# AN EVALUATION OF FACTORS THAT AFFECT SMALL HOLDER FARMER'S CREDIT REPAYMENT
## A CASE OF GROUP BASED CREDIT IN NAKURU DISTRICT



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**A Project Report submitted to the Graduate School in Partial fulfillment of the requirements of a Masters degree in Business Administration of Egerton University**



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## DECLARATION AND RECOMMENDATION

### DECLARATION

I declare that to the best of my knowledge this study is my original work and has not been presented in any institution.

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*Signature*..... *Date*15TH FEBRUARY 2010.....

### RECOMMENDATION

This research has been submitted for defense to the Board of Postgraduate Studies of Egerton University with our approval as the supervisors.

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## DEDICATION

I would like to dedicate this work to my parents who have prayerfully supported me and encouraged me not to give up, my dear husband Major (Rtd) Onguso, my Children Christine, Zoran and Zenni who sat with me through nights to ensure I completed the work and my sisters Evalyn and Janet who participated in various ways to enable me complete this project.

I also dedicate it to my supervisors who took time out of their busy schedules to edit and correct my work and continuously encouraged me throughout the project period and to the farmers in Nakuru Municipality who responded to my questionnaires.

May God bless you all.

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## LIST OF ABBREVIATIONS

AFC – Agricultural Finance Corporation

ERSWC – Economic Recovery Strategy for Wealth and Employment Creation

FSAP – Financial Sector Assessment Programme

GDP – Gross Domestic Product

GOK – Government of Kenya

KREP – Kenya Rural Enterprise Programme

KWFT – Kenya Women Finance Trust

MFI's – Micro Finance Institutions

NGO – Non Governmental Organization

NROSA's – Non – Rotating Savings Association

NROSCA's – Non – Rotating Savings and Credit Associations

PRSP – Poverty Reduction Strategy Paper

ROSCA's – Rotating Savings and Credit Associations

SACCO's - Savings and Credit Cooperative Organizations

SHG's – Self Help Groups

## ABSTRACT

The purpose of this study was to evaluate factors that influence smallholder farmers' credit repayment and to establish whether individual farmer group based credit has specific characteristics that influence repayment patterns and also if farm household factors have significant factors that determine group credit repayment. To achieve the aim of the study, the research focused on group based credit in Nakuru District in which fifty farmers were studied. The study used primary data which was collected using structured interviews that were both open and closed. Once the pertinent data were collected, its analysis was carried out using percentages and frequencies. A logit model was used to determine the relationship between the factors and the credit repayment. Logit regression results at 95% confidence level or 5% level of significance show that (farmers' level of education at 0.015 and interest rates at 0.033 and the age of the group at blink of 0.045 and farm income at 0.049) positively influenced the smallholder farmers' credit repayment. The study therefore concludes that education, farm income, age of the group and interest rates are key in overcoming loan repayment problems. The study recommends that micro-credit lenders should pay more attention on educating potential borrowers, focusing on younger borrowers and tying credit advancement with previous performance in profitability. In addition interest rates need to be relaxed to reduce loan burdens and speed repayments.

# CHAPTER ONE

# INTRODUCTION

## 1.1 Background information

The government of Kenya is focusing on agriculture as an important tool for promoting national development is the structure of Kenya's population, which is mainly rural. About 80% of the population lives in rural areas and derive their livelihood largely from agriculture. However, 56% of the Kenyan people live below poverty line; over 80% of these in the rural areas. In addition, even for the urban poor, a majority of them ake out a living on agricultural related activities. Among the poor households, subsistence farmers and pastoralists account for over 50% of the poverty stricken Kenya. The Poverty Reduction Strategy Paper (PRSP) prioritized agriculture and rural development sector as one of the key sectors that needs urgent intervention. In order to attain the targeted five percent annual growth in this sector, financial systems, extension services, rural infrastructure, marketing and distribution systems need to be addressed. (GOK, Economic Recovery Strategy for Wealth and Employment Creation 2003-2007)

Historically the major thrust of Kenya's agriculture strategy was to foster smallholder production. It will be difficult for Kenya to maintain past high rates of agricultural growth without deliberate efforts to overcome the growing scarcity of good quality arable land. Agricultural growth has resulted from expanding the cultivated area, subdividing large farms and cultivating them more intensively, and cropping pattern changes such as the introduction of hybrid maize (Saito et al 1994). To raise the productivity of farmers, access to affordable credit (in terms of collateral and repayment) is critical. The government through the Financial Sector Assessment Programme (FSAP) will review the institutional framework with a view to encourage development of institutions that are well placed to provide credit to agriculture. This will include development of micro – finance institutions (MFIs) and the revival of the Agriculture Finance Corporation (AFC).

Promoting an efficient, sustainable and widely accessible rural financial system remains a major development challenge in most Sub Sahara African countries. With about 73% of Africa's population living in the rural areas and experiencing a high incidence of rural poverty, improved rural finance is crucial in achieving pro – poor growth and poverty reduction goals. The need for credit to support the development of agriculture based livelihoods has been stressed, particularly as a justification for the state and donor supported subsidized credit programmes of the 1950s – 1970s (World Bank, 2004). Savings are important as they allow households to maintain precautionary balances against shocks. Households can also build up cash collateral a track record of saving will allow the easier access to credit (Marr and Onumah, 2004). Most rural communities lack secure and accessible deposit facilities and consequently savings are held as cash or assets. Such savings are harder to mobilize and do not increase availability of loanable funds.

However, sustainable provision of agricultural credit depends on the profitability of agricultural production and the extent to which yield, marketing and price risks faced by farmers can be managed (Onumah, 2003). Micro credit systems have been developed in response to the needs of small scale entrepreneurs who otherwise do not have access to finance. Without money, it is not possible to purchase inputs that are required to establish business and improve on productivity.

Rural financial services help the poor and low income households increase their incomes and built the assets that allow them to mitigate risk, smoothen consumption, plan for future, increase food consumption, invest in education and other lifecycle needs. The financial sector in Kenya comprises banking, insurance, capital markets and pension funds. Other parts of the sector include quasi-banking institutions and services provided by Savings and Credit Cooperative Organizations (SACCOs), micro-finance services, building societies, development finance institutions (DFIs) and informal financial services. On the whole the sector is characterized by low penetration and limited supply of long-term finance. Access to credit and financial services has the potential to make a difference between grinding poverty and economically secure life. In spite of the importance of a savings account, 77% of Kenyan households have no access to a bank account (Kodhek, 2004). In the late 1990's, most mainstream commercial banks closed

down some rural branches in order to cut costs and improve profits. The non – traditional financial institutions have emerged to fill the gap created by the mainstream banks, which locked out low income and irregular earners.

While Microfinance institutions and commercial banks have faced difficulties over the years, for a multitude of reasons, the major cause of serious financial problems continues to be directly related to credit standards for borrowers, poor portfolio risk management or lack of attention to changes in the economic circumstances and competitive climate (Central Bank Annual Supervision Report, 2000).A large portion of Kenyan financial institutions' revenue is generated from credit extended to various individuals and organizations. This revenue is in the form of interest earned and charges on the preparation and management of the credit process. (Central Bank Annual Report, 2001).

Through the Economic Recovery Strategy for Wealth and Employment Creation (ERSWC) the government has identified poor access to farm credit and financial services as a contributing factor to the decline in agricultural productivity. The Strategy for Revitalizing Agriculture (SRA) proposes to encourage an orderly development of micro – finance institutions through the enactment of facilitative legislation, encourage commercial banks to set up operations in the rural areas by providing appropriate incentives, encourage banks to lend to agriculture by reviewing and repealing legal provisions that have undermined lending to the sector, recapitalize and streamline the management of Agricultural Finance Corporation so that it can perform its function of providing affordable credit to farmers

**1.2 Statement of the Problem**

Credit based farmer groups have registered farmer members. These groups receive rural financial services which include money deposits/savings, loans, money transfer, safe deposit and insurance extended to them for agricultural and non- agricultural activities in the rural areas. The group advances loans to its members who repay over a specified period of time. The loans are advanced on the strength of guarantors, where group members act as guarantors to each other. (Kibaara, 2006)

Despite the effort by the groups, majority of the farmers default in repayment resulting in collapse of groups or non sustainability. As a result of this, the farmers have ended up loosing out on the role of groups, increased farm incomes and greater farm production frontier for example seminars, field days and credit advancement. The study therefore, sought to analyze the socio-economic factors that constrain individual smallholder farmers from committed and consistent repayment and the effects on overall loan repayment to the group credit systems, in Nakuru district.

### 1.3 Objectives of the Study

The main objective of the study was to analyze credit repayment by smallholder farmer members of credit groups in Nakuru District.

The specific objectives were to;

1. To identify and characterize the credit types available to smallholder farmers in Nakuru District.
2. To analyze factors that constrain farmer's group based credit repayment among group credit based farmers in Nakuru district.

### 1.4 Hypotheses of the study

To achieve the above objectives, the following hypotheses were tested.

1. Individual farmer group based credit has no specific characteristics that influence repayment profiles.
2. Farm household factors have no significant characteristics that determine group credit repayment.

### 1.5 Justification of the study

Access to bank credit by farmers is still a major problem, despite the fact that Kenya has a relatively well developed banking system. Risks associated with farming business, coupled with complicated land laws and tenure systems that limit the use of land as collateral, makes the

financing of agriculture by the formal banking industry unattractive. In addition, corruption, political interference in the operations particularly of state – owned banks and a dysfunctional court system in the past, gave rise to a culture of default, thereby leading to high levels of non-performing loan portfolio in the balance sheets of the banking institutions affected. This development forced many banks to charge prohibitively high interest rates to their customers, including farmers in order to remain afloat. The cost of bank credit and the limited number of banks in the rural areas are some of the factors that make it difficult for farmers to access bank credit. The government is aware that to improve the competitiveness of the agricultural sector in the domestic market and abroad, farmers must be provided with affordable and adequate credit. As of mid 2005, non - performing loans in the overall banking sector were at 19.3%. (GOK, 2007- Kenya Vision 2030).

**1.6 The importance of the study:**

Managers in Micro – financing institutions will have knowledge on how to limit default among micro – credit customers. Since micro – credit area is a growing sector; managers need to learn how to handle the challenges of growth by understanding all the facets that include loan default.

Micro – finance institutions (MFIs) in Kenya will use the research findings and the knowledge gained to assist them as they commercialize. Micro – finance institutions are faced with the need to adopt sustainable methods of delivering services, which only can be achieved by offering sustainable products, of which the default rate is a crucial part.

The government will gain from the information obtained from this research when formulating policy that relates to the regulatory environment of the country as far as micro – credit activities are concerned. As the sector grows the government has to come up with policies that address the various challenges, within the sector, to facilitate faster growth in this sector with minimum drawbacks.

Donors, who provide funding for credit, need better understanding of the opportunity to invest money. Donors need to know whether their funds are reaching the desired objectives and whether lenders to MFIs are putting in place safeguard to reduce default.

It will help the farmer groups improve on the obstacles that hinder them from repaying their credit within the stipulated time period. The farmer group leaders will be able to develop mechanisms within the constitution that will minimize non – repayment and thus improve on the revolving element to the group.

It will facilitate an increase in the general knowledge of the subject. The area of micro – credit still lacks information that will facilitate faster growth and therefore research in the various components of the sector will help to unearth the otherwise unknown information that will go along way in facilitating further understanding of the micro – credit sector.

### 1.7 Limitations of the study.

Due to the fact that the study was carried out in a rural setting some limitations which included lack of information from the smallholder farmer some of whom were illiterate and therefore did not keep records for their activities, group leaders were also unwilling to volunteer information relating to group activities, general poor record keeping by group leaders and the political unrest experienced in Kenya resulted to internal displacements of some group members. However, every effort was made to cover crucial aspects associated with the research problem.

### 1.8 Delimitation of the study

The study targeted 50 farmers, each farmer being a member of a group, 10 members were selected from 5 SHG's drawn from the 2 divisions in Nakuru District. The study was limited to the area and target population as identified above. However outside this, the findings of the research do not hold due to different circumstances that were not taken into consideration in this study.

## 1.9 Operational definition of terms

**Credit:**

This is the extension of small loans to entrepreneurs too poor to qualify for formal financial sector loans.

**Smallholder farmer:**

This is a producer with limited productive resources whose annual output is equal to or only slightly above subsistence needs. He mostly produces for consumption purposes only.

**Group based credit:** Credit issued through self help groups.

**Characterize:** The channing of most noticeable traits or features that are most typical of a group that distinguishes it from other groups.

**Credit Repayment**: The act of making regular repayments of money that a borrower had borrowed from a financer until the total amount of money that is owed is returned.

**Repayment Period:** A particular length of time that a borrower takes to repay back the whole amount of money that is owed to a lender or financer.

# CHAPTER TWO

# LITERATURE REVIEW

Credit facilities have been there in many African countries. Many organizations including Self – help credit groups like rotating savings and credit associations, commercial lenders, friends, families and non – commercial lenders and licensed cooperatives or unions have taken advantage of offering credit facilities. However a number have ended up collapsing due to non – repayment or late repayment of the credit that is advanced to different groups such as the smallholder farmer groups.

In Kenya, the idea of Micro credit can be traced back before independence. The colonial government did not provide credit facilities to the African people, and hence informal credit groups such as merry go rounds were formed within the societies in rural areas and clan levels. During the 1970, government agencies were set up and their main responsibility was focused to provide credit to those who had no previous access to credit facilities (Dondo, 1999).

## 2.1 Agricultural Credit Policy in Developing Countries:

One of the important factors which account for the relative poverty of the rural population is the system of finance found in most developing countries. Farmers are trapped in the "vicious cycle of poverty", because they do not have the capacity to save because their real incomes are low. This is due to the low productivities, which are due to lack of capital investments which, in turn, are due to their inability to forego consumption and to save.

The demand for agricultural credit stems from economic and social factors prevalent in the rural areas of the developing countries. Access to credit to allow low – income farmers to afford to use fertilizer on food crops is a major problem in virtually all of Africa, primarily because, unlike some cash crops, input suppliers cannot be assured of recovering their loans by acquiring farmers' surplus production. However, the case of Kenya shows that solid progress can be made in improving small farmers' access to credit – much better than in most countries in Sub- Saharan Africa. In Kenya's case, small farmers' access to credit for fertilizer on maize has

been facilitated by their participation in cash cropping schemes for tea, sugar and, especially in earlier times, coffee. (Jayne et al 2004).

The uncertainty of weather, which affects crop yields and incomes, causes an additional need for credit in bad years. The circumstances that affect credit availability and use vary with the size of the farm and the stage of development of agriculture. Growth in the Micro – credit sector has been mainly driven by NGOs that are donor supported. A large number of these NGOs have collapsed or are unable to operate sustainable and continue to rely heavily on donors (Baydas et al, 1997)

Initial attempts into micro lending were made by governments through the creation of development banks that were meant to allocate credit to certain sectors at subsidized rates. Studies have shown that direct credit has undermined development of sound financial systems in many third world countries mainly because the loans are limited to budgetary allocation and are priced below market rates. The presence of moral hazard in many developing countries mean that credit rarely reaches desired clients and, in many cases, there is no obligation to repay the loans. Credit management techniques are rarely in place, and even if they are, they are largely ignored. (Coetzee, 1997).

## 2.2 Interest Rate and Agricultural Credit

The factors that affect the structure of interest rates include the availability of collateral to obtain credit, the supply and demand conditions which produce change in interest rates, the opportunity costs and availability of credit to farmers, the scope of competition among, and the services, if any, provided by lenders such as marketing of agricultural commodities. Low interest rates are defended on the grounds of being a special incentive to farmers to use purchased productive inputs, especially when this means a change from traditional practice. Recent research has demonstrated how efficient farmers are in allocating resources including borrowed capital and their willingness to seize potentially profitable rural opportunities.

## 2.3 Credit Systems

Aryeetey (1995) has outlined three broad classifications of types of informal finance found in Africa. These include primary savings mobilization units, with little or no lending, Primary lending units that are hardly involved in savings mobilizations; and units that mobilize deposits and do a considerable amount of lending, albeit to members of distinct associations or groups mainly self help financing groups that include different levels of savings and credit associations, like Rotating Savings and Credit Associations (ROSCAs) and non – rotating ones or Accumulating Savings and Credit Associations (ASCRAs); commercial lenders, friends, family and non – commercial lenders, money keepers and savings collectors and licensed cooperatives or unions.

Zeller et al (1997), indicate that the most organized forms of informal finance are SHGs. A variety of group saving mechanisms are widely available in many African countries with communal, age and gender specific, performing agricultural, marketing or artisan activities and saving profits in kind. Savings and Credit Associations (SCAs), in Africa are divided into those that rotate and those that do not rotate the allocation of collected funds. Seibel (1989) has identified four types of associations in Africa. These are:

Rotating savings associations, (ROSAs) whereby each member pays a fixed amount at regular intervals and in rotating order each member receives the total amount collected at a time. A cycle is terminated when all members have received the full amount at least once and then the next cycle begins. There is also the Rotating Savings and Credit Associations (ROSCAs) where each member pays a fixed amount at regular intervals. Part of the contribution is allocated to one member at a time in a rotating order and the other part is put into a general fund for loans, insurance or any other use that the group may wish to put the money into. Buckley (1996) noted that in Kenya, ROSCAs exist both in the rural areas as well as urban slum dwellings. They are commonly referred to as "*merry – go – round*" and they play an important role in credit provision to poor households and even salaried employees.

Secondly, there is the Non – Rotating Savings Associations (NROSAs) where each member pays a fixed or variable amount at regular intervals. The contributions are deposited and paid back to the individual member at the end of a stipulated period. In this, there is also the non – Rotating Savings and Credit Associations (NROSCAs) where each member pays a fixed or variable amount at regular intervals. The income of the associations from sources such as contributions, fees, penalties or joint business is put into a fund, which maybe utilized for loans, insurance and social services. The fund maybe established for a specified or unspecified period of time and contributions may or may not be paid back at the end of the stipulated period. Interest rates tend to be high as this provides an additional source of funds.

Thirdly, different institutions working in different environments with different poverty conditions have developed different approaches for loaning to poor farmers. These include:
Solidarity Group Lending: This involves the formation of small groups among member borrowers for the collective assurance of loan repayments in place of material collateral. Examples of this model of lending include the Grameen Bank Model which originated in Bangladesh in 1976 as an action – research project to test the hypothesis that if the poor are supplied with working capital they can generate productive self – employment without external assistance. The bank's founder, Muhammed Yunus, initiated the model first as an experimental university project in 1976 and later as an established bank (with government support) in 1983.

The model revolves around the micro – credit institution providing credit to groups of people who come together to access loans and guarantee each other. The model uses the group as a substitute for individual collateral. When a member of the group defaults, the group pays on behalf of the defaulter. Under the strict Grameen model, any savings collected by the group cannot be withdrawn and the members of the group may be forced to access loans even when they do not need the loans. (Graham, 2000)

In this model, borrowers are self – organized into small peer groups of five or so of unrelated members who mutually guarantee repayments of each other's loans. Repayment of each loan is required in order for all group members to maintain access to future loans. Savings – led micro – credit is normally used as a limited security against default on repayment. The peer groups are

then organized to form a village center where borrowers make loan repayments at mandatory weekly meetings. In addition to leveraging capital and saving as a source of emergency funds, groups often are required to meet regularly (mostly weekly) to monitor loan activity, collect repayment of interest and principle and offer mutual support. (Otero et al, 1994).

In Kenya the institutions that use this model include Promotion of Rural Initiatives and Development Enterprises (PRIDE- Kenya), Faulu, Kenya Women Finance Trust (KWFT), Kenya Rural Enterprise Development (KREP).These institutions lend to individual micro – entrepreneurs, but they first require potential borrowers to form groups of about 5 to 10 members. They do not require collateral parse, but they depend on the group members' collective responsibility, whereby all group members are collectively liable to each individual's loan (Saito et al 1994).

Finally, the Village Banking Model which are established in relatively stable communities through the assistance of a sponsoring agency. The sponsoring agency lends seed capital to a newly organized bank comprising of between ten to fifty self – selected members who collectively guarantee repayment of the amount. Members are originally granted small loans from this initial capital, which is gradually increased through mandatory member savings. The size of future loans is granted in proportion to the accumulated savings in the hopes of eventual borrower graduation from the program once a certain loan level has been reached. Member meetings are held for administrative or training purposes or as a forum for social purposes. (SBP, 1998). Also the Credit Union Model Credit unions, while varied in their institutional approaches, provide savings and loan services to members usually low – income micro – entrepreneurs similar to those served by specialized micro – credit programs. Savings are a prerequisite to loan access and incentives to save rest on a desire for low cost loans. Credit unions rarely provide technical or training assistance or other additional services. They evaluate loan requests on the client's ability to repay the loan. They recognize that micro – credit requests often reflect a combination of family and micro – enterprise needs by the borrower and thus their loans are not targeted or limited to a specific goal or purpose.

## 2.4 Micro – Credit Programs:

Micro - finance is the provision of small, low-interest loans to businesses and individuals who are unable to secure finance from commercial lending institutions. The rural farmers self help groups obtain credit to operate small business as a group so as to enhance their earnings as individuals and improve on their per capita income.

Grameen bank model are very likely to be group based with the associated group dynamics. Government led micro – credit programs which are mainly financed by the governments are mainly targeted towards a certain income category or community. Non – governmental micro – credit programs are mainly handled by NGOs but are financed by donor funds. Credit programs may be minimalist or integrated. Minimalist credit programs are those that offer only credit services to clients while integrated credit programs are those that offer other services such as micro insurance, training and other services to supplement credit. (Otero et al, 1994).

Established in 1981 as an affiliate of Women's World Banking, the Kenya Women Finance Trust aimed to strengthen women's participation in the economic mainstream. It focused on a clientele that had little access to formal lending institutions and sought to strengthen their position by lending to women owners of micro-enterprises and providing the requisite training. It has developed a reputation among Kenyan women, especially rural women, as a reliable and quick source of credit. By providing women with credit, KWFT has been able to develop entrepreneurship in the coastal towns of Kwale, Kilifi and Malindi. Through a collaborative arrangement with Barclays Bank of Kenya, KWFT also facilitates larger loans to individual women. These loans are partially guaranteed by the Trust and the bank while the client provides collateral to guarantee the balance. This empowers women through the creation of additional sources of income and reduces their dependency. By bringing women together in groups, KWFT has also created some long-lasting relationships that contribute to solving some of the social problems in Kenyan society. Perhaps the most significant non-economic impacts of KWFT are creating credit awareness, developing a business-like attitude and reducing fear of banks and loans among KWFT clients.

The early years of the KWFT were rocky. The group soon ran into problems. Management was weak and there were reports of widespread insider lending among the board of directors. By 1989, most of KWFT's loans were non-performing and new lending had ground to a halt. However, recently one of KWFT's success is its very clear message that all loans must be repaid on time. If any group member has an overdue balance, all new disbursements to everyone in the group stop immediately. But if members of the group meet their schedules, KWFT guarantees automatically bigger loans after old credit is paid. (http//www.ruralpovertyportal.org/kwft.htm – Accessed on 4/11/2007)

To promote growth and generate employment in the micro-enterprise sector, K-REP lends to clients who would otherwise find it extremely difficult to access credit from commercial banks and other formal financial institutions. Its operations are currently concentrated in Nairobi, Nyeri, Eldoret and Embu. K-REP has depended on donor funding for on-lending and institutional support. During the period 1991-1995, K-REP received Ksh 352 million in grants. Total assets increased from Ksh 66 million to Ksh 377 million. Lending as a proportion of total assets has also increased, from about 50% of total assets in 1991 to 67% in 1995. This reflects greater direct lending to members of the Chikola Scheme. The volume of outstanding direct loans has climbed from Ksh 32.5 million in 1991 to Ksh 294 million in 1995. Growth can be attributed to several sources, including: more branch offices, greater efficiency in credit delivery and additional staff trained in group-lending methods. Currently, K-REP offers credit directly through group lending and indirectly through other NGOs. Its Juhudi Scheme, initiated in 1989, provides individual loans based on a modification of the group lending methodology used by the Grameen Bank in Bangladesh. K-REP facilitates the formation of five-member groups called watanos. Up to six watanos confederate into a kiwa, which is registered by the Ministry of Culture and Social Services as a self-help group. The Chikola Scheme, initiated in 1991, provides credit to individual entrepreneurs through existing rotating savings and credit associations (ROSCAs). Under the Chikola Scheme, K-REP provides a single loan to an established group (average membership of 20 persons) that retails the loan to its individual members. After a Juhudi group has been in existence for some time, it may seek approval to

transform into a Chikola group. (http.www.microfinancefocus.com/k-rep and kwft.htm – Accessed 4/11/2007)

In 1997, K-REP decided to cut back on lending for three reasons one of which was the loan delinquency which was increasing and K-REP feared that continued rapid growth would hide the deteriorating quality of the loan portfolio. ( Nyerere, 2004)

The risk of loan default loomed large as political violence persisted in the recent months in Kenya. This has interfered with operations of small businesses that account for much of the recent bank lending. The standoff had resulted in business closures and in turn affected cash flow in most businesses eroding their ability to service loans. Analysts predicted a possible credit crunch as well as an increase in the volume of non-performing loans if the situation does not improve. According to Central Bank of Kenya, non-performing loans had declined by 31% from kshs. 102 billion in June 2006 to kshs. 70.70 billion in June 2007. (http//www.-esd.worldbank.org/htm/esd/agr/sbp/ - Accessed on 4/11/2007).

**2.5 Conceptual Framework**

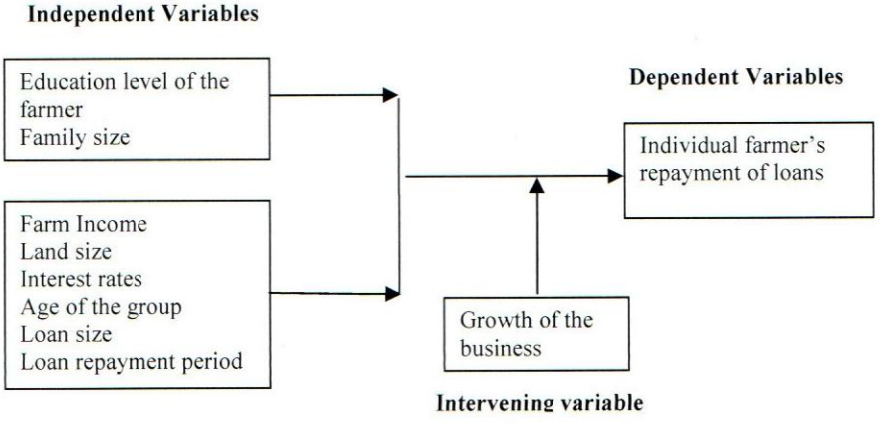
The repayment or non – repayment of credit advanced to farmers has been modeled as a binary decision in which the farmer either repays or does not repay the loan. In situations such as this when the dependent variable is a discrete dummy variable (Repay = Yes; don't repay = No), linear estimation is inappropriate for at least three reasons (Green 1993, Wooldridge 2000). First, the error term cannot be normally distributed since it can only take two variables. Second, the error is heteroskedastic because it can be shown that the variance of the error term is not constant. Third, the estimated probabilities generated via a linear estimation would not necessarily lie between zero and one. Probabilities greater than one or less than zero are not acceptable. For example, the repayment of loan cannot be predicted with over one hundred percent certainty. Other estimation methods are used when the dependent variable is a discrete dummy variable.

For the reasons outlined above, estimating a binary response model typically utilizes maximum likelihood estimation (MLE) techniques (Wooldridge 2000). Appropriate MLE

models include the logit or probit model. The difference between these techniques is insignificant (Green 1993). The current study utilizes a Logit model to evaluate the factors that influence Smallholder farmer's credit repayment in Nakuru district.

The technique of logit analysis allows estimating a conditional probability model. For each loan advanced, it estimates the probability of failure or success conditional on a range of characteristics (attributes) of the farmer in a group. In this study credit repayment is hypothesized to be affected by a number of factors. This include the education level of the farmer, the farm income, land size, family size, interest rates, age of the group, loan size and the loan repayment period. These factors affect the repayment of credit and consequently affect growth in farm income, which is revolved amongst other group members. A diagrammatic presentation of how the factors interact is shown in figure 1 below.

**Figure 1: Conceptual Framework**




Source: Own Compilation 2008

Those that access credit and use it for the specific farm activity that the credit was borrowed for and other factors like weather conditions held constant will be able to expand their production leading to higher profits and availability of funds for loan repayment purposes. With high repayment rates, more funds become available for revolving purposes and thus more farmers get to access credit leading to growth in farm income.

# CHAPTER THREE

# RESEARCH METHODOLOGY

## 3.1 Study area

Nakuru district is situated in the Rift Valley Province and has a population of about 471,513. It has 2 Divisions being Nakuru Municipality which comprises Baruti, Lanet, Nakuru central, Kaptembwo and Lake Nakuru and Rongai division which comprises Rongai, Kampi ya Moto, Boror, Lenginet, Ngata, Makongeni, Waseges, Maji Tamu and Solai. The main food crops grown include maize, beans, potatoes, cabbages, onions, Kales and tomatoes. Cash crops include wheat, pyrethrum, coffee, barley, tea, sisal, fruits and flowers. The main livestock types of breeds kept include dairy cows, goats and poultry. (GOK: Ministry of Planning and National Development, 2003 – Geographical Dimensions of well – being in Kenya, Volume 1)

## 3.2 Study Population

The study was carried out among groups that are registered with the Ministry of Gender, Children and Social Development. All the 5 SHG's selected for the study were registered groups. (Appendix 2)

## 3.3 Sampling Procedure and Sample design

Multi - stage Stratified Random Sampling method was used to select 50 farmers. In stage 1, take the 2 divisions, in stage 2, 5 SHGs will be randomly selected from each of the 2 divisions and in stage 3, 5 borrower farmers were randomly selected as correspondents to the questionnaire to make a total sample size of 50.

## 3.4 The Data Collection Procedure

Primary data was mainly used in the analysis of the research findings. It was obtained by use of structured interview consisting of both closed and open-ended questions and the simple records that the treasurers of the farmer groups have kept on individual group repayment details.

### 3.5 Empirical Model

A logit model was used because the dependent variable loan repayment is a dummy with responses of Yes if repaid, and No if otherwise. The logit model is structurally expressed as;

$$\text{Prob}(yi = j,0) = \frac{\exp(\beta_j X_i)}{S(j = 0 - j)\exp(\beta_j X_i)} \quad \ldots\ldots\ldots\ldots\ldots\ldots \text{Eqn 1}$$

Where:

Yi represents probability of repayment being 1 or otherwise

Xi = factors that influence repayment

$\beta_j$ = coefficients

In a reduced form the model transforms into:

$\text{Log}(P/1\text{-}P) = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \varepsilon$ ...Eqn 2

Where:

P = Probability of repayment being 1 = yes

1-P = otherwise.

Empirically, described as;

$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \varepsilon$

Where Y = is the observed response of loan repayment (0, 1),

$\beta_0$ is a regression constant (Intercept),

$\beta_1$.....$\beta_8$ are the regression or slope coefficients for their respective explanatory variables,

$X_1$ = Level of Education of the farmer

$X_2$ = Age of the group

$X_3$ = Land Size

$X_4$ = Farm Income

$X_5$ = Family Size

$X_6$ = Interest Rates

$\varepsilon$ = Error term (this captures explainable variables such as loan size, loan repayment period, age of the farmer, gender of head etc). The explainable variables here have been considered together

since the repayment is not individual but guaranteed by the group members, since the study is group based credit repayment.

The table below shows the variables and their hypothesized effects.

| **X Variable** | **Description** | **Hypothesised Effect** |
|---|---|---|
| Education of Farmer | Years of Schooling | (+) |
| Farm Income | Kshs | (+) |
| Land Size | Acres | (-) |
| Family size | No. of Dependants | (-) |
| Interest Rate | Kshs | (-) |
| Age of the Group | Years | (+) |
| Loan Size | Kshs | (-) |
| Repayment period | Years | (-) |

## CHAPTER FOUR

## DATA ANALYSIS AND PRESENTATION

A total of 50 respondents were sampled. Every sampled respondent was given a questionnaire out of which 48 responded by completing and returning the questionnaire. This gave a response rate of 96%. The collected data were edited and coded. Data analysis of the responses from the questionnaires was done using descriptive statistics such as percentages and frequencies. Presentations were done in form of pie charts, graphs and tables.

### 4.1 Respondents Personal Details

Respondents were asked to give information on their age, gender, marital status, level of education, profession, the number of children, how long they have been farming, and whether they have another source of income (appendix 1). The study in Figure 4.1 established that 85 percent of the respondents were female while 15 percent were male.

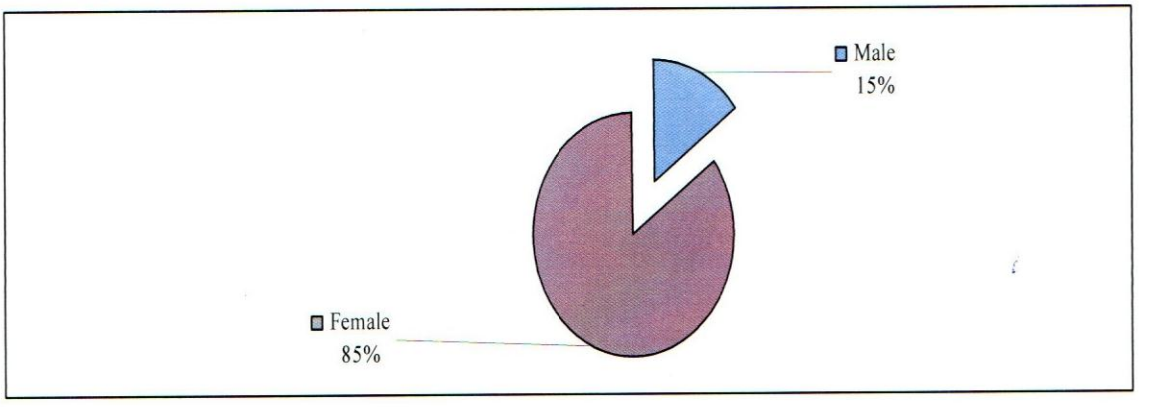



**Figure 4.1: Gender**

Source: Researcher data (2010)

The study as shown in Figure 4.2 show that 23 percent of the respondents indicated that they were in the age bracket of between 25 – 35 years and 56 – 65 years. The study further established that 17 percent of the respondents were in the age bracket of 36 – 45 years.

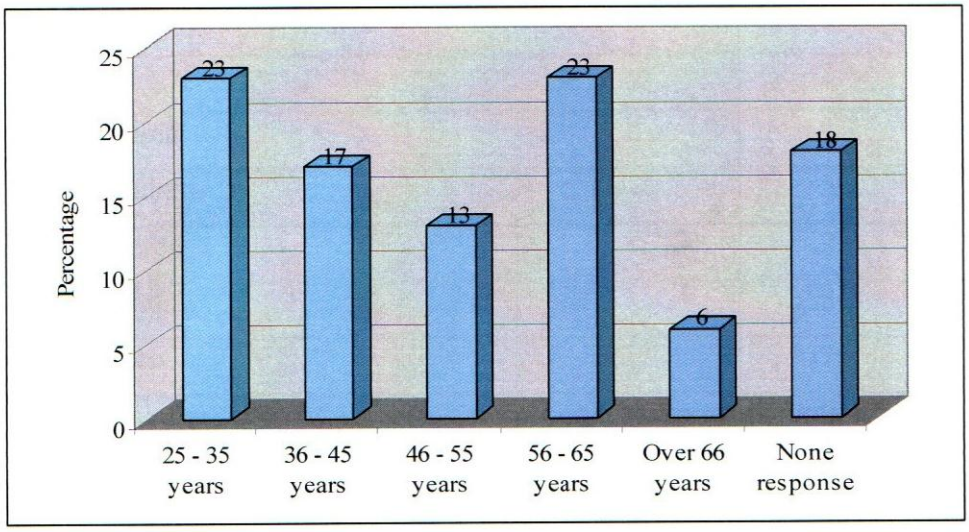



**Figure 4.2: Age**

Source: Researcher data (2010)

In Figure 4.3 it is clear that 71 percent of the respondents were married while 29 percent were single.

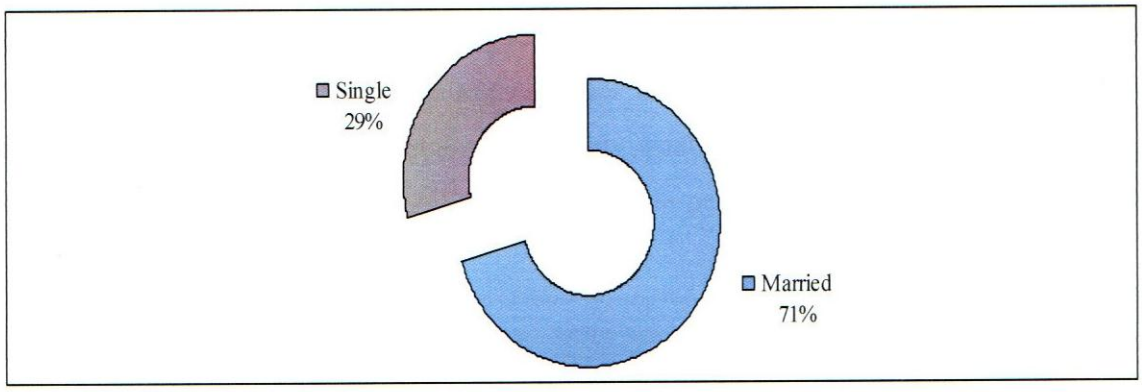



**Figure 4.3: Marital Status**

Source: Researcher data (2010)

The study established majority (9) respondents as shown in Table 4.1 had seven children. The study also established that seven (15%) respondents had four and six children.

**Table 4.1: Number of Children**

| Number of children | Frequency | Percent |
|---|---|---|
| One child | 2 | 4 |
| Two children | 4 | 8 |
| Three children | 5 | 10 |
| Four children | 7 | 15 |
| Five children | 8 | 17 |
| Six children | 7 | 15 |
| Seven children | 9 | 19 |
| Nine children | 3 | 6 |
| Eleven and more children | 1 | 2 |
| None response | 2 | 4 |
| **Total** | **48** | **100** |

Source: Researcher data (2010)

Respondents were asked to indicate the highest level of education they have achieved together with their spouses. According to the results presented in figure 4.4 below, 25 percent of the respondents indicated that the highest level was primary school education while 8 percent indicated the same for their spouses. The study established that 19 percent of the respondents indicated that their highest was 'O' level. The same percentage indicated that their spouses had 'O' level certificates.

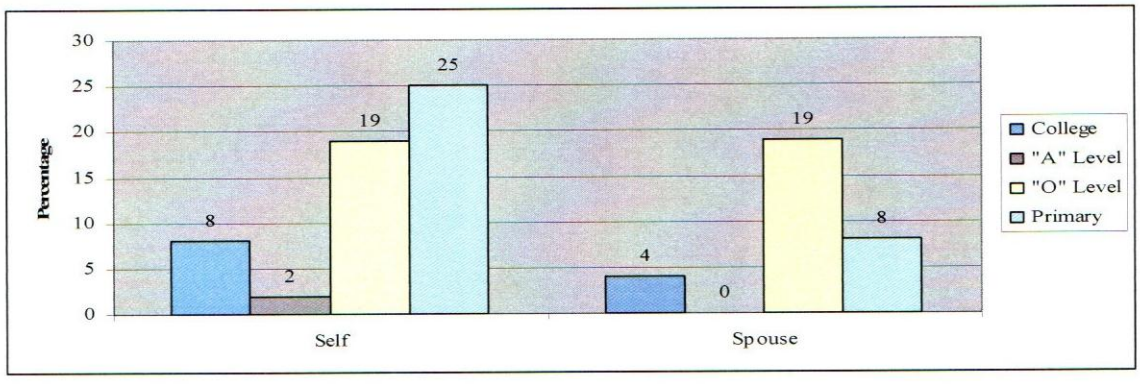



**Figure 4.4: Level of Education.**

Source: Research data (2010)

Asked to indicate their professions, 35 percent of the respondents indicated that they were farmers, while 13 percent indicated that they were house wives. Figure 4.5 shows the presented findings of the study.

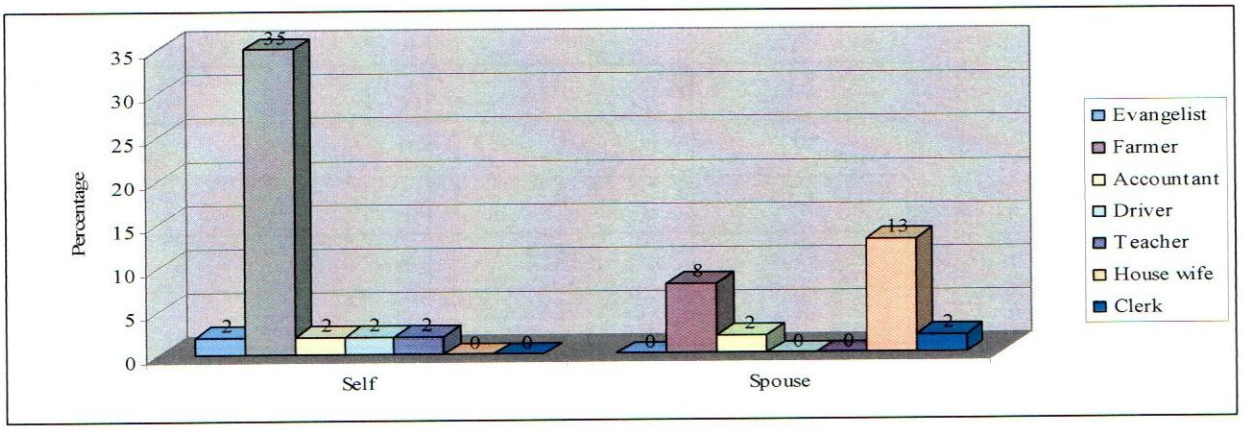



**Figure 4.5: Profession**

Source: Research data (2010)

Respondents were asked to indicate the period they have been farming. The study results in Table 4.2 below show that 14(30%) respondents indicated that they have been farming for between 6 and 10 years. The study established that 6(13%) respondents have been farmers for between 16 and 20 years and 26 and 30 years.

**Table 4.2: Period been a Farmer**

| Duration in farming | Frequency | Percentage |
|---|---|---|
| 1-5 yrs | 5 | 10 |
| 6-10 yrs | 14 | 30 |
| 11-15 yrs | 5 | 10 |
| 16-20 yrs | 6 | 13 |
| 21-25 yrs | 3 | 6 |
| 26-30 yrs | 6 | 13 |
| 31-35yrs | 1 | 2 |
| 36-40 yrs | 1 | 2 |
| 41-45 yrs | 1 | 2 |
| 46-50 yrs | 1 | 2 |
| Over 50 years | 0 | 0 |
| None response | 5 | 10 |
| **Total** | **48** | **100** |

Source: Research data (2010)

The study sought to establish whether the respondents had any other source of income. Figure 4.6 show that 71 percent of the respondents indicated that they did not have any other source of income apart from farming.

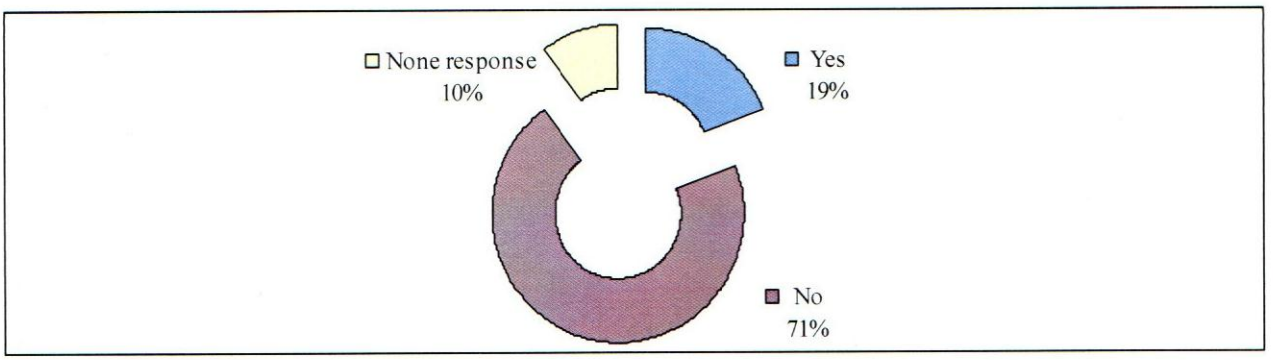



**Figure 4.6: Have other Source of Income**

Source: Research data (2010)

### 4.2 Nature of Credit Repayment Patterns among Smallholder Farmers

The study sought to identify and characterize the nature of credit repayment patterns among smallholder farmers in Nakuru District. The presentations of the findings are summarized in the subsequent sections.

## 4.2.1 Group Affiliation

The study sought to establish the respondents' group affiliations. The study established that 90 percent of the respondents indicated that they were aware when the group was formed. When they were asked to give information of who initiated the idea of forming a group, 50 percent of the respondents indicated that they were the ones who initiated the idea of the group. The study also established that 23 percent of the respondents indicated that it was the group members who initiated the idea of the group. Figure 4.7 shows the results of the study.

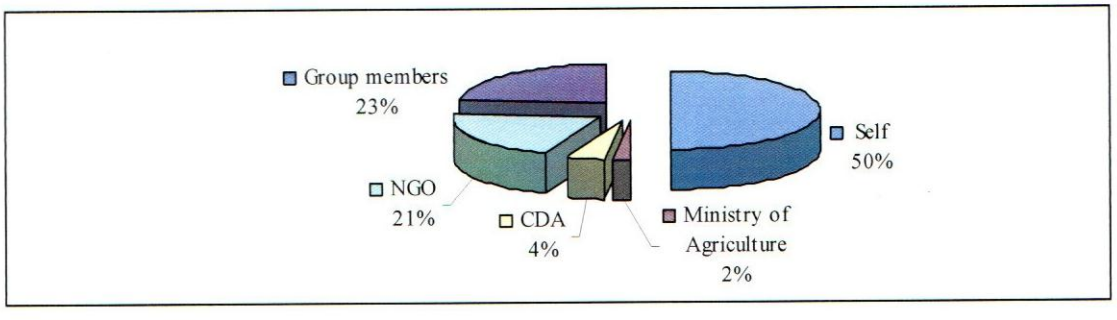



**Figure 4.7: Initiated Group Idea**

Source: Research data (2010)

## 4.2.2 Types of Groups

Respondents were asked to indicate the type of group in which they were in. The results of the study are presented in the Figure 4.8.

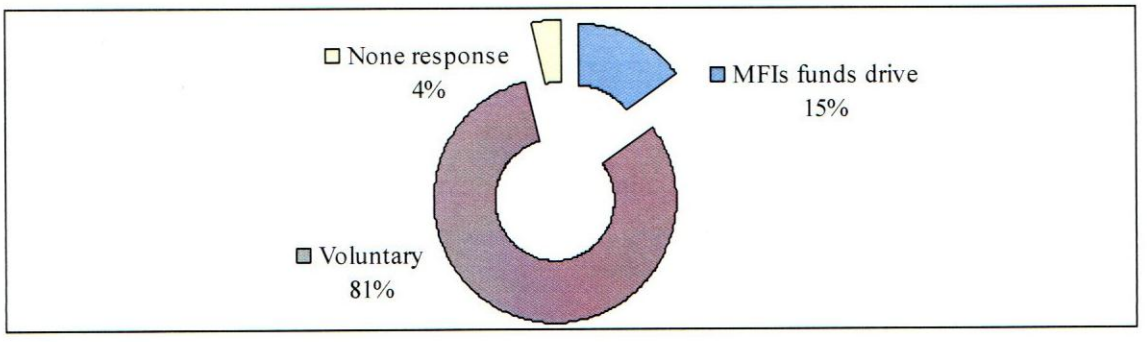



**Figure 4.8: Type of group**

Source: Research data (2010)

Figure 4.8 shows clearly that 81 percent of the respondents indicated that the groups were voluntary in nature, while 15 percent indicated that the groups were MFIs funds drive in nature.

### 4.2.3 Number of Members

Respondents were asked to indicate the number of members in their groups. The results of the study are presented in the table below.

**Table 4.3: Number of Members**

| Number of members | Frequency | Percent |
|---|---|---|
| 20 – 25 members | 3 | 6 |
| 26 – 30 members | 32 | 67 |
| 31 – 35 members | 5 | 10 |
| 41 – 45 members | 1 | 2 |
| 46 – 50 members | 7 | 15 |
| More than 50 members | 0 | 0 |
| **Total** | **48** | **100** |

Source: Research data (2010)

The study in table 4.3 show that 32(67%) respondents indicated that their groups are made up of 26 and 30 members, while 7(15%) respondents indicated that they have a membership of between 46 and 50 members. Asked to indicate the composition of the group in terms of gender, 83 percent of the respondents indicated that the composition is mainly female.

### 4.2.4 Duration as a member

The study sought to establish the length of time the respondents have been members of a group. The study established that 38 percent of the respondents indicated that they have been members of the group for between one to five years. Figure 4.9 show that 31 percent of the respondents indicated that they have been in the group for between six and ten years.

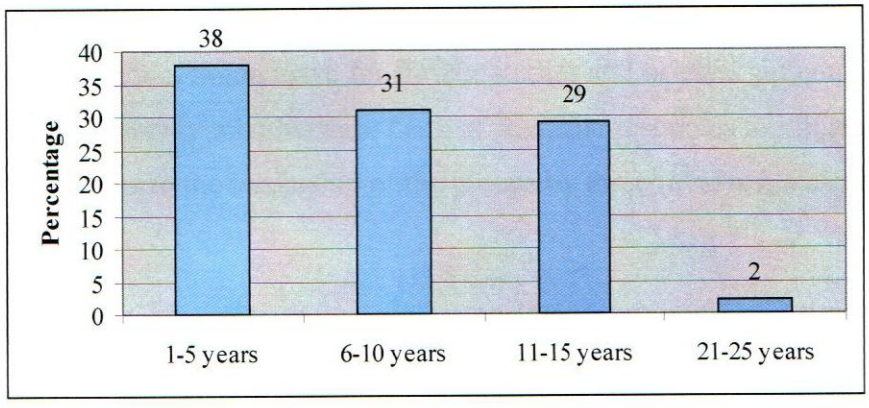



**Figure 4.9: Duration as group member**

Source: Research data (2010)

Respondents were asked to give information on how often their groups held meetings and all the respondents indicated that the groups met once a month. The study established that 68 percent of the respondents indicated that member of the group made individual contributions, while 13 percent indicated that made contribution through table banking.

Asked whether they had bank accounts, 92 percent of the respondents indicated that they indeed had bank accounts. All the respondents also indicated that they had group leaders and named the main offices as chairman, secretary, treasurer and vice chairman. The leaders are

elected by members in an election as all the respondents indicated that they elected their leaders in annual elections.

### 4.2.5 Challenges Faced by Group Leaders

The study sought to establish the challenges that the group leaders faced. According to the results of the study 11 (23%) respondents indicated that there was a poor attendance of group meetings. The study also established that the other challenge for the group leaders was the delay in submission of members' contribution as some members take too long to surrender their contributions, indicated by two (4%) respondents. According to three (6%) respondents, lack of commitment by some members of the group made the life of the group leaders difficult. There was also lack of member cooperation and inadequate finances (indicated by 5, 10% respondents). The membership according to two (4%) respondents was mainly comprised of the youth who are very dynamic. Some leave for further studies and or even get employment away from the region hence no steady membership. Lack of adequate resources to initiate projects was equally cited as a challenge to the leadership of the groups by three (6%) respondents.

### 4.2.6 Have Group Activities

Respondents were asked to indicate whether they had group activities. As shown in figure 4.10, 80 percent of the respondents indicated that they indeed had group activities.

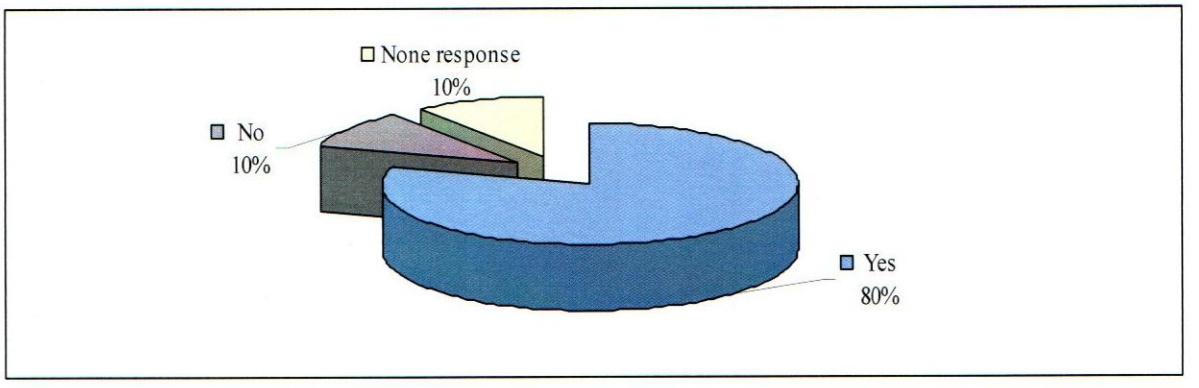



**Figure 4.10: Have group activities**

Source: Research data (2010)

Asked to name some of the activities, 40 percent of the respondents indicated that they had marry go round. The study further established that 25 percent of the respondents indicated that they were keeping bees, while 17 percent indicated that they were keeping dairy goats. Figure 4.11 presents summary of the findings.

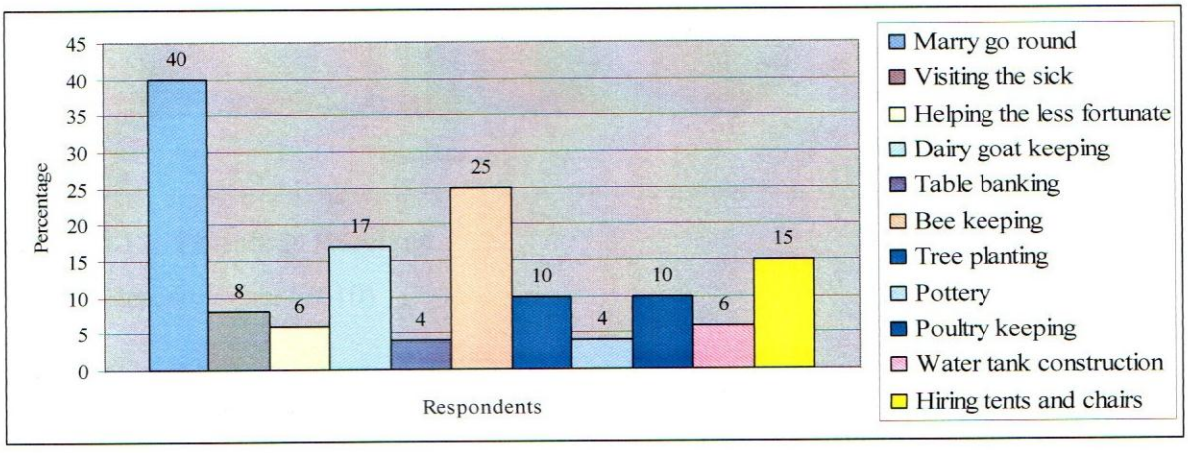



**Figure 4.11: Group activities**

Source: Research data (2010)

## 4.2.7 Received Group Training

The study sought to establish whether the respondents had received any group training. According to the results of the study 96 percent of the respondents indicated that indeed they had received group trainings. Asked to indicate the type of training they have participated in, 12 (25%) respondents indicated that they had received trainings on bee keeping. 14 (29%) respondents indicated that they had received training on dairy (cow and goat) rearing and management. Others included good farming systems (6 respondents, 12.5%), leadership {4(8%) respondents}. (Figure 4.12)

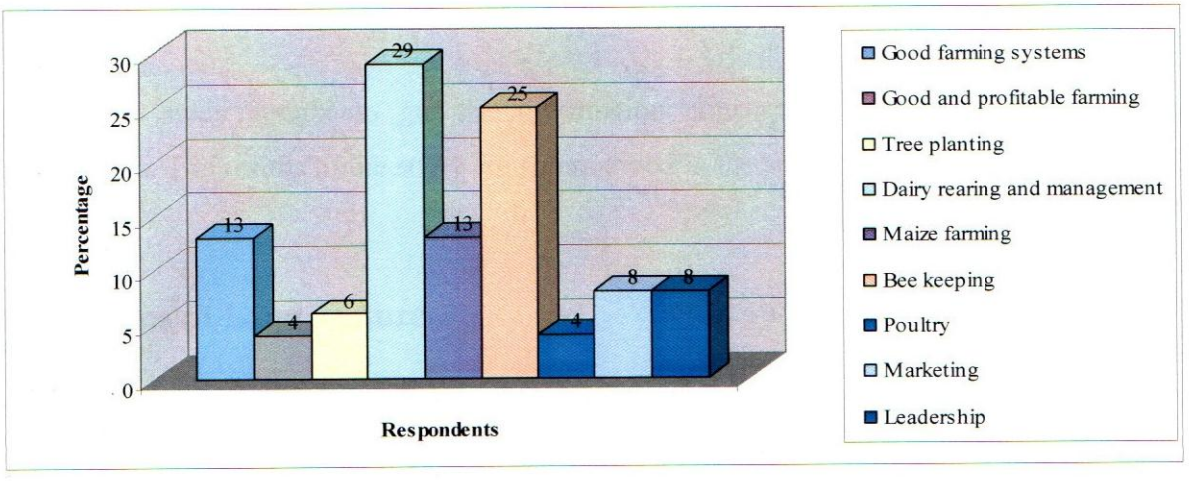



**Figure 4.12: Trainings Received.**

Source: Research data (2010)

## 4.2.8 Keeping Records

Respondents were asked to indicate whether their groups kept records. According to the results of the study, all the respondents indicated that indeed their groups kept records. They were then asked to list the types of records they kept. Figure 4.13 show that 50 percent of the respondents indicated that their groups kept financial records, while 48 percent indicated that their groups kept the group minutes.

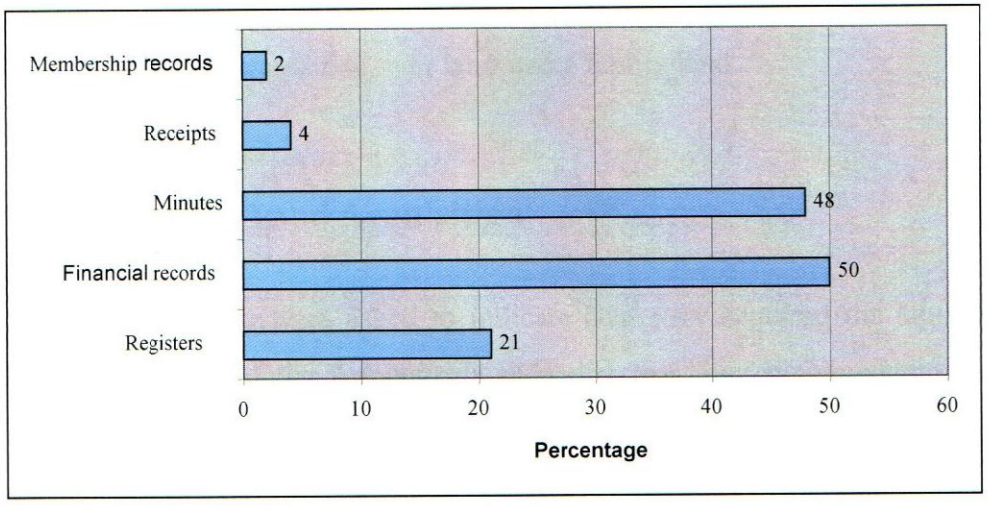



**Figure 4.13 Records kept by groups**

Source: Research data (2010)

### 4.3 Land Resources

The study sought to get the information concerning the land resources from the respondents. The results of the study are summarized in the subsequent sections.

## 4.3.1 Forms of Land Tenure

Respondents were asked to indicate the form of land tenure that existed in their community. Table 4.4 shows the results.

**Table 4.4: Type of land tenure**

| Type of land tenure | Frequency | Percent |
|---|---|---|
| Individual | 34 | 71 |
| Family | 13 | 27 |
| Hired/Leased | 1 | 2 |
| **Total** | **48** | **100** |

Source: Research data (2010)

The study established that 34(71%) of the respondents owned their land individually while 13(27%) indicated that their land was a family land.

## 4.3.2 Method of Land Acquisition

Respondents were asked to indicate how they acquired the land. According to Figure 4.14, 48 percent of the respondents indicated that they bought their land while 27 percent inherited.

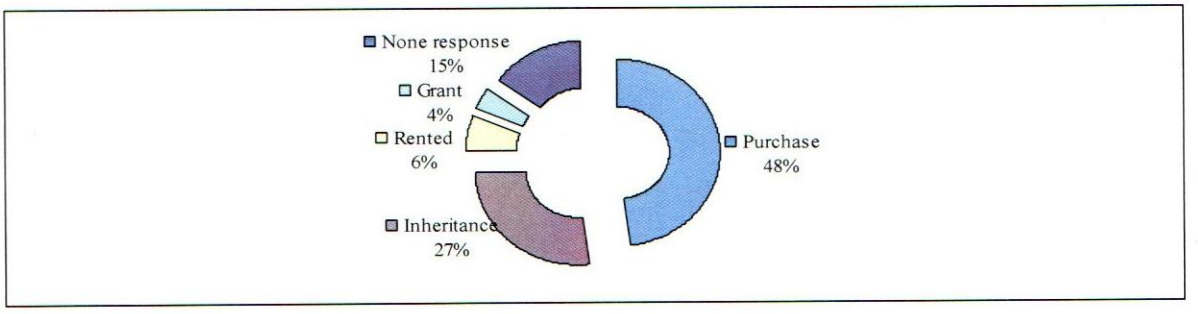



**Figure 4.14: Method of land acquisition**

Source: Research data (2010)

### 4.3.3 Size of Land

The study sought to establish the amount of land that the respondents were occupying. The study established that 39 percent of the respondents occupies a land of between 1.1 and 2.5 acres while 23 percent occupied land of size between 2.6 and 4.9 acres. Figure 4.15 shows the results.

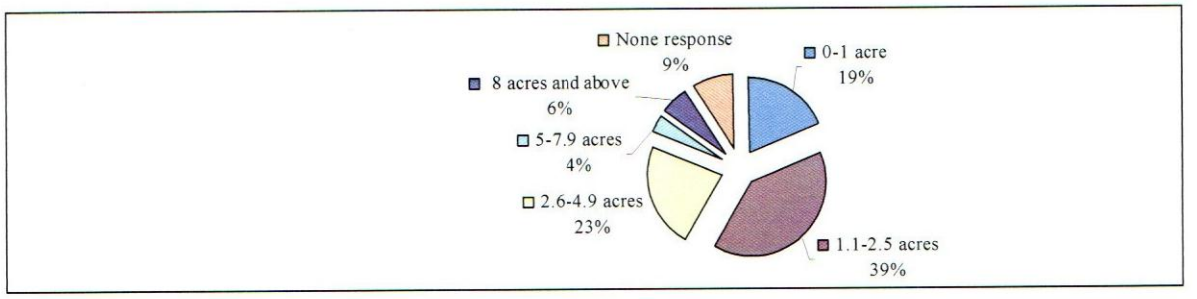



**Figure 4.15: Size of land occupied**

Source: Research data (2010)

Asked to indicate the farm activities, all the respondents indicated that they cultivated crops. In addition to the crops 25 respondents indicated that they were rearing livestock.

### 4.3.4 Problems Faced in Crop Production

Respondents were asked to indicate the problems they faced in crop production. According to the findings of the study in figure 4.16, it was apparent that 47 percent of the respondents indicated that weather was their major challenge in crop production. The study also established that pests were a big problem to the farmers as 46 percent of the respondents indicated that pests were a problem. Marketing equally post a challenge to the respondents as 38 percent of the respondents indicated so.

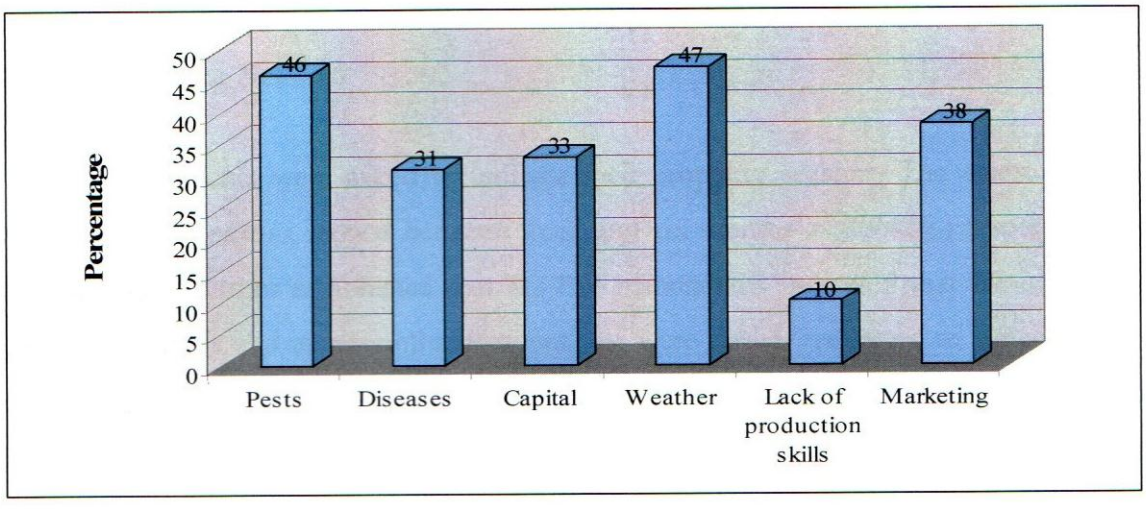



**Figure 4.16: Problems in crop production**

Source: Research data (2010)

### 4.3.5 Problems Face in Livestock Production

Respondents were asked to indicate problems they face in livestock production. Figure 4.17 show that 48 percent of the respondents indicated that pests and diseases were the major problems in livestock production. The study further established that 27 percent of the respondents indicated that animal feeds were a problem to them.

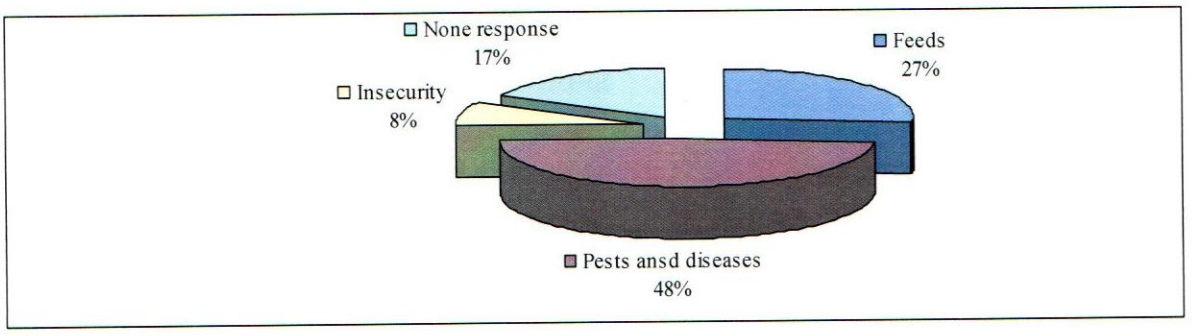



**Figure 4.17: Problems in livestock production**

Source: Research data (2010)

## 4.3.6 Cropping Season

Respondents were asked to indicate their cropping seasons. The study established that most cropping seasons ranged between three and six months as 20(42%) respondents indicated so. The study further established that 8(17%) respondents indicated that the cropping seasons were between six and nine months. Respondents were further requested to indicate their average earnings per month. Table 4.5 shows that 22(45%) respondents indicated they earned between Ksh 1001 and 2500 per month. It also shows that 8(17%) respondents earned an average of Ksh. 1000 per month.

**Table 4.5: Average Earning per Month**

| Earnings in Ksh. | Frequency | Percent |
|---|---|---|
| 0-1000 | 8 | 17 |
| 1001-2500 | 22 | 45 |
| 2501-4000 | 4 | 8 |
| 4001-6000 | 6 | 13 |
| 6000 and above | 1 | 2 |
| None response | 7 | 15 |
| **Total** | **48** | **100** |

Source: Research data (2010)

### 4.4 Individuals Credit Access and Borrowing

The study sought to establish the respondents' credit access and borrowing. The findings of the study are presented in the sections below.

### 4.4.1 Aware of Existence of Micro-Credit Institutions

Respondents were asked if they were aware of the existence of micro-credit institutions in the region. According to the study 79 percent of the respondents indicated that they were indeed aware of the existence of the micro-credit institutions. The study established that 50 percent of the respondents got to know of the existence of the institutions via the institutions themselves. Further 31 percent got to know of the existence from friends.

### 4.4.2 A member of Savings and Borrowing Group.

Respondents were asked to indicate whether they were members of borrowing and savings groups. According to figure 4.18, 60 percent of the respondents indicated that they indeed belonged to borrowing and saving group.

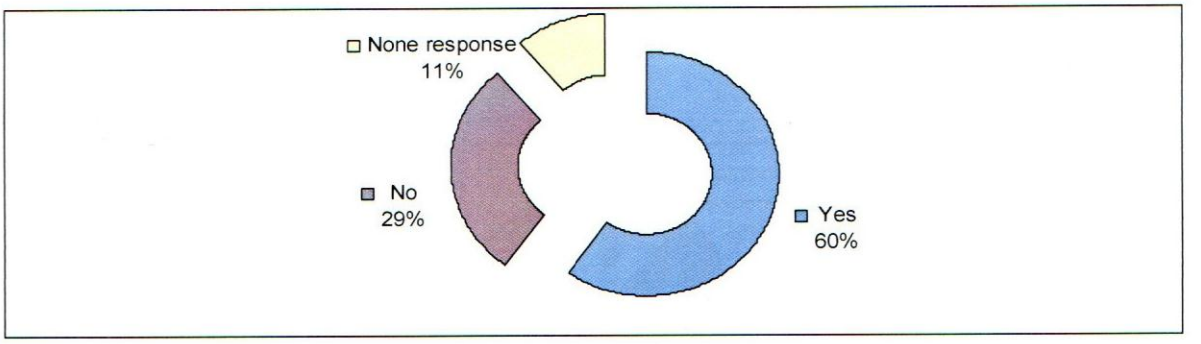



**Figure 4.18: Belong to Saving and Borrowing Group**

Source: Research data (2010)

The respondents were asked to indicate how often they used the group credit. The study established as shown in figure 4.19 that the first timers were the majority (48%). The study further established that those who rarely used the group credit were 32 percent.

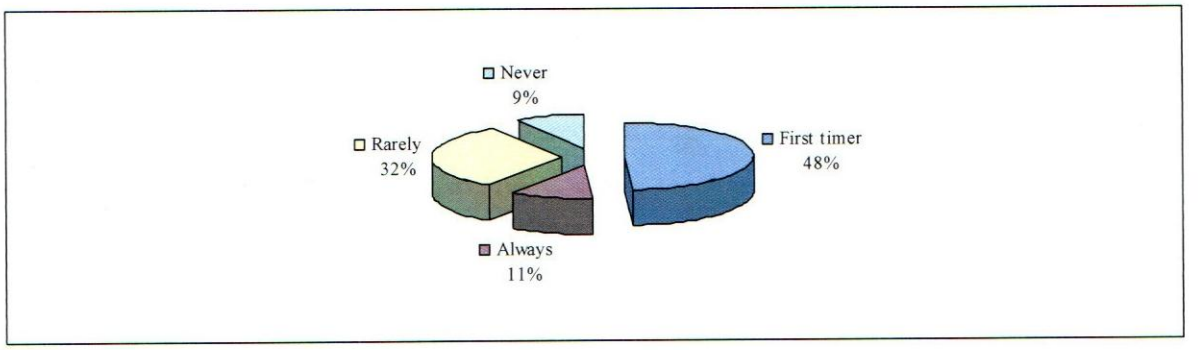



**Figure 4.19: Use group credit**

Source: Research data (2010)

Respondents were asked to indicate whether they had used credit facilities in their farm activities during the period of the study. The study established that 75 percent of the respondents indicated that they did not use credit facilities in their farms during that period. But those who used the credit facilities, 6 respondents indicated that they had borrowed between Ksh. 1,000 and 5,000 and the same number indicated that they borrowed between Ksh. 5,001 and 10,000.

### 4.4.3 Source of Credit

The study sought to establish the respondents' source of credit. Figure 4.20 below presents the findings.

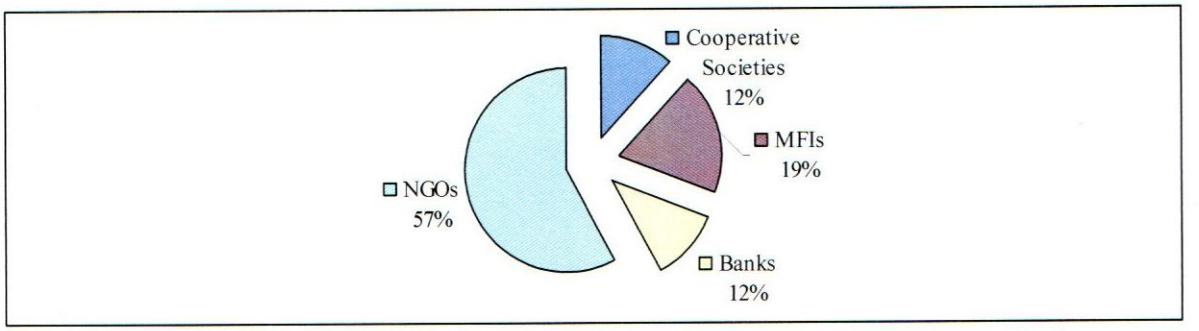



**Figure 4.20: Source of credit**

Source: Research data (2010)

Figure 4.20 show that 57 percent of the respondents received their credit from the NGOs while 19 percent received their credit from Micro-Finance Institutions

When asked to indicate how long it took them to receive the loan, 6(13%) respondents indicated that it took them two weeks. The study established that it took 19(40%) respondents between two weeks and one month to receive the loan. Still further 13(27%) respondents indicated that it took them more than one month to receive the loan. (See Table 4.6)

**Table 4.6: Duration taken to receive loan**

| | **Frequency** | **Percent** |
|---|---|---|
| Less than 2 weeks | 6 | 13 |
| 2 weeks - 1 month | 19 | 40 |
| More than 1 month | 13 | 27 |
| None response | 10 | 20 |
| **Total** | **48** | **100** |

Source: Research data (2010)

### 4.4.4 Purpose for Borrowing Funds

The study sought to establish why the respondents borrowed the loans. From Figure 4.21, it was apparent that 50 percent of the respondents borrowed funds to invest in their farms. The figure shows that 19 percent borrowed funds to pay school fees.

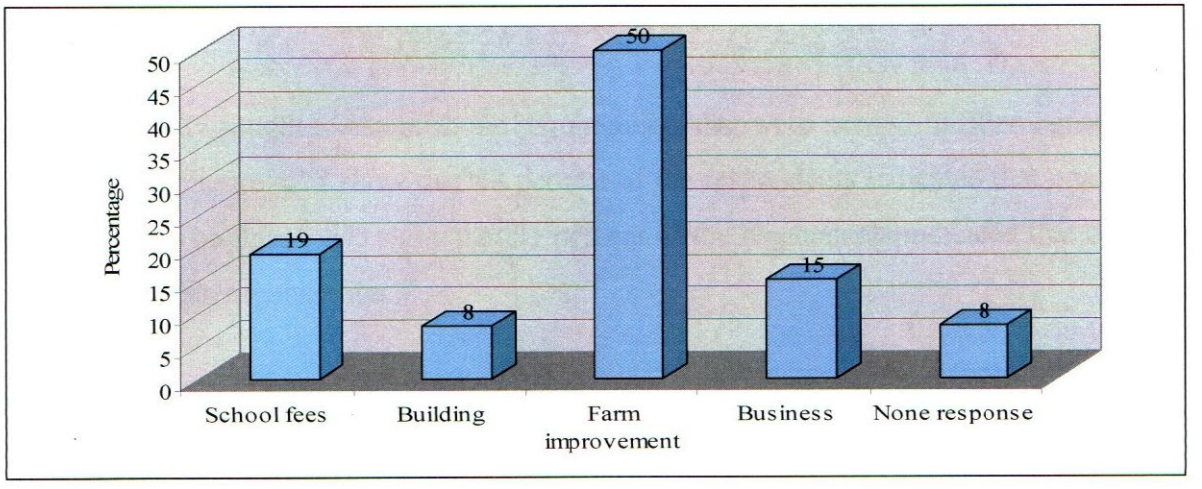



**Figure 4.21: Purpose for which fund is borrowed**

Source: Research data (2010)

Respondents were asked to indicate how they allocated the borrowed funds. The study show that 38 percent of the borrowed funds were used to buy fertilizers and 25 percent to buy seeds for planting. The study established that 19 percent of the borrowed funds were used in pest control. (See figure 4.22)

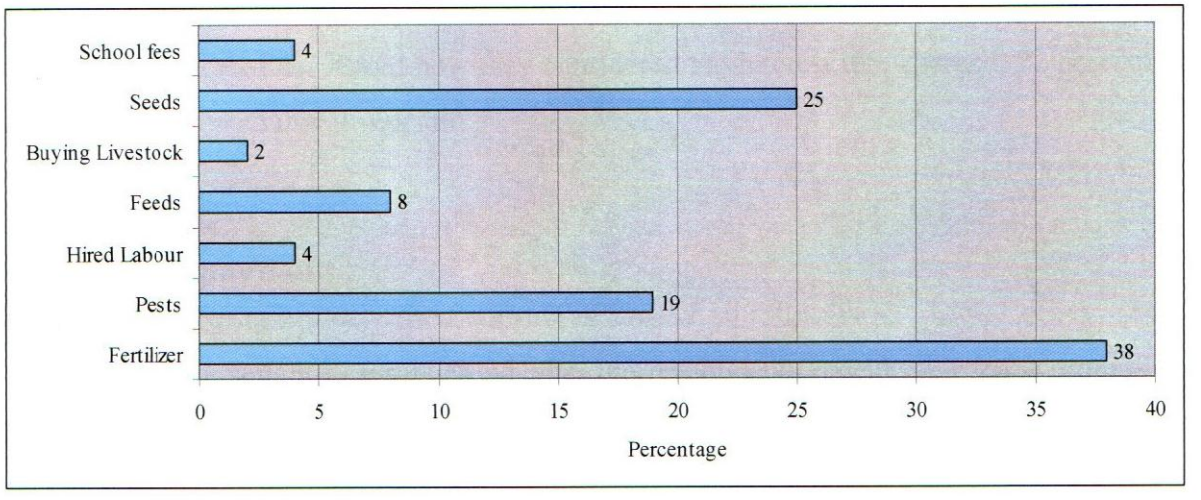



**Figure 4.22: How borrowed funds were allocated**

Source: Research data (2010)

### 4.4.5 Requirements Necessary to be fulfilled before Credit is Awarded

The study sought to establish the requirements that were needed fulfilled before one was given a credit. Figure 4.23 show that 48 percent of the respondents indicated that one needed to form a group. The figure also show that 31 percent of the respondents indicated that one needed to a member of an organization.

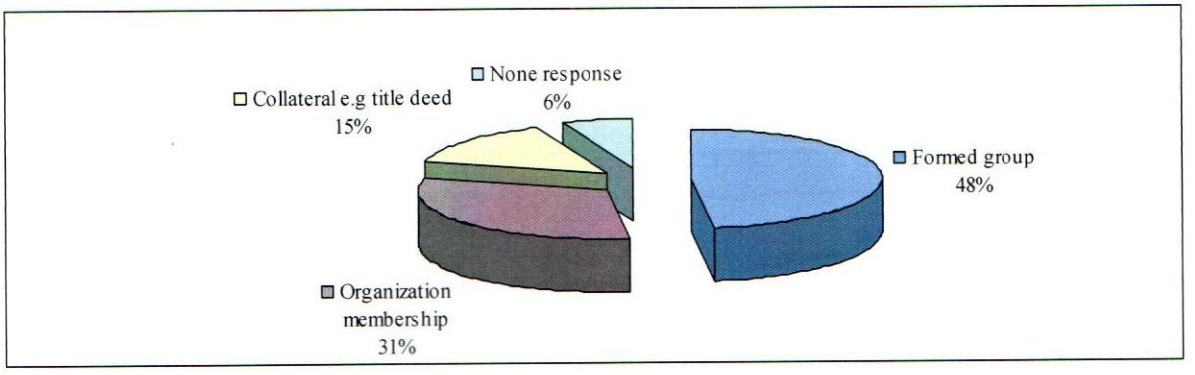



**Figure 4.23: Requirements to be fulfilled to be given credit.**

Source: Research data (2010)

The interest rate that was charged by the credit institutions was 10% as 69 percent of the respondents indicated so. Asked how they considered the interest rate charged, 72 percent of the respondents indicated that it was fair.

### 4.4.6 Loan Repayment

The study sought to establish whether the respondents repaid their loans promptly. The study found that 25(52%) of the respondents indicated that indeed they repaid their loans promptly. But 23(48%) indicated that they did not repay their loans promptly.

Asked whether the micro-finance institution that advanced the loans monitored the progress of the respondents, 25(52%) respondents indicated that the micro-finance institutions indeed monitored their progress, while 23(48%) indicated that it did not.

### 4.4.7 Logit Model Results

**Omnibus Tests of Model Coefficients**

| | | Chi-square | df | Sig. |
|---|---|---|---|---|
| Step 1 | Step | 13.693 | 6 | .000 |
| | Block | 13.693 | 6 | .000 |
| | Model | 13.693 | 6 | .000 |

**Model Summary**

| Step | -2 Log likelihood | Cox & Snell R Square | Nagelkerke R Square |
|---|---|---|---|
| 1 | 38.035(a) | .303 | .407 |

a) estimation terminated at iteration number 20 because parameter estimates changed by less than .001 The likelihood ratio chi-square of 13.693 with a p-value of 0.0001 tells us that our model as a whole fits significantly better than the empty model (Model 0).

It is evident from the results of the study that the value of Cox and Snell R squared is 0.303; this implies that about 30 percent of the variation in the smallholder famers' loan repayment data is explained by the famers' level of education, age of the group, size of the farm land, farm income, family size, and the interest rates of the loan. The model appears useful for making predictions since the value of Cox and Snell R squared is more than 0.25.

**Table 4.7 Factors Influencing Credit Repayment**

| | | B | S.E. | Wald | df | Sig. | Exp(B) |
|---|---|---|---|---|---|---|---|
| Step 1(a) | leveduc | .184 | .486 | 2.144 | 1 | .015 | 1.202 |
| | agegrp | .309 | .414 | 1.558 | 1 | .045 | 1.362 |
| | sizland | .569 | .189 | 4.000 | 1 | .199 | 0.001 |
| | farmincm | .046 | .407 | 4.013 | 1 | .049 | 1.047 |
| | famlsize | .437 | .189 | 5.000 | 1 | .199 | 0.763 |
| | intrstret | .720 | .808 | 4.535 | 1 | .033 | 1.179 |
| | Constant | - 4.525 | 2.586 | 17.061 | 1 | .080 | 0.250 |

a Variable(s) entered on step 1: leveduc, agegrp, sizland, farmincm, famlsize, intrstret.

**Key**

| | |
|---|---|
| leveduc | Level of Education |
| agegrp | Age of group |
| sizland | Size of land |
| farmincm | Farm income |
| famlsize | Family size |
| intrstret | Interest rate |

The study show that all the variables had a positive relationship as is depicted by the beta coefficient values. With their p-values less than 0.05, the level of education, age of the group, farm income and interest rate variables are statistically significant. The model regression results therefore show that the level of education, age of the group, farm income and interest rate were significant factors that affected smallholder farmers' credit repayment. The results of the study therefore mean that size of land and the family size did not affect the smallholder farmers' credit repayment. A unit increase in level of education, ability to repay loan promptly (versus not able to repay promptly) increased by a factor of 1.202. The same was the case with a unit increase in the age of the group, ability to repay loan promptly (versus not able to repay promptly) increased by a factor of 1.362 and family income by 1.047.

### 4.4.8 Challenges in Group Activities

The respondents were asked to indicate the challenges that the group was facing in carrying out its activities and according to the results of the study, 11 respondents indicated that inadequate funds was a major challenge to the group. Lack of cooperation by members was also cited as a challenge to the group by nine respondents. The respondents (10 of them) cited delays in members' contribution as another challenge to the groups. The same number of respondents also indicated that poor attendance of group meetings was a challenge to the group. Misunderstanding among the group members was a challenge to the group as the study established. Seven respondents indicated that misunderstanding among members was a major challenge the groups faced.

### 4.4.9 The Way Forward

The respondents were asked to indicate the way forward for the groups. Eight respondents indicated that the groups should seek financial support from other lending institutions like the banks and even the government and other donors. They also indicated that the group members be given more training on how to manage the credit they receive from the groups. Four respondents indicated that the groups should seek to diversify their projects and improve the existing ones to remain competitive.

# CHAPTER FIVE

# SUMMARY, CONCLUSION AND RECOMMENDATIONS

## 5.1 Summary

The overall purpose of the study was to evaluate factors that influenced smallholder farmer's credit repayment: a case of group based credit in Nakuru District. The first research hypothesis was that individual farmer group based credit has no specific characteristics that influence repayment patterns. The second research hypothesis was that farm household factors have no significant factors that determine group credit repayment. Out of the 50, farmers that were sampled, 48 responded. This gave a response rate of 96%.

### 5.1.1 $H_1$: Individual Farmer Group Based Credit has no Specific Characteristics that Influence Repayment Patterns

According to the study 81 percent of the respondents membership was voluntary and that the groups had membership ranging between 30 to 36 members (67%). The study established that 38 percent of the respondents have been members of these groups for between 1 to 5 years while 31 percent have been members for between 6 to 10 years. The most pronounced activities by the groups were merry go round (40%) and beekeeping (25%). Other activities included dairy goat keeping (17%) and hiring tents and chairs (15%). The study established that 29 percent of the respondents indicated that members had received training in dairy rearing and management and 25 percent on beekeeping. The groups kept records such as financial records (50%) and minutes (48%).

Most land was owned individually (71%) and the land size owned by majority of the respondents (39%) was between 1.1 and 2.5 acres and 2.6 and 4.9 acres (23%). The smallholder farmers faced problems such as weather as was indicated by 47 percent of respondents, pests (46%), and marketing of produce, 38 percent. Other problems are due to limited capital (33%), and diseases (31%). Those who reared livestock faced problems such as diseases and pest controls (48%).

The amount earned by majority of the smallholder farmers per month was ranging between Ksh. 1,001 and 2,500 (45%). The study show that 50 percent of the credit was used in farm improvements in which fertilizer took 38 percent, seeds took 25 percent and pest control 15 percent.

According to the logit analysis age of the group, farm income and interest rate were statistically significant determinants of smallholders' credit repayment as they had p-value less than 0.050 The results of the model show that size of land was statistically insignificant (p-value 0.199). Since most the variables in this category of individual farmer group (age of the group, farm income and interest rate except size of land) were statistically significant the study therefore rejects the hypothesis that individual farmer group based credit had no specific characteristics that influenced repayment patterns.

### 5.1.2 H2: Farm household factors have no significant factors that determine group credit repayment.

According to the study majority of the respondents were primary school dropouts as 25 percent of the respondents indicated so. The study established that 19 percent of the respondents together with their spouses had an O level education. Majority of the respondents (9 respondents) had seven children which mean that the family size was at least nine people. The study also shows that 8 respondents had indicated that they had five children meaning that the family size is at least five people. The study established that 35 percent of the respondents were farmers who had been farming for between 6 to 10 years.

According to the logit analysis level of education of the farmer with p-value of 0.015 was statistically significant in determining the of smallholders' credit repayment. The results of the logit model show that family size was statistically insignificant (p-value 0.199). Since the farmer's level of education was statistically significant and the family size insignificant, the study therefore rejects the hypothesis that individual farmer group based credit had no specific characteristics that influenced repayment patterns. This is because though the size of the family does not influence loan repayment, the farmers' level of education did.

## 5.2 Conclusion

The study therefore concludes that factors such as level of education of farmers, farm income, age of the group and interest rates influenced the groups' loan repayment patterns. The study also concludes that though such factors as the size of the family and land may look important, they are not significant determinant factors that influenced the groups' loan repayment patterns.

## 5.3 Recommendations

The study recommends that micro-credit lenders should pay more attention on factors such as the farmers' level of education, the age of the group, the farm income and interest rates charged on the loans. This is because these factors have been found significant determinants of small holder credit repayments. Specifically, interest rates should be adjusted downwards making loans borrowed cheaper for the farmers and therefore more able to make repayments within the required period.

The farmers should also be trained in skills that can add value to their ability to keep accurate records that will show the true status of their repayments and whether the loans are helping them to raise their standard of living and what they can do to help improve their repayment levels. For the trainings to be effective and meaningful, the researcher suggests that a thorough training needs assessment be carried out to know in exactly which area a farmer requires further skills.

## 5.4 Recommendations for Further Research

This study was done on factors affecting smallholder farmers' credit repayment in Nakuru District. This study therefore proposes that similar studies could be done in other regions and sectors of the country for purposes of improving group credit repayment patterns.

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## APPENDICES

### APPENDIX 1: FARMER QUESTIONNAIRE.

**PART A: (Personal Details)**

1. Farmer's name.....Age...Sex.....Marital Status.....
2. Level of education: Self..... Profession.....
   Spouse..... Profession.....
3. No. of children..... Oldest (age)..... Youngest(age).....
   School going..... Post School..... Working.....
   Drop outs (No.).....Reasons (i )
   (ii).....
   (iii).....
4. For how long have you been a farmer?.....years.
5. Do you have any other source of income apart from farm income?
   - ☐ Yes
   - ☐ No

   If yes, what is the source?
   - ☐ Employment
   - ☐ Business
   - ☐ Others (specify)

**PART B: (Group Affiliation)**

1. What is the name of the group that you belong to? .....
2. It is situated in .....Location and ..... Division
3. Do you know when your group was formed?
   - ☐ Yes
   - ☐ No

   If yes, which year was it formed?.....
   Which year was it registered?.....
4. Who initiated the formation of the group?
   - ☐ Self
   - ☐ Ministry of Agriculture
   - ☐ CDA
   - ☐ NGO
   - ☐ Others (specify)
5. What type of group is it?
   - ☐ MFIs funds drive
   - ☐ Compulsory
   - ☐ Voluntary
   - ☐ Others (specify)
6. How many group members are you?.....
7. How are you distributed?

- ☐ Male
- ☐ Female

8. For how long have you been a group member?.....
9. How often does the group meet?.....

10. What is your savings scheme?
    - ☐ ROSCA
    - ☐ ASCRA
    - ☐ Others (specify)
11. How do you make group contributions?.....
12. Does your group own a bank account?
    - ☐ Yes
    - ☐ No

    If yes, in which bank is the account?.....
13. Do you have any leaders in your group?
    - ☐ Yes
    - ☐ No

14. Do you hold elections in your group?
    - ☐ Yes
    - ☐ No

    If yes, after how long are these elections held?
    - ☐ Six months
    - ☐ 1 year
    - ☐ 2 years
    - ☐ 3 years
    - ☐ Over 4 years
    - ☐ Others (specify)
15. What challenges do your group leaders face?

    .....
    .....
    .....
    .....
16. Do you have group activities?
    - ☐ Yes
    - ☐ No

    If yes, name some of these activities.....
    .....
    .....
    .....
17. As a group, have you ever received any type of group training?
    - ☐ Yes
    - ☐ No

    If yes, what training have you participated in as a member?

.....
.....
.....

18. Does your group keep any group records?
    - ☐ Yes
    - ☐ No

    If yes, mention the ones that you know
    .....
    .....
    .....

**PART C: (Land Resources)**

1. What form of land tenure exists in your community?
    - ☐ Individual
    - ☐ Community
    - ☐ Family
    - ☐ Hired/Leased
    - ☐ Others (specify)
2. How did you acquire the land on which you are occupying?
    - ☐ Purchase
    - ☐ Inheritance
    - ☐ Rented
    - ☐ Grant
4. What is the size of the land you are occupying in acres?
    - ☐ 0 – 1
    - ☐ 1.1– 2.5
    - ☐ 2.6 – 4.9
    - ☐ 5 – 7.9
    - ☐ Above 8
5. What type of farm activity do you engage in?
    - ☐ Crops
    - ☐ Livestock

6. For crops farmers, fill the table below as honestly as possible.

| Crop | Maize | Beans | Potatoes | Carrots | Onions | Cabbage | Kales | | |
|---|---|---|---|---|---|---|---|---|---|
| Yield(bags) | | | | | | | | | |
| Bags Sold | | | | | | | | | |
| Sale Price | | | | | | | | | |
| Total sales Income | | | | | | | | | |

What problems do you face in crop production?

- ☐ Pests
- ☐ Diseases
- ☐ Capital
- ☐ Weather
- ☐ Lack of production skills
- ☐ Marketing

6. For Livestock farmers, fill the table below as honestly as possible.

| Product | Units Produced | Units sold | Sale Price | Total sales Income |
|---|---|---|---|---|
| Cattle (nos. per yr) | | | | |
| Milk (Litres per day) | | | | |
| Eggs (Pcs per month) | | | | |
| Broilers(Pcs per season) | | | | |
| Local Chicken(no./Month) | | | | |
| Sheep (Nos. Per Year) | | | | |
| Goats (Nos. per year) | | | | |
| | | | | |
| | | | | |

What problems do you face in the livestock production process?

- ☐ Feeds
- ☐ Pests and diseases
- ☐ Insecurity
- ☐ Others (Specify)

7. What is your cropping season?
   - ☐ 0-3 Months
   - ☐ 3.1 – 6 Months
   - ☐ 6.1 – 9 Months
   - ☐ 9.1 – 12 Months
   - ☐ Over twelve months
8. On average how much do you earn per month in kshs?
   - ☐ 0 – 1000
   - ☐ 1001 – 2500
   - ☐ 2501 – 4000
   - ☐ 4001 – 6000
   - ☐ Above 6000

**PART D: (Individual's Credit access and Borrowing)**

1. Are you aware of the existence of any micro – credit institution?
   - ☐ Yes
   - ☐ No
2. If yes, from where did you get to know of the existence of the micro – credit institution?
   - ☐ Friends
   - ☐ The institution itself

- ☐ Others(specify)

3. Are you a member of a savings and borrowing group?
   - ☐ Yes
   - ☐ No
4. How often do you use group credit?
   - ☐ It's my first time
   - ☐ Always
   - ☐ Rarely
   - ☐ Never
5. Did you use group credit in your farm activities this season?
   - ☐ Yes
   - ☐ No
6. If yes, how much did you borrow?

   .....
7. What was the source of your credit?
   - ☐ AFC e.g
   - ☐ Cooperative Society e.g
   - ☐ Micro Finance Institutions e.g
   - ☐ Banks e.g
   - ☐ NGOs e.g
8. How long did it take you to receive the loan?
   - ☐ Less than 2 weeks
   - ☐ Between 2 weeks and 1 month
   - ☐ More than 1 month
9. For what purpose did you use the borrowed funds?

   .....

   .....

   .....
10. How did you allocate your borrowed funds?
    - ☐ Fertilizer
    - ☐ Pests
    - ☐ Hired Labour
    - ☐ Purchase of feed
    - ☐ Others (specify)
11. In what form were you given the credit?
    - ☐ Cash
    - ☐ In Kind
    - ☐ Both
12. What requirements did you need to fulfil before you were given the credit?
    - ☐ Formed group
    - ☐ Organization membership
    - ☐ Collateral e.g Title deed
    - ☐ Others ( specify)
13. What interest rate was charged on the loan? (%).....

14. How do you consider the interest rate?
    - ☐ Low
    - ☐ Fair
    - ☐ High
15. Have you been able to repay the loan promptly?
    - ☐ Yes
    - ☐ No
16. Does the micro – credit institution that advanced you the loan monitor your progress?
    - ☐ Yes
    - ☐ No
17. How much and in which form did you borrow from other sources?

    .....

    .....
18. What challenges do you face in group activities?

    .....

    .....

    .....
19. Suggest ways forward for your group

    .....

    .....

    .....

## APPENDIX 2: LIST OF REGISTERED GROUPS IN NAKURU DISTRICT:

| No. | NAME OF GROUP | REGISTRATION No. | DATE REGISTERED | TYPE OF ACTIVITY |
|---|---|---|---|---|
| 1 | Kihingo W/Group | 3050 | 2007 - Renewal | Buying of Sheep |
| 2 | Upendo Beestone | 3285 | 2007 - Renewal | Buying Kentank |
| 3 | Chemaluk Belbur | 5046 | 2007 - Renewal | Posho Mill |
| 4 | Njoro literacy | 4441 | 2007 - Renewal | Cultivating |
| 5 | Kihingo Ngata | 4185 | 2007 | Water tanks |
| 6 | Promise Women | 5253 | 2007 | Water Kiosks |
| 7 | Rukungu Sinendeti | 1953 | 2007 - Renewal | Dairy Cows |
| 8 | Njoro Action | 5254 | 2007 - Renewal | Farming |
| 9 | Njoro promise | 5244 | 2007 | Poultry Keeping |
| 10 | Jikaze Maisha | 5145 | 2007 | Land Purchase |
| 11 | Bethel | 5116 | 2007 | Poultry Keeping |
| 12 | Amini Ogilgei | 5339 | 2007 | Water Tanks |
| 13 | Taboyat | 3220 | 2007 | Farming |
| 14 | Kihingo Upendo | 2143 | 2007 | Water Harvesting |
| 15 | Lucky Kihingo | 5341 | 2007 | Business |
| 16 | Kikapu Centre | 5439 | 2007 | Water Tanks |
| 17 | Heshima Subuku Piave | 5438 | 2007 | Poultry |
| 18 | Winners | 5437 | 2007 | Sheep & Goats |
| 19 | Kikosi | 5280 | 2007 | Poultry |
| 20 | Mutitu B | 3962 | 2007 | Water Tanks |
| 21 | Wema | 8685 | 2007 | Water Tanks |
| 22 | Simama Imara | 1803 | 2007- Renewal | Table banking Tent Lending |
| 23 | Piave Women Counselling | 2378 | 2007 | Counselling |
| 24 | Huruma Development | 3129 | 2007 - Renewal | Merry go Round |
| 25 | Narufa | 5599 | 2007 | Business |
| 26 | Our lady | 5843 | 2008 | Loaning |
| 27 | Glorious | 5844 | 2008 | Dairy Farming |
| 28 | Njoro Peace makers | 5829 | 2008 | Table Banking |
| 29 | Jubilee | 5799 | 2008 | Poultry Keeping |
| 30 | Njoro Hope Living | 5981 | 2008 | Dairy Goat |
| 31 | Njoro Mwigwithania | 5980 | 2008 | Poultry Keeping |
| 32 | POA | 6149 | 2008 | Water Tanks |
| 33 | Wanadorcas Site | 6232 | 2008 | Tree Nursery |
| 34 | Blessed Huruma | 6233 | 2008 | Shares Purchase Plot Buying |
| 35 | Tembea ujionee | 6113 | 2008 | Poultry Keeping |
| 36 | Oasis | 6107 | 2008 | Mixed Farming |
| 37 | Nyakinywa Wakongwe | 6173 | 2008 | Weaving Kiondos |
| 38 | Visioned Women | 6558 | 2008 | Buying Shares |

| 39 | Belbur | 6515 | 2008 | Merry go Round |
|---|---|---|---|---|
| 40 | Musamaria Mwema | 2348 | 2007 | Home Improvement |
| 41 | Mwangaza Farmers | 3359 | 2007 - Renewal | Farming |
| 42 | Love Joy | 4114 | 2007 | Dairy Goat |
| 43 | Migaa Farmers Field | 4113 | 2007 | Rearing local Chicken |
| 44 | Joy | 3110 | 2007 - Renewal | Merry go Round |
| 45 | Tumaini Maendeleo | 4034 | 2007 | Water Tanks |
| 46 | Kip One | 4032 | 2007 | Merry Go Round |
| 47 | Sisiot Upendo | 2941 | 2007 - Renewal | Water Tanks |
| 48 | Ngecha Shinning Star | 4015 | 2007 | Biogas |
| 49 | Usafi | 1690 | 2007 - Renewal | Water Tanks |
| 50 | Ukarimu | 4829 | 2007 | Small Business |
| 51 | Ufunuo | 3047 | 2007 - Renewal | Table Banking |
| 52 | Mwireri Ngecha B | 2664 | 2007 - Renewal | Merry Go Round |
| 53 | Njoro Jikuze | 4828 | 2007 | Water Tanks |
| 54 | Njoro Jiinue | 4827 | 2007 | Wheat Farming |
| 55 | Huruma | 4189 | 2007 - Renewal | Dairy Goats |
| 5 | Kariani Piave | 4854 | 2007 | Water Tanks |
| 57 | Sunjoro | 4874 | 2007 | Poultry Keeping |
| 58 | Kerma Wajane | 9430 | 2007 | Farming |
| 59 | Jawatho Umoja | 5098 | 2007 | Water Tanks |
| 60 | Jikaze | 1847 | 2007 - Renewal | Plot purchase |
| 61 | Rumwe | 3141 | 2007 - Renewal | Table Banking |
| 62 | Sigotik Kalyet | 5018 | 2007 | Processing yoghurt |
| 63 | Betheli | 5116 | 2007 | Poultry Keeping |
| 64 | Beeston Timber | 5245 | 2007 | School Fees |
| 65 | Faith Israel | 5156 | 2007 | Cereals |
| 66 | Ngecha Kito | 5243 | 2007 | Biogas |
| 67 | Ephesus | 4833 | 2007 | Poultry Purchase |
| 68 | Genesis | 3165 | 2007 | Home Improvement |
| 69 | Kimakia | 4191 | 2007 | Kentanks |
| 70 | Faith | 1955 | 2007 | Tanks Construction |
| 71 | Njoro Akorino | 4058 | 2007 | Poultry |
| 72 | Matumaini | 1894 | 2007 - Renewal | Water Tanks |
| 73 | Kiprot Korir | 4080 | 2007 | Dairy Farming |
| 74 | Njoro Heshima | 4059 | 2007 | Poultry Keeping |
| 75 | BaraJua | 3185 | 2007 | Poultry Keeping |
| 76 | Mwihako Kihingo | 4183 | 2007 | Plastic Tanks |
| 77 | Kalyet | 6770 | 2007 - Renewal | Building Activities |
| 78 | Lellesan | 4997 | 2007 | Plot buying |

| 79 | Subuku Corner | 4973 | 2007 | Buying Goats |
|---|---|---|---|---|
| 80 | Njoro Muungano | 4911 | 2007 | Buying Tanks |
| 81 | Burgei Bei | 4922 | 2007 | Posho Mill |
| 82 | Njoro Matanya | 4877 | 2007 | Water Tanks |
| 83 | Mwihoko Kihingo | 4183 | 2007 | Buying Plastic Tanks |
| 84 | Kondoo | 5148 | 2007 | Rearing Sheep |
| 85 | Vision | 5105 | 2007 | Water Kiosks |
| 86 | Bewathuarutani | 5125 | 2007 | Water Kiosks |
| 87 | Njoro Arahuka | 3751 | 2007 | Poultry Keeping |
| 88 | Njoro Egerton | 3747 | 2007 | Poultry Keeping |
| 89 | Mwireri | 2843 | 2007 - Renewal | Tank Construction |
| 90 | Mwigito Bidii | 3748 | 2007 | Buying Tanks |
| 91 | Baraka Piave | 3859 | 2007 | Buying Sheep |
| 92 | Changamka | 3858 | 2007 | Dairy Goat |
| 93 | Mukungugu | 3864 | 2007 | Buying Iron Sheet |
| 94 | Egerton Educators | 3862 | 2007 | Buying Gas Cookers |
| 95 | Njokerio Tuinuane | 3857 | 2007 | Goats/Pigs |
| 96 | Baraka Industrial | 2733 | 2007 - Renewal | Buying Kentanks |
| 97 | Piave Vision | 3861 | 2007 | Sheep Rearing |
| 98 | Ebenezer Mothers | 3841 | 2007 | Sheep Rearing |
| 99 | Njokerio Urumwe | 3860 | 2007 | Buying Kentanks |
| 100 | Usaidizi Matangi | 2281 | 2007 | Meko gas |
| 101 | Upendano | 3883 | 2007 | Dairy Goat |
| 102 | Maua | 3867 | 2007 | Kentanks |
| 103 | Njokerio Wadada | 3865 | 2007 | Dopper Sheep |
| 104 | Subuku Middle | 3863 | 2007 | Buying Kentanks |
| 105 | Moyo Safi | 3920 | 2007 | Buying Water Containers |
| 106 | Millhouse nyota | 608 | 2007 - Renewal | Merry Go Round |
| 107 | Kuoneki Subuku Piave | 4028 | 2007 | Sheep Rearing |
| 108 | Upendo Kaiyaba | 3317 | 2006 | Farming |
| 109 | Mercy | 3318 | 2006 | Purchase Cows |
| 110 | Gifted | 3326 | 2006 | Water Tanks |
| 111 | Maridadi | 3391 | 2006 | Buying Sheep |
| 112 | Chebaibai | 589 | 1997 | Bee Keeping |
| 113 | Ngata Bridge | 3640 | 2007 | Water Tanks |
| 114 | Gatagati | 2083 | 2002 | Water Tanks |
| 115 | Wiruti | 2184 | 2002 | Water Tanks |
| 116 | Ogligei Widows | 2242 | 2002 | Develop Plots |
| 117 | Piave Counselling | 2428 | 2004 | HIV Counselling |
| 118 | Maji Safi | 2614 | 2004 | Water Tanks |

Source: GOK: Ministry of Gender, Children and Social Development – Njoro (2008)