs to 50 000 Tshs.

The study revealed that there is a significant statistical difference ( $P=0.002$ ) of loan size between older and new members. It was shown that older member were able to acquire large amount of loans as compared to new members. Moreover, older members were able to take larger loans as they were used to the borrowing conditions. Also they had established better investment opportunities which allowed them to repay the loans easily, while newer members preferred taking small loans that they could repay easily.



**Figure 4: Amounts of loans given to members**

#### **4.2.4 Main uses of village saving loans**

The study revealed that only 37.8% of the respondents used the loans for agriculture. This is contrary to the objective of establishing VSL groups in the Southern Uluguru Mountains namely to provide farmers with means of accessing inputs related to

conservation agriculture practices (CARE, 2009). According to Table 6 majority (49%) of the respondents used the loans to establish business.

**Table 6: Main uses of loans**

<b>Loan uses</b>	<b>Percent</b>
Agriculture	38.
Business	49.
To pay for other loan	4.
School fee	9
<b>Total</b>	<b>100</b>

#### **4.2.4.1 Use of loans in agriculture**

Table 7 shows that majority (41%) of the respondents who reported using loans for agricultural activities used to pay their wages for casual laborers. Other loan uses were as follows: land preparation and cultivation (31%), weeding (15%), and purchase agricultural land (13%).

**Table 7: Use of loans in agriculture**

<b>Loan use</b>	<b>Frequency</b>	<b>Percentage</b>
Land preparation	23	31
Cultivation		
Weeding	11	15
Casual labours wages	30	41
Purchases of agricultural land	10	13
<b>Total</b>	<b>74</b>	<b>100</b>

#### **4.2.4.2 Nonagricultural uses of loans**

According to Table 8 the main uses of the loans apart from agriculture was starting new businesses including selling of crops mills, hotels, bar and sawing shops (48.7%), followed by meeting household expenses (37.8%) and medical expenses (13.5%).

**Table 8: Non-agricultural uses of loans**

<b>Purpose</b>	<b>Frequency</b>	<b>Percent</b>
Meeting household expenses	28	37.8
Starting up a business	36	48.7
Medical expenses	10	13.5
Total	74	100

A study by Allen *et al.* (2004) on GSLs in Zimbabwe, had similar results where they concluded that the GSLs in Zimbabwe had contributed to increased levels of business and consumer assets amongst the great majority of member's households, and some improvement in the quality of housing. The number of income generating activities per household increased and household labor allocated to income generating activities (IGAs) increased.

### **4.3 Impact of VSL on Maize Productivity at Household Level**

#### **4.3.1 Land tenure**

In the Southern Uluguru Mountains land ownership and tenure is usually based on lineage systems. For example, indigenous people inherit land from their ancestors while immigrants hire the land or buy it from the natives. This limits production of perennial crops like tree crops. People who hire land are not allowed to plant perennial crops, as they need to return the land to the owners. In conservation agriculture, not owning a land is a problem as the study revealed that farmers did not want to conserve the area which they do not own.



The study revealed that most of the members of VSL groups either own the land by inheriting or buying the land from the natives. In the case of this study only people from Lubasazi were having ownership to land as the land was divided by the village government to its natives.

#### 4.3.2 Maize productivity at household level

The research hypothesize is that participation in VSL groups may result in a greater impact on productivity and bigger yields to the participants. As shown in Table 9, the study found out that, non-members had a lower productivity ranging from 0.13 to 0.14 t/ha compared to members whose average productivity ranged between 0.19 and 0.20 t/ha. This was an indication that participation in VSL had assisted farmers at household level to increase their productivity per unit of cultivated land.

**Table 9: Average maize productivity for members and non-members**

Farm size (ha)	Non-members			Members		Average Productivity tons/ha
	Productivity 2011 tons/ha	Productivity 2010 tons/ha	Average Productivity tons/ha	Productivity 2011 tons/ha	Productivity 2010 tons/ha	
0.25	0.15	0.20	0.18	0.33	0.30	0.32
0.50	0.11	0.11	0.11	0.28	0.28	0.28
1.00	0.19	0.18	0.19	0.26	0.19	0.23
1.50	0.15	0.00	0.08	0.13	0.11	0.12

2.00	0.12	0.15	0.14	0.13	0.15	0.14
3.00	0.10	0.13	0.12	0.10	0.10	0.10
<b>Av. productivity (t/ha)</b>	<b>0.14</b>	<b>0.13</b>	<b>0.13</b>	<b>0.21</b>	<b>0.19</b>	<b>0.20</b>

However, the results from the paired sample t-test at 95% confidence level showed that there is no statistically significant difference between the productivity of members and non-members ( $\alpha = 0.088$ ) as revealed in Table 10 below. Although it was expected that because the members had access to funds they will be able to increase their productivity this was not the case in the study area. This is probably because the funds from the VSL groups were not used largely for agricultural purposes but for other purposes.

**Table 10: Paired Samples Test on difference in the level of productivity between members and non-members**

Productivity	Mean Productivity	t	Sig	
			2(tailed)	95% Confidence interval of difference
		Std Dev	t	df
VSL Members	0.20	0.09		
non-members	0.13	0.042	0.088	39

### 4.3.3 Challenges in maize production

During the study farmers identified the main challenges which they were facing in cultivation of maize. According to Table 11 the main challenges facing maize production were lack of enough money for cultivation (49.1 %) and lack of training (26.6%) due to insufficient number of extension workers..

**Table 11: Challenges facing maize production**

Challenges	Percent
Unreliable rainfall	0.9
Pests and diseases	0.05
Lack of enough money for cultivation	49.1

Lack of enough land for cultivation purposes	0.1
Lack of training	26.6
Total	100

#### 4.4 Challenges Facing VSL Members in Borrowing loans

The results from the study indicate that the main problem facing members of VSL is lack of money to buy weekly shares (Table 12).As a result some of them had to borrow from other members in order to pay for the contribution due to lack of reliable sources of income. The other challenges were lack of proper business education (21.5%) high dropouts (17%) and late repayments (9.5%).

**Table 12: Challenges facing VSL group members**

<b>Challenges</b>	<b>Percent</b>
Lack of money to buy weekly shares	53
Drop outs	17
Lack of business education	21.5
Late repayments	9.5
Total	100

## **CHAPTER FIVE**

### **5.0 CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Conclusions**

Based on the study findings the following conclusions were made

- i. The extent of using VSL in accessing agricultural inputs is low.
- ii. Membership in VSL groups has no impact on maize yield.
- iii. There is lack of enough funds to buy weekly shares among VSL group members.
- iv. There is high drop out of members in VSL groups.

#### **5.2 Recommendations**

- i. In ensuring that the farmers increase the rate of using their VSL in accessing agriculture inputs the government should increase subsidy on the inputs to enable the farmer to afford buying them.
- ii. Due to the fact that participation in VSL has helped in the increase in productivity there should be modification in the existing land policy to enable farmers to own bigger lands and at the same time, farmers should be educated to produce other crops with the assistance from VSL groups.

- iii. In order to assure that farmers have enough funds to buy weekly shares CARE should provide farmers with business education which will help them come up with profitable investments and secure other sources of income apart from agriculture.
  
- iv. To overcome high dropouts from VSL groups, group leaders should arrange regular meetings to enable group members discuss problems facing the groups and handle various grievances facing individual members.

### **5.3 Area for Further Studies**

From the results of this study, the researcher recommends the need for further studies on women empowerment in agriculture.

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## APPENDICES

### Appendix 1: Questionnaire

#### MICROCREDITS AND MAIZE PRODUCTIVITY: THE CASE OF VILLAGE SAVING LOANS (VSL) IN THE SOUTHERN ULUGURU MOUNTAINS, TANZANIA

Questionnaire no

Village name.....

#### (A) GENERAL QUESTION

**Write appropriate codes where applicable, and Skip questions for members or nonmembers accordingly**

1. Name of respondent .....

2. Age

3. Sex

1=Male

2=Female

4. Occupation

1=formal employment 2=Agriculture 3=Business 4= others (Specify)

5. Marital status

1. Married. 2. Single 3. Widow 4.Devorced 5.Separated

6. Education level

1= No formal Schooling 2=Standard Seven 3=Secondary School 4=Higher learning 5=others (Specify)

7. How many are you in your Household?

1=1-3 2=4-6 3=7-9 4= 10 and Above

8. Are you a VSL group member?

1=Yes 2=No

### **QUESTIONS TO FAMERS PERTICIPATING IN THE VSL GROUP**

9. What is the size of the group?

1=1-5 2= 5-10 3= 11-15 4 =16-20 5= Above 2

10. How long have you been a member of this group

1=Months (specify) 2 =One year 3= two years 4= three years 5= Five years

11. What challenges do you face as a result of being a member of VSL group?

12. How do you overcome these challenges?

13. Have you ever received any loan from the group?

1= Yes

2=No

14. If yes, how many times have you received the loan since the establishment of the group?

1= Once 2= Twice 3= thrice 4= Four times 5= Five times and more

15. If yes, how much was the largest loan received.....

16. What did you use the loan for?

1=Agriculture 2= Business 3= personal use 4= paying for school fees 5= paying another debt

17. If the loan was used for agriculture production, what did you use it for?

Activity	1=yes,2= No
Land preparation	
Cultivation	
Purchasing inputs	
Weeding	
Harvesting	
Extension services	
Transporting	
Hiring laborers	
Buying agriculture equipments	
Others(specify)	

18. If the loan was used for other activities what were these activities?

Activity	1=yes,2=No
Starting up a business	
Household expenses	
Paying of school fees	
House repair	
Social functions(weddings, funerals etc)	
Paying other debts	
Paying for health services	

19. How many acreages of maize did you cultivate in the following years

Years	Acreages
2011	
2010	

20. How many bags of maize did you harvest in the following years

years	Maize bags
2011	

2010	
------	--

21. If yes why has it increased? .....

22. Generally, in your opinion what has contributed to increased maize production?

	1=yes 2=No 3=I don't know
a) Pets and diseases control	
b) Favorable climate	
c) Availability of agricultural training	
d) Availability of inputs	
e) Others specify	

23. If not, why has it not increased?.....

24. What other factors have made your yield to decrease since the introduction of VSL

Factors	1=Yes 2= No
a) Pets and diseases control	
b) Favorable climate	
c) Availability of agricultural training	
d) Availability of inputs	
e) Others specify	

25. Has been a member of VSL helped you to improve your standard of living?

1=YES 2= NO

26. How has it help you?

27. If no why has it not help you.....?

**C) Questions to Farmers Who Are Not Members of VSL**

28. Have you ever received a loan? .....

1=Yes 2= No

29. What was the source of the loan.....

Source Of Loan	1=Yes, 2= No
a)Buyer of harvest	
b)SACCOS	
c)NGO	

d)Family/Friend	
e)Bank	
f)Private lenders	

30. How much was the loan?

31. What did you use the loan for?

Activity	1=yes,2=No
a) Paying for agriculture activity	
b) Starting up a business	
c) Household expenses	
d) Paying of school fees	
e) House repair	
f) Social functions(weddings, funerals etc)	
g) Paying other debts	
Paying for health services	

32. How many hectors of maize did you cultivate in the following years?

Years	Hectors
2011	
2010	

33. How many bags of maize did you harvest in the following years?

Years	Maize bags
2011	
2010	

34. Generally in your opinion what has contributed to increase in maize production?

Factors	1=yes 2=No 3=I don't know
a) Pets and diseases control	
b) Favorable climate	
c) Availability of agricultural training	
d) Availability of inputs	
e) Others (specify)	

35. If not why has it not increased.....

Reason	1=Yes 2=No
a)Working more on off farm business	
b)Change in health or disability	
c)Climate Change	

32. What other factors have made your yield to decrease.....

33. Why haven't you decided to be a member of VSL.....?

Reason	1=YES 2= NO
a)Lack of collateral	
b)Prior debts	
c)Lack of ability to repay	
d)Too risky	
e)Too expensive	
f) Other(specify)	

34. What challenges do you face as a maize farmer? .....

35. How do you overcome these challenges? .....



## **Appendix 2: Focus group discussions checklist**

1. What are the major farming problems experienced by farmers?
2. What problems are associated with maize farming practices?
3. How many VSL groups do you have so far?
4. What are the challenges you face during the operation of these group?
5. What are the challenges facing the groups progress?
6. What methods do you use to solve these challenges?
7. What are your future plans in improving the VSL groups?