DETERMINANTS OF GROUP LENDING BY AGRICULTURAL FINANCING INSTITUTIONS IN KENYA: A CASE OF AGRICULTURAL FINANCE CORPORATION OF KENYA

By

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DECLARATION

This Research report is my original work and has not been submitted for any examination or degree award in any other University or Institution.

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L42/60036/2007

This Research report has been submitted for examination with my approval as the University supervisor.

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DEDICATION

I dedicate this research study to the Almighty God for His abundant grace to undertake this work.

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ABSTRACT

The study sought to find out whether joint liability, service providers and transaction cost determined smallholder farmer group lending by AFC. The study used survey method because it sought to obtain information from the smallholder farmers that described the phenomena of agricultural group lending by AFC. Besides, the survey sought to explain existing status of the variables outlined under the research proposal. Primary data was collected using a structured questionnaire which was in two forms: one for group members and another for the bank. Both questionnaires were of closed ended questions that sought data to be analysed using quantitative measures. Secondary data was obtained from client files and the Bank Equinox Based System (EBS). Ninety six (96) out of 120 questionnaires administered to farmers were successfully filled and returned back and this represented 80% return rate hence ensuring a close sample to the original. The study found out that in as much as the finance institutions worked with farmers' groups in raising agricultural production in Bura, there were several factors they considered in lending to farmer which aimed at safeguarding the money they inject into farming activities to ensure its repayment. Most of these factors hinder farmers from accessing credit either individually or as a group from finance institutions due to their inability to provide the requisite collateral requirements set by the lending institutions. Further, in Bura irrigation scheme, farming is the main source of livelihood, the farmers practice agriculture on small scale and most of them do not have the required collateral by lenders hence this further locks them out from accessing credit thus a disadvantage to their growth and expansion. In this case, group lending is adopted to advance loan facilities to farmers. It was deduced that to a larger extent joint liability determines as well influences group lending in Bura irrigation scheme. Most of the tangible factors influencing group lending in Bura Scheme had great effect on accessibility and loaning by AFC and other finance institutions. Service providers were major determinants of group lending and their presence in farmer groups encouraged banks and other financial institutions in availing credit to farmers and this was found meet the Agricultural value chain required. Lastly, it was concluded that being in a group reduced drastically the cost of transacting and processing loans as well as maintaining loaning accounts. This was due to pooling of money together while in group hence not a determinant to group lending by financial institutions and AFC. Following the findings, the study recommended a revision of security of loans required by AFC to broaden it and ensure as many farmers as possible are able to access loans, not only through group guarantee. Farmers should strive to improve on their agricultural production through investing in quality seeds and collaboration with service providers in order to increase collateral that can guarantee individuals. Lastly, there is need of market guarantee by NCPB for commercial maize for the Bura farmers since the farmers experience losses by selling locally to middle men.

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LIST OF ABBREVIATIONS AND ACRONYMS

AFC	Agricultural Finance Corporation
BISS	Bura Irrigation and Settlement Scheme
CBO	Community Based Organisation
EBS	Equinox Based System
MFI	Micro Finance Institution
NCPB	National Cereals and Produce Board
NGO	Non Governmental Organization
NIB	National Irrigation Board
SAPS	Structural Adjustment Programs
SHG	Self Help Group
SPSS	Statistical Packages for Social Sciences

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Economies of African states have thrived due to deliberate efforts made to strengthen agriculture which has become a major economic pillar. The agriculture sector in Kenya is the basis of the economy contributing up to 23.4 percent of its total Gross Domestic Product (GDP), and another about 27 percent indirectly (Republic of Kenya, 2007). Through the value chain, the sector employs over 40 percent of the total population with over 70 percent being rural population. Kenya has experienced tremendous growth in the agricultural sector over the years following purposed efforts to boost the country's economy and its food basket. In this case, agricultural lending by government financing and banking institutions has played a key role in providing working capital. Ledgerwood, et al., (2013) outlines that many governments and developing agencies have incorporated increased access to agricultural finance to their national development strategies. This is due to the recognition that many poor people in the developing countries reside in the rural areas and depend on agriculture for their livelihoods.

Many micro finance institutions emerged in the early 90's following implementation of Structural Adjustment Program (SAPS) by the government of Kenya between 1992 and 1994 (Republic of Kenya, 2005). In its development philosophy, the government purposed to accelerate its economic growth and generate employment opportunities by promoting the financing of small-scale enterprise sector. In the 2030 Vision, agriculture is identified as a key sector in achieving the envisaged annual economic growth rate and this is largely through transformation of smallholder agriculture from subsistence to an innovative, commercially oriented and modern agricultural sector.

Since the evolution of Grameen Bank in Bangadesh, there was a paradigm shift to provide finance to the poor eventually leading to birth of Micro Finance Institutions (MFIs), (Tesfaye, 2009). Agricultural lending institutions such as banks and government-owned corporations began extension of credit facilities to smallholder farmers in rural areas, especially groups. Group borrowers are largely comprised of individuals from low income scales and are therefore not able to borrow loans individually because they lack sufficient collateral to secure the loan, lack adequate employment and verifiable credit history. Both Adams et al (1992) and Yaron (1994) agree that while borrowing on the basis of anticipated crop production might seem logical in the absence of tangible collateral; such loans expose the lender to production and price risk. Njoroge and Eff (2009) observed while lending

to the poor, the lender expects no collateral to secure the loan. Furthermore, natural disasters such as poor weather conditions, pests and diseases, fluctuation in market prices, low yields, lack of buyers, post-harvest loses, and political interference such as loan interest and market price control, and imposing waivers and write offs to agricultural loans. This notwithstanding, lending institutions have ventured beyond such risks to finance groups, especially in agricultural related enterprises such as farming and agribusiness. Dadson (2012) observed that improvement in productivity through investment in agricultural endeavours has become the hub of livelihood to majority households in Africa and it is necessary for accelerated economic growth. At low income levels therefore, accumulation of savings by the farmers to finance themselves may be difficult and it is in such circumstances that access to group loans can help poor farmers to invest and increase productivity.

1.2 Problem Statement

Vaish (1997) defines banking as "accepting for the purpose of lending or investment of deposits from the public for the purpose of lending or investment of deposits of money from the public, repayable on demand, or otherwise, and withdrawable by cheque, draft, order, or otherwise". Through lending, banks generate income to run its business and earn profit. Banks and Micro Finance Institutions (MFI) generate their income through charging a specific interest rate to different loan products their offer. In his book, Pierre (2001), commercial banks generate profit not only by charging borrowers' higher interest rates than they pay to savers, but also by providing such services as check processing, trust- and retirement-account management, and electronic banking.

Banks and MFIs lend money to individuals, private companies, groups, public bodies, local authorities and other entities as suitably fitting to their different loan products. AFC lends 60% of its loan portfolio to individuals and the rest 40% to groups, private and public companies and local authorities. Unlike other commercial banks such as Equity Bank, Family Bank, Kenya Commercial Bank, and MFI's such as Faulu Kenya and Kenya Women Finance financing to various categories of clients in the Scheme, AFC has uniquely invested 100% of its loan portfolio to groups. Group lending has been associated with high risk of repayment due to lack of collateral to secure the loans. AFC 's loan is principally secured by land while other forms of security such as chattels, premium bonds and bank savings come second. The smallholder farmers in Bura do not own land and their chattels and savings are insufficient; that is why they form groups to guarantee each other and qualify for loans. With the absence of collateral in the loans already procured to the smallholder farmers, AFC stands at risk of repayment default by the groups. As a bank, AFC needs to generate profitable income to sustain itself and expand its lending portfolio. This research sought to understand the factors that drive AFC to lend entirely to smallholder farmer groups and not to a diversified clientele as other commercial banks do.

1.3 Purpose of the Study

This study intended to establish the determinants group lending by agricultural financing institutions in Kenya with special focus on the Agricultural Finance Corporation of Kenya

1.4 Research Objectives

The study was guided by the following objectives:

i. To find out whether joint liability determines smallholder farmer group lending by AFC
ii. To establish whether service providers determines smallholder farmer group lending by AFC
iii. To ascertain whether transaction cost determines smallholder farmer group lending by AFC

1.5 Research Questions

This research sought to answer the following questions:

i. Does joint liability of farmers determine smallholder group lending by AFC in BISS?
ii. Do service providers determine smallholder group lending by AFC in BISS?
iii. Does transaction cost determine smallholder group lending by AFC in BISS?

1.6 Significance of the Study

This study is important in informing lending approaches to agricultural endeavours. Since the study brings out determinants of group lending, it will benefit AFC among other agricultural financing institutions in consideration to group lending to reduce loan default while promoting agriculture among smallholder farmer groups, improve the country's economy through improved income level for low income households and overall realization of vision 2030 goals (Republic of Kenya, 2007). This is so because this study brings out underlying factors that have led to critical consideration of financing smallholder group farmers in Bura Scheme.

1.7 Delimitation of the Study

The study was carried out in Bura Irrigation and Settlement Scheme (BISS) focusing the eleven villages that are structured in it. It focused on the agricultural financing to the smallholder farmers who were financed by AFC and were undertaking farming activities in the scheme farm blocks. The study population was comprised of farmers who were financed between 2014 and 2015, and the study was undertaken between September 2015 and November 2015.

1.8 Limitations of the Study

Openness to share information by group members was limitation but the researcher assured them of the confidentiality of information shared. The study took into consideration distance between Nairobi and Bura Irrigation and Settlement Scheme in Tana River County which is approximately 400 Km

and this was addressed by planning the study ahead and in line with the researcher's periodic work schedules and networks in the Scheme.

1.9 Assumptions of the Study

The study was working with the assumption that group financing is an approach that is successful with smallholder farmers. In Bura, the settlement scheme is made up of villages that have been allocated blocks of irrigable farms for the inhabitants to carry out farming. Working as villages, mostly registered as Community Based Organizations (CBOs), the farmers have over the years pursued various development activities under joint liability through groups.

Further assumption of the study was that the sample that was selected from the 45 CBOs in the twelve villages at BISS was a true representation of the population. The data collection instruments chosen were tested for their validity to be able to answer questions precisely.

1.10 Definitions of Significant Terms

Bank- An outside lender/ financier who has the resources to lend to a certain group of borrowers or individuals

Groups- One or more villages registered as self-help groups or community based organizations

Group lending – Finance advanced to a group

Smallholder farmer groups- Farmers in Bura that are having small farming units and are organised in groups

Service providers-These are the players that come in at the farming, input supply and post-harvest stages of the agricultural value chain model.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Various studies have put across risks of group lending, factors causing repayment default by groups and loan default by groups. This chapter contains review of theoretical and conceptual framework, as well as empirical literature concerning determinants of group lending. It also highlights research gaps and provides a critique of the theoretical and empirical literature review.

2.2 Empirical Literature

This section of the study brings out secondary information gathered from scholarly materials such as text books and research from a global and local perspective and is captured under sub topics to bring out key areas of study in details.

2.2.1 Joint liability and group lending

The main attribute of group lending is joint liability; it encompasses all the aspects of a group dynamics such as peer pressure and assurance, group responsibility and liability. Most banks apply joint liability concept and leads to successful repayment of loans. However, other concepts within group dynamics such as Grameen model do not exactly apply joint liability, but rather emphasize on peer pressure and joint responsibility. Scholars argue that group lending is associated with high risk due to high rates of default on repayment aspect; the rate of risk however is dependent on such factors as age of borrower, number of years in loan experience, size of group, loan size and years in education. Oladeebo (2008) and Anigbou et al (2014).

Group lending is not exempted from risk of the borrower actions whereby, lenders cannot observe the borrower's choices on how to implement the project loaned or the realization of its proceeds. Chaves & Gonzalez-Vega (1994) describes moral hazard as "the incentive by someone (an agent) who holds an asset belonging to a person (the principle) to endanger the value of the asset because the agent bears less than the full consequences of any loss". It brings out consideration of bad risks where once a borrower has gotten access to credit, some unobservable characteristics take course such as lack of full commitment to the project and unwillingness cooperate in repayment of the credit. Ghatak (1999) states that in the absence of collateral the lender and borrower do not have the same objectives because the borrower does not fully internalize the cost of project failure; additionally the lender cannot dictate on how the borrower should run the project in question. Moral

hazard arises when clients misuse the loan and are not even accountable to their actions (Armendariz and Morduch, 2010). The lender therefore has to look beyond what the poor is offering as a security for a loan; Njoroge and Eff (2009) observed that in lending to the poor, the lender will not be able to get substantial collateral to secure the loan at all.

It is through group guarantee therefore that joint liability curbs aspects of risks arising from moral hazard. Besley and Coate (1995) observe that actually group members have better information about individuals' efforts and/or abilities than the lender. Tesfay (2009) stated "besides, the joint liability element generates individual incentives to screen (mitigating adverse selection), monitor each other (mitigating moral hazard) and enforces repayment."

A study on group loans by Amwayi et al, (2014) on "Analysis of Group Based Loan Default in Kenya, a Case of Agricultural Finance Corporation", shows that performance of AFC group loans in Eldoret Branch was with a default rate of 0.5%. However, in the succeeding years the performance of the group loans became very erratic recording a high of 80% default rate in 2008. The study established that amount of loan had no effect on default; size of the group has a significant positive effect on group loan default, while age of the group, experience in borrowing and education level all produced significant negative effect on group loan default. The study adopted census method to collect data and stratified sampling was used to identify the groups in default and those not in default. Primary data was obtained through a structured questionnaire while secondary data was from AFC's client administrative group files. Descriptive methods were used to describe the sample group while multiple linear regressions was used to measure the extent to which various factors affect repayment performance of group loans. In as much as the study has elaborated on findings on factors that led to loan default, the part of factors that made AFC to lend to groups was not brought out.

Kasalu (2014) in her study on effects of Gender Based Financing on the Growth and Development of Women Self Help Groups, in Mwingi Central Constituency, gathered important findings to this study. The study used a closed and open ended questionnaire for data collection and a descriptive statistics, content analysis and regression analysis were used to analyse the data. The researcher observed that most of the SHGs in Mwingi Central faced challenges in repaying their loan and the ten (10) SGHs she studied witnessed some drop outs of its members at various stages of the SHG growth. These were attributed to factors such as migration of members, death and self-will to opt out of the SHG, but most importantly, were failure of the members to meet group targets such as periodic contributions and loan repayment. On loan utilization, fifty percent of the respondents used their loans on the intended project while fifty percent used for other purposes. Although the findings of the study create an understanding of groups in terms of sustainability and loan use, the side of the banker in relation to the group financing is an area yet to be studied.

2.2.2 Cost of transaction and group lending

Costs are incurred by the farmers as they operate their loan accounts with the bank. Groups benefit much from the aspect of joint transactions where a joint account is operated with a financier; or where guarantors such as group officials transact in some situations for their members and cost of transport to the bank is reduced. The bank also reduces its cost of operating many accounts of smaller loans where a group in concerned. It is based on arguments of cost transaction that as a group, reduction in processing of group rather than individual loans could inform why a bank would easily loan a group undertaking similar activities. Ghatak and Guinnane, (1999) and Schaefer-Kehnert, (1982) agree that according to the transaction cost argument, in many circumstances, it becomes vaguely more expensive to administer a group of a number of loans than to administer a single loan.

Since cost of transaction encompasses all those costs incurred by the bank from screening of farmer to loan recovery, information at every stage is critical for the bank. The aspect of group lending goes further to understanding the individuals in these groups ;this information is critical for both the lender and the group and may upgrade a group through adverse selection whereby individuals forming a group select each other based on information they know about their own characters that inform repayment thereof. Kimenyi et al. (1998) argues that lending to poor clients requires additional screening for borrower selection and repayment enforcement and that the most difficult aspects of lending to poor clients are borrower selection and repayment enforcement. Karlan and Zinman (2009) observed that enhanced understandings of borrowers' information are critical for both lenders and policymakers. Such process of extracting deeper information implies additional cost to the loan processing to the bank, while the efficacy if this information on the other hand means establishing a sound banking system that caters for all processes from screening to monitoring for loan recoveries.

Loan recovery is undertaken where the borrower has delayed in repaying the loan; thus sufficient borrower information plays important role in informing the banker of the whereabouts of the farmer. Auditing therefore comes in where the bank assesses the borrower's condition to see how much wealth can be seized to recover the outstanding loan. This implies extra cost for the auditing, evaluation, and even auctioning of property. A study by Ghatak (1999) observed that borrowers who do not meet their repayment agreements cause the bank to incur in costly state verification to ascertain borrower's status. However with groups, Ghatak proposed a simple model to show that joint liability contracts reduces expected audit costs and improve efficiency by members themselves verifying each other's outputs hence a lower cost as compared to audit by the bank. The model concludes that audits take place less often under joint liability, so expected audit costs are lower and

so is the equilibrium interest rate. Hence, social surplus is always higher under joint-liability contracts. Even if banks would not lend to borrowers under individual-liability contracts due to high audit costs a joint-liability contract might make lending possible.

2.2.3 Service providers and group lending

It is established through the years that for successful farming, substantial inputs must be invested and the main denominator is finance; this will procure human resource/labour besides all the other specifics for the intended farm project. Since group borrowers are largely comprised of individuals from low income scales and are not able to borrow loans individually due to insufficient collateral and income, such farmers ought not to be locked out of financing on that basis considering the imperative for agricultural credit. In making a case for importance of agricultural financing to the smallholder farmers, Imoudu and Onaksapnome (1992) stated that the financing enables the small scale farmers to establish and expand their farms thus increase in their income status and ability to repay the loan. Moreover, the credit is to service an important aspect of agricultural value chain, the input suppliers. The farmer requires inputs such as seeds, fertilizer, pesticides and pay for crop management services such as ploughing, irrigation, planting, weeding, harvesting and storage before sale of produce. Miller and Jones (2010) defines agricultural value chain financing as an approach that seeks to reduce costs and lower the risks of lending by understanding risks and structuring financing (that is, fitting the conditions) to fill the needs of participants within a value chain. The farming value chain important for this research consist of maize farming (land preparation, fertilizer, pesticides, plant maintenance and harvesting), and post harvesting (transport to stores, drying, shelling, grading and packaging).

Nyoro (2007) in his study on "Financing agriculture: Historical perspective" brings out the inter-relation of the governmental Agricultural Finance Corporation (AFC) in providing farm inputs and cash to farmers through the Kenya Farmers Association (KFA); and the market link where the produce is sold to the governmental National Cereals Produce Board (NCPB). The study observed that the NCPB discounted loan payments owed to the AFC and the remaining funds were repaid back to the farmers. The study observed that AFC was the only government organization that provided finance in agriculture and was financed by the government and grants and loans from international donors. Although costly, the government offered both credit and complimentary supportive services to farmers. The study concludes that the combined effect produced both stability and stimulus to growth in the agricultural sector. However, in the post reform period of agricultural finance, the integrated system began to decompose with some of the changes and effects.

This research will interact with key service providers besides AFC (the bank) who are directly linked to the farmers for the purpose of doing business with them. They fit into various levels of the

agricultural value chain and this relationship is inevitable for a successful agricultural lending. Miller and Jones (2010) demystified the traditional thinking that the agricultural sector is too costly and risky for lending; they argued that major banks in the agricultural sector and large financial institutions both express the view that agricultural credit is profitable if producers are well integrated into a viable value chain. In Bura Scheme, the following are the service providers:

i. National Irrigation Board (NIB) mandated by the government to provide water to the mapped out irrigable acres of land at Bura and Hola in Tana River County at a very low cost. This also involves allocation and oversight of farm utilization.
ii. Kenya Seed Company, Seed Core and African Seed are selling certified seeds to the farmers at contract rates with the financier of farmers. They also provide guaranteed market for seed maize produce and conduct research through Kephis situated at the scheme to ensure that qualified seeds that produce desired characteristics in the area are provided to the farmers at a slightly subsidised price.
iii. National Cereals and Produce Board (NCPB) provides market for the cereals especially maize.
iv. Other key suppliers are those that provide fertilizer, pesticides and transportation services

2.3 Theoretical Framework

There are many models around group lending and the study will highlight those most applicable being bank guarantee, solidarity and Grameen models. The philosophy in all these models is pegged on the fact that shortcomings and weaknesses at the group level are overcome by the collective responsibility and security afforded by the formation of such individuals.

2.3.1 The Bank Guarantee Model

Bank guarantee model is used to obtain loans from a commercial bank. This guarantee may be arranged externally (through a donor/donation, government agency etc) or internally (using members savings). Loans obtained may be given directly to an individual, or they may be given to a self help group (The Grameen Bank, 2000a).

2.3.2 Solidarity Model

Also referred to as peer pressure model, it asserts that small groups borrow collectively and group members encourage each other to repay the loan. This model yielded the Grameen Bank model where peer support leads to 99% rate of repayment (Yunus, 2006).

2.3.3 The Grameen Model

Originated by Professor Muhammad Yunus in Bangladesh, this group lending model is the pillar behind success in group lending by The Grameen Bank. The model is now practised successfully in many other countries after Grameen America also pioneered successfully. Berenbach and Guzman (1994) states in this model, individuals must form a group of four to seven and receive a five day financial training in order to receive a loan from Grameen. Khandker et al. (1995) concur on this model by stating that Grameen Bank borrowers organize themselves into self-selected groups of five people (men and women are in different groups, as dictated by social norms in Bangladesh). All group members must be from the same village. After the formation of the group, members receive training from Bank employees and begin weekly meetings. From the outset, each member makes small, weekly savings deposits. Several weeks after the group is formed, two members receive a loan. If the initial borrowers make their required weekly payments and if the group otherwise adheres to the rules of the Grameen Bank, two more members receive loans, and so on. Loans are small and must be repaid in weekly installments over a period of one year. If any member of a group defaults, all members are ineligible for Grameen Bank credit in the future (The Grameen Bank, 2000a).

From the three models, there is a common phenomenon that is joint liability. The models of group lending agree that a group scenario brings out joint responsibility and liability whereby peer pressure will lead to group members holding each other accountable for loan repayment (Zeller, 1998). This research proposal will therefore adopt to use the Grameen Bank model as it best brings out the vastness in group lending approach as seen in many banking institutions worldwide. It is also for the fact that group collective responsibility of the group serves as collateral for the loan.

2.4 Conceptual Framework

Since the independent variable is something hypothesized to influence the dependent variable, this research proposal was working with four independent variables being nature of farms, service providers, joint liability and cost of transaction. These were measured using specific indicators that influence group lending approach as described in figure 1.

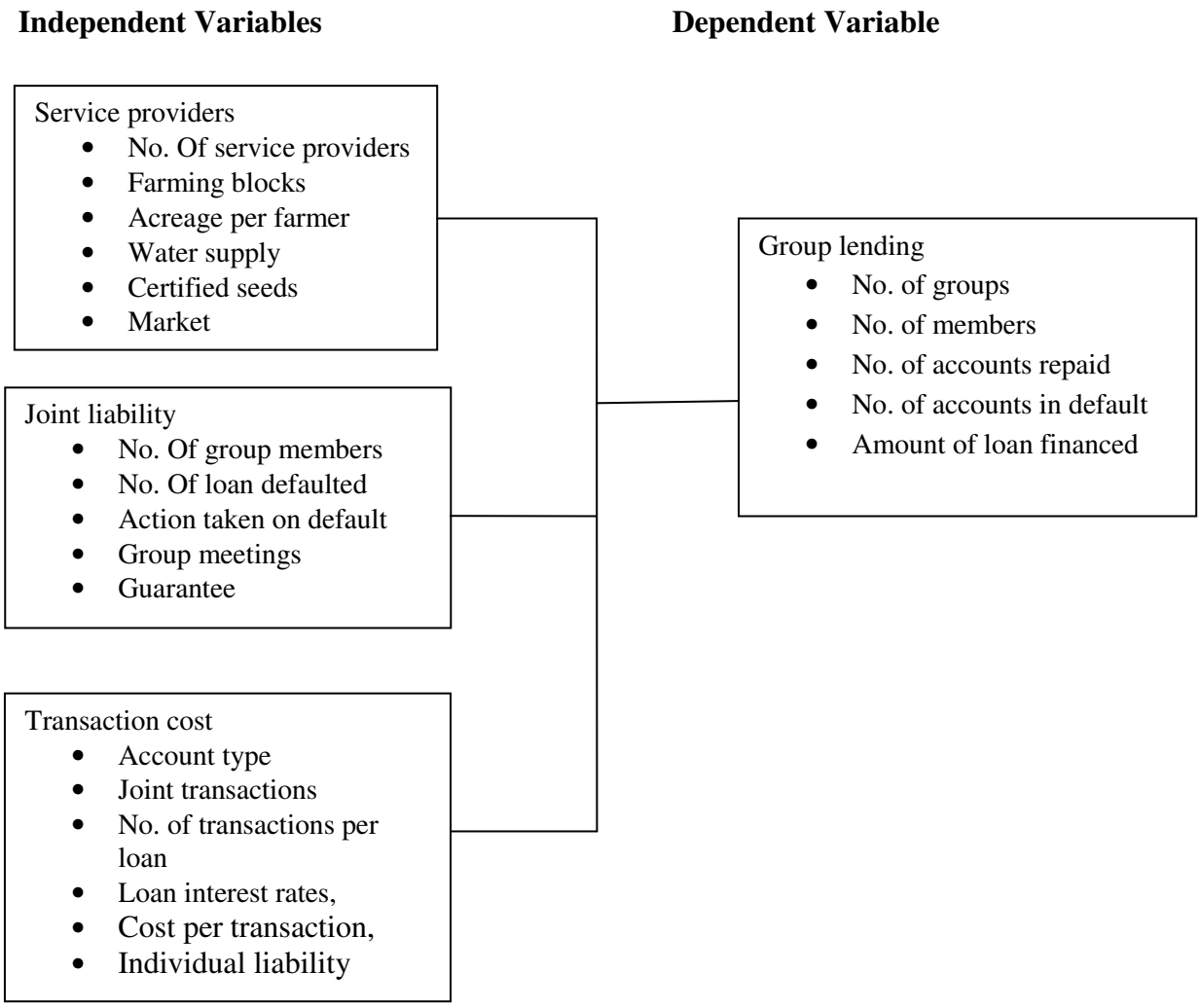

Fig 1: Determinants of group lending by agricultural financing institutions in Kenya

Service providers as measured by number of service providers, farming blocks, acreage per farmer, water supply, certified seeds and market influence group lending.

Joint Liability as measured by number of group members, number of loan defaulted, action taken on defaults group meetings and guarantee determine lending to groups

Transaction cost measured by account type, joint transactions, number of transactions per loan and loan interest rates, transaction cost and individual liability affect group lending.

The Dependent Variable reflects the influence of the independent variables and in this research proposal is Group Lending. This is measured by the following indicators:

i. Influence of number of groups on group lending
ii. Influence of number of members on group lending
iii. Effect of number of accounts repaid on group lending
iv. Effect of number of accounts in default on group lending
v. Effect on amount of loan financed on group lending

Intervening Variables

The project interacted with other variables outside the dependent and the independent and these were the intervening variables.

The study also observed influence of intervening variables which included policy and political, economic and environmental factors. Foremost, government policy played a key role in influencing group lending by AFC of which under the Kenya Law Chapter 323, AFC Act of 1969, AFC is mandated to offer agricultural loans to farmers at low interest rates as a way of improving the country's food basket and economic status of the farmers. This was to reinforce the World Bank recommendation report on the establishment of irrigable farms in the Tana River Basin to improve on the country's food basket. This also explains the economic factor influencing the independent variable in addition to the fact that the State Corporation was mandated under the Jubilee manifesto to fund farming in the Tana River Basin Irrigation Scheme which involves Hola and Bura Settlement and Irrigation Schemes that targeted up to 2,000 acres of irrigable land. Lastly, the research established that political factors as stated under the Jubilee Manifesto together with influence of politicians on the government to allocate more funding to the farmers at very low interest rates, and to some extent, farmers becoming reluctant to repay the loans hoping that their politicians will ask the government to write them off was clearly identifiable.

2.5 Summary

This section has brought out a review of studies relating to joint liability, service providers and cost of transaction and group lending. From these studies, there is evidence that group lending has been widely researched to understand its dynamics especially in relation to smallholder farmers. The model adopted for this research is the Grameen model which encompasses all aspects of groups and lending to groups. The conceptual framework is captured in a diagrammatic presentation and defines both the dependent and independent variables together with the indicators to measure each.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the research methodology used to guide collection, collating, analysis and interpretation of data. It included research design, target population, sample design, research instruments, methods of data analysis and ethical issues.

3.2 Research Design

The study was a survey research because it sought to obtain information from the smallholder farmers that describe the phenomena of agricultural group lending by AFC. Besides describing the phenomena, the survey sought to explain existing status of the variables outlined under the research proposal.

3.3 Target Population

According to Mugenda and Mugenda (2003), population is the aggregate of all that conforms to a given specification; also, an entire group of individuals, events or objects having a common observable characteristic. The target population of this study therefore consisted of all the groups funded by AFC Bura branch between 2014 and 2015. According to AFC Bura branch client portfolio database for the target period, the total population therefore constituted a total of 2,238 clients under the 45 CBO groups. Of the 45 groups, 10 of them have loans for both commercial and seed maize while other groups 35 have loans for only seed maize or commercial maize. This study therefore focused on the 10 groups that have loans for both seed and commercial farming.

3.4 Sampling Procedure and Sample Size

Multi-stage sampling technique was used in selecting the respondents. The first stage involved purposive selection of 10 groups out of 45 that had loan with AFC for both seed maize and commercial maize at Bura. The second stage involved a simple random selection of 3 subunits from each of the 15 groups because members of each group were farming in different sub units/block of farms. The last stage involved random selection of 4 farmers from each of the 3 sub units. Thus a total of 120 representative smallholder farmers were used for the research.

3.5 Methods of Data Collection

Primary data was collected by use of a structured questionnaire. There were two questionnaires, one for group members and another for the bank. Both questionnaires were of closed ended questions that sought data that can be analysed using quantitative measures. The questionnaires are outlined in Appendix B and C of this project. Appendix B had two sections; section I. contains questions that seeks personal information of the farmer while section II. had questions seeking data from the farmer on nature of farms, service providers, joint liability and cost of loan transaction. Appendix C had questions that sought to obtain data from the banker on nature of farms, service providers, joint liability and cost of loan transaction.

3.6 Data Collection Method

Data collection was done through secondary and primary data collection. On secondary data collection, client files were studied to give information on loan size, farm size and transaction. For primary data collection, administration of questionnaires was done by the researcher through telephone interview. Two research assistants were contracted by the researcher to assist in the administration of the questionnaires.

3.7 Validity and Reliability

The instruments' validity and reliability were determined as described in the following sections.

3.7.1 Validity

To ensure that the instrument measures the variables the study intends to measure, during the designing of the questionnaire, care was taken to ensure that the content is in line with the objectives of the study. The researcher then sought the help of the supervisor as an expert to validate the instrument.

3.7.2 Reliability

The tools were piloted in Hola Branch to test the validity of the instruments by establishing how accurately the data obtained from the group piloted represents the variables of the study. Hola branch is within the same irrigation scheme based in Tana River County hence the results in Hola gave a very small deviation from what will be obtained from Bura hence a valid data.

According to Mugenda and Mugenda (2003), data has high correlation coefficient if it is of high spilt reliability. Adjustment of the coefficient was done using Spearman-Brown prophecy formula since the coefficient so computed does not reflect reliability of the whole instrument. Measure of the degree to which the instrument used in the study gives consistent results after repeated administration was determined by administering the instrument in Hola and a Reliability coefficient of 0.7 was realized.

3.8 Methods of Data Analysis

Descriptive statistics such as frequencies, mean, median, standard deviation, coefficient, variation and percentages was used to summarize socio-demographic variables of the respondents. A multiple regression model was used to analyse determinants of group lending among respondents. Linear form of regression was run to establish the relationship between the dependent and the independent variable in the model. The responses sorted and organized before capturing them in Statistical Packages for Social Sciences (SPSS) for analysis. The responses will be analysed by computing the mean percentage score derived from the three point scale questions.

Tests of significance were carried out once results of various data analysis were been done in order to decide whether the results are statistically significant. According to Mugenda and Mugenda (2003), the researcher did not make decisions regarding significance of the study by trial and error, but by testing.

3.9 Operational Definition of Variables

This research proposal is working with two classifications of variables: The independent variable and the dependent variable.

Independent Variable	**Indicator**	**Dependent Variable**	**Indicator**
Joint liability: This is an aspect where all members are jointly liable in a group	No. of group members No. of loans defaulted in a group Action taken when a member defaults, No. of group meetings, Guarantee	**Group Lending:** This means the finance advanced to a group as a loan	No. of groups, No. number of members No. of accounts repaid No. of accounts in default No. amount financed
Service providers: These are entities providing various services for farming at BISS	No. of service providers, type of services they provide, Farming blocks, No. of acreage per farmer, Water supply, Certified seeds, Market availability Amount of loans.		
Transaction cost: This is the cost implication of transacting the loans by both the client/farmer and bank	Account type, Joint transactions, No. of transactions per loan, Loan interest rates, Transaction per cost, Individual liability.		

3.10 Ethical Issues

The researcher acquired authorization from AFC to carry out the research from its Branch, and also sought consent of the respondents and briefed them on the study objectives. Importantly, respondents were assured that their responses will be used only for the purposes of the study and no names and feedback will be quoted unless with consent from the respondent.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

The study sought to establish the determinants of group lending by agricultural financing institutions in Bura Irrigation Scheme in Northern Kenya focusing on Agricultural Finance Corporation. Primary data was collected from the sampled farmers in farmers' groups in Bura Irrigation Scheme using questionnaires respectively. Bankers' views were also sought by use structures interviews to get the financial institutions' opinions on the problem under study. Thus, this chapter is a descriptive analysis of data collected, interpretation and discussion of the findings. The chapter is organized into the following sub-sections: questionnaire return rate, demographic data of the respondents and the descriptive analyses from the questionnaire responses that analyses the objectives of the study.

4.2 Questionnaire Return Rate

Ninety six (96) out of 120 questionnaires administered to farmers were successfully filled and returned back. This represented 80% return rate, ensuring that the sample size remained as close as to the original sample size as possible. Campion (1993) suggested that authors need to make reasonable efforts to increase questionnaire return rates, address the influence of non-respondents, and that they do not contain any obvious biases. To increase the return rate for this study, the questionnaires and Bankers' structured interviews were administered purposively as described in chapter three of this study. Babbie (1990); Dillman (2000), suggest 50% as the minimal return rate; Fowler (1984) suggests 60%; and De Vaus (1986), argues for 80%. Data was collected from twelve (12) different farmers' groups with 8 respondents utilized in each group. Uzalendo farmer group was given a larger share since it comprised of large number of members compared to other groups while Amkeni had fewer members. The response rate from each farmer group is as shown in table 4.1.

Table 4.1: Respondents' CBO

Respondents' CBO	Frequency	Percent	Valid Percent	Cumulative Percent
Bidii	8	8.3	8.3	8.3
Mla Jasho	8	8.3	8.3	16.7
Umoja	8	8.3	8.3	25.0
Tumaini	8	8.3	8.3	33.3
Barwako	8	8.3	8.3	41.7
Damaji	8	8.3	8.3	50.0
Uzalendo	11	11.5	11.5	61.5
Amkeni	5	5.2	5.2	66.7
Juhudi	8	8.3	8.3	75.0
Chemi Chemi	8	8.3	8.3	83.3
Mount Kenya	8	8.3	8.3	91.7
Uwazi	8	8.3	8.3	**100.0**
Total	**96**	**100.0**	**100.0**	

4.3 Respondent's Demographic Data

The respondents were asked to indicate their gender and age bracket to give insight into the demographic characteristics of those in involved farming and their eligibility for credit. Their responses were as shown in Table 4.2.

Table 4.2 Respondents' Gender and Age

Sex	**Frequency**	**Percent**
N/A	1	1.0
Male	54	56.3
Female	41	42.7
Total	**96**	**100.0**
Age		
N/A	1	1.0
18-23years	3	3.1
24-29years	14	14.6
30-35years	9	9.4
36-41years	10	10.4
Above 41years	59	61.5
Total	**96**	**100.0**

From the findings, majority of the respondents 56.3% were male and 42.7% female. Those that were of ages below 23 years were represented by 3.1% with majority of the farmers being of ages above 41 years. This finding suggests that most of the farmers accessible for loan facilities at the banks and AFC as well as embroil in farming are elderly. It also points to the fact that land ownership as a natural resource which also plays role in acquisition of loan as a collateral is dominated by men in their forty's and above. Nonetheless, this was a fair representation having brought into the study both genders and different age brackets to give a better insight to the problem under study.

4.4 Respondents Literacy Level

The study sought to find out the level of literacy of the respondents to establish whether it was a factor by which lending institutions and AFC consider when making lending decisions. It was also to help validate the research findings in administering of the research tools in an appropriate manner that would allow collection of reliable information. The study findings with regard to education of the respondents were as follows in table 4.3.

Table 4.3 Respondents' Literacy and Education Level

		If Yes, your education level is?						
		N/A	Primary School Completed	Secondary School Completed	Certificate	Diploma	Degree and Above	**Total**
Are you	Yes	1	20	24	10	17	1	**73**

literate?	No	23	0	0	0	0	0	**23**
Total		**24**	**20**	**24**	**10**	**17**	**1**	**96**

Table 4.3 represents respondents' Literacy and education level. In among the 96 respondents interviewed, majority represented by 76% indicated that they were literate while only 24% said they were not. This category of the respondents was among the 3% (N/A) who did feel comfortable sharing their education level with the researcher. However, 25% of the respondents indicated had completed secondary school, 21% having completed primary school and 18% and 10% at diploma and certificate level respectively. Literacy and education level in this study proved not to hold any barrier or partiality to access and acquisition of loan from AFC though it was a good correspondence to bring out heterogeneous views that the study sought to find out.

4.5 Marital Status

The respondents were asked to state their marital status to give the study an insight of those who are mostly involved in farming as well as accessed agricultural financing from AFC and other finance institutions in Bura Scheme. Table 4.4 presents the study findings.

Table 4.4 Marital Status

	Frequency	**Percent**
Single	20	20.8
Married	61	63.5
Widowed	12	12.5
Separated	1	1.0
N/A	7	7.3
Total	**96**	**100.0**

The majority respondents 64% (n=61) were married, this is the group of people that control and utilize farm fields for either commercial or subsistence of the family, 21% (n=20) said they were single a fraction of the emerging young people joining agricultural production and in need of capital for start-ups or boosting production. 13% were widowed.

4.6 Number of Dependents

The respondents' number of dependants was sought to establish the level of reliance on the farmer which in turn hampers accessibility, utilization, and repayments of loans. The findings were as shown below.

Table 4.5 Number of Dependents

Number of Dependents		
1-5	65	67.7
6-10	25	26.1

11-15	4	4.1
16-20	1	1.1
21-25	1	1.1
Total	**96**	**100.0**

The study also sought to liken marital status, farming activities and the level of dependency. It was established that majority 68% (n=65) were bread winners to a family of between ages 1-5 while 26% (n=25) had dependents of 6-10 members households. At this rate, the respondents showed an indication of need to supplement subsistence by either improving level of agricultural production or needing an ancillary source of livelihood.

The variance in dependency index Vis a Vis marital status as utilized by the study was relatively good consequently obtaining reliable information with regard to the factors influencing group lending by agricultural financing institutions in Bura Irrigation Scheme.

4.7 Place of Residence

The study purposed to find out if area of residence whether vicinity to or far from the AFC offices was a factor that hinders accessibility to and acquisition of loans by small holder farmers in Bura Irrigation settlement. The findings were as tabulated in table 4.6 below.

Table 4.6 Area of residence and Farm Location

		Is your farming field near AFC Offices?			
		N/A	Yes	No	**Total**
Is your place of	N/A	3	0	0	3
residence near AFC	Yes	0	1	21	22
Offices?	No	0	1	70	71
Total		**3**	**2**	**91**	**96**

Ostensibly from the study the highest percentage of the respondents utilized 47% and 23% live near the farm and their places of residence was near AFC offices respectively. However, only 2% had their farms near AFC implying that at least majority were aware of the AFC as a financial institution that work hand in hand with farmers in providing financial services to boost agricultural production. This finding validates the reliability in the information sought for by the study with regard to the accessibility to agricultural loans by AFC.

4.8 Farm Size

Land has been used as a loan collateral by lending institutions for long time. It construed by most of land owners as a factor that determines accessibility and acquisition of finance in loans across the

world. This study undertook to look at the size of the farm owned by farmers and how it helped them in procuring credit facilities from lending institutions and AFC. The findings were as follows;

Table 4.7 Size of the farm

What is the size of your farm?		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N/A	2	2.1	2.1	2.1
	0.5-1.5 acres	63	65.6	65.6	67.7
	1.6-3.0 acres	24	25.0	25.0	92.7
	3.1-4.5 acres	7	7.3	7.3	100.0
	Total	**96**	**100.0**	**100.0**	

The findings indicate that majority of the respondents 66% are small scale intensive farmers owning 0.5-1.5 acres of land for agricultural production. Small-scale intensive farming doesn't require large acreage, allows for the cultivation of multiple crops and livestock, and can take place right in a community. Agriculture is something that is believed should happen everywhere, even in a family backyard. Cumulatively, 18.8% of the respondents own 1.6-3.0 acres and 3.1-4.5 acres respectively which are considered to be relatively on high scale. However, this study sought to determine whether the size of the farm was a factor to access to credit from AFC or equity bank. This is so because no matter how elegant the system or how accomplished the farmer, no agriculture is sustainable if it's not also profitable, able to provide a healthy family income and a good quality of life. Sustainable practices lend themselves to smaller, family-scale farms. These farms, in turn, tend to find their best niches in local markets, within local food systems, often selling directly to consumers. As alternatives to industrial agriculture evolve, so must their markets and the farmers who serve them. Creating and serving new markets remains one of the key challenges for sustainable agriculture.

4.9 Cross Tabulation between frequency and Purpose of borrowing

This study sought to determine the number of times the respondents had borrowed loan from AFC and for what purpose. Table 4.8 illustrates a cross tabulation of the study findings with a view of establishing whether proper channelling of borrowed funds was a determinant of lending by AFC and banks.

Table 4.8 Cross tabulation between Times Borrowed Loan and Use of the loan Borrowed

		How many times within the last one year have you borrowed a loan from AFC?			Total
		N/A	Once	Twice	
How did you make use of the loan?	N/A	2	0	0	2
	For farming	0	80	14	94
Total		2	80	14	96

It was deduced from the study that majority (80) of the respondents had taken once a loan with AFC utilizing it for farming while 14 of them had taken it twice and invested the money in farming. However, 2 of the respondents had never borrowed a loan from AFC within the last one year. This implies that Bura farmers were fully aware of the loan facility by AFC and accesses it adequately and that were in a position to respond to the factors that influence access to lending by the bank and AFC.

4.10 Cross Tabulation between Amount Borrowed and Purpose of borrowing

The respondents were asked to state the amount of loan if they had any, and the purpose for which the loan was put into. The results are as presented in Table 4.9 below.

Table 4.9 Cross tabulation between bank borrowing, amount and purpose for borrowing

Have you for the last one year borrowed loans from other banks?			**Amount of loan you borrowed (2014/2015) in Kshs.**					**Total**
			N/A	Up to 19,000	20,000-30,000	31,000-49,000	50,000 and Above	
N/A	Purpose	N/A	3	1		1		5
	Total		**3**	**1**		**1**		**5**
Yes	Purpose	For farming		0	3	4		7
		To start/expand business		1	6	1		8
		To meet household expenses		0	1	0		1
	Total			**1**	**10**	**5**		**16**
No	Purpose	N/A		11	38	24	2	75
	Total			**11**	**38**	**24**	**2**	**75**
Total	Purpose	N/A	3	12	38	25	2	80
		For farming	0	0	3	4	0	7
		To start/expand business	0	1	6	1	0	8
		To meet household expenses	0	0	1	0	0	1
	Total		**3**	**13**	**48**	**30**	**2**	**96**

From the findings as cross tabulated in table 4.9, only 16 out the 96 respondents had borrowed loans from the bank while 75 had not. One had borrowed up to Kshs.19, 000, ten borrowed Kshs.20,000-30,000 while only five had borrowed Kshs.31,000-49,000. For those who had borrowed loans, 7 had utilized it for farming, 8 to start/expand another business and one (1) to meet household expenses appendage to their agricultural activities.

4.11 Service Providers

The study sought to analyze the factors that service providers such as AFC and other creditors like banks consider when making lending decisions to farmers in Bura Settlement Scheme. These factors

were conceptualized as the level of awareness, challenges, knowledge, transaction cost, loan liability, group lending and access to agricultural financing by farmers through service providers such as AFC, NIB, Kenya Seed Company and NCPB.

To assess the acceptance rate, the respondents who were the main chain farmers in Bura scheme were asked to avow or disagree to stated statements which were then rated on a 3-point Likert scale, the extent to which they affirmed or declined to the given statements relating to factors influencing lending by the service providers in agricultural production and there accessibility to loan facilities from service providers. The respondents' scores on the various aspects of factors influencing lending were analyzed descriptively using means and then correlated with their accessibility and organization. The means and standard deviations of the respondents' ratings of aspects of the factors influencing lending by service providers were discussed below.

4.11.1 Influence of Agricultural Finance Corporation on lending to farmers

AFC as a service provider is the only government organization that provided finance in agriculture and financed by the government and grants and loans from international donors as informed by Nyoro, 2007. This study sought to analyse the influence that AFC has on lending to farmers in Bura Scheme. The respondents were asked to affirm or decline statements regarding influence of AFC and the findings were analysed as shown in table 4.10 below.

Table 4.10 Influence of AFC on lending to farmers

Descriptive Statistics	N	Minimum	Maximum	Mean	Std. Deviation
Statement					
I have taken a loan with AFC	96	0	3	1.02	.250
I am aware of different agricultural lending institutions/ banks	96	0	3	1.89	.905
I know the terms for the loan I take	96	0	3	1.64	.964
Our group is as a result of necessity to get access of loans from AFC	96	0	3	1.28	.750

The findings in table 4.10 indicate that the highest score was related to the dimension of respondents being aware of the terms of loans they take with a mean of 1.64 and their awareness of other agricultural lending institutions/banks with a mean of 1.89. The minimum scores were uniform at a score of 1 relative to a maximum of 3 in the other aspects implying that on a continuum of strongly disagree to strongly agree, and based on the average scores, majority of the respondents provided positive ratings that could generally be categorized as "agree". This is to say that in as much as they had not taken with AFC (mean 1.02) their group was formed as a result of the necessity to get access to loans from AFC (mean 1.28).

4.11.2 Influence of National Irrigation Board on farmer lending

The findings on the rating of the respondents on influence of NIB on lending to farmers were as shown in table 4.11 below.

Table 4.11 Influence of National Irrigation Board on farmer lending

Descriptive Statistics	N	Minimum	Maximum	Mean	Std. Deviation
Statement					
I am a member of a farming group in the Scheme	96	0	3	1.04	.322
I farm with my group members in the same block/unit	96	0	3	1.19	.586
I farm similar crop type with my group members	96	0	3	1.51	.858
My farm is irrigated alongside my neighbours'	96	0	3	1.22	.636
I make joint water payment with my farm neighbour	96	0	3	1.18	.632
Our group is as a result of necessity to get access farms and water	96	0	3	1.32	.788

This study found out that a large number of respondents with the highest score in regard to the aspects of NIB as a service provider helping farmers on productive and sustainable farming practices, majority of the farmers (mean 1.51) plant similar crop type with group members. We had a general consensus that even though farmers were not explicitly grouped by NIB (mean 1.04) they make joint water payment with their neighbours (mean 1.18) and that irrigation was mainly done along farmer groupings (mean 1.22) whereas farmers undertake farming activities within the same block/unit (mean 1.19). This findings indicate that, NIB as a service provide closed the niche on factors that hinder farmers from access to agricultural services by organizing farmers and removing predisposing factors that are an impediment to lending in disguise to attract and propel farmers to work in groups for sustainable agro-production in Schemes in Kenya.

4.11.3 Influence of Seed Providers on farmer lending

The study sought to establish whether seed providers such as Kenya seed, African seed company and seed core have influence on lending decisions by finance institutions. The findings were as shown in table 4.12 below.

Table 4.12 Influence of Seed Providers on farmer lending

Descriptive Statistics	N	Minimum	Maximum	Mean	Std. Deviation
Statement					
I have an idea of farm inputs required for my farming project	96	0	3	1.51	.883
I have knowledge of certified seed providers	96	0	3	1.80	1.001
I can access reliable market to buy certified seeds within the Scheme	96	0	3	2.07	.965

I take a loan with AFC because I access certified seeds locally	96	0	3	1.56	.844
Our group is as a result of necessity to get access of seeds	96	0	3	1.74	.943

With regard to seed providers it was confirmed from the study findings that farmers have reliable access to market to buying certified seeds within the scheme with a mean of 2.07. All other dimensions of seed providers as stakeholders in agri-business lending as sought for by the study were found to have high ratings with farmers having an idea of farm inputs required (mean 1.51), farmer take loans from AFC because they access certified seeds locally (mean 1.56), have knowledge of certified seed providers like Kenya Seed, African Seed Company and Seed Core (mean 1.8) and they groups having been formed necessarily to get access to certified seeds (mean 1.74) relative to maximum score of 3. These findings suggests an affiliation to a group is a factor considered mostly by lenders in access to agricultural loans by farmers in Schemes which in turn enhanced farming activities and boosts agricultural production.

4.11.4 Influence of Market for agricultural produce on lending to farmers

The respondents views with regard to how ready market for their agricultural produce was a factor that determines their accessibility to loans from the finance institutions. The responses were analysed descriptively and the findings presented as indicated in table 4.13 below.

Table 4.13 Influence of Market for agricultural produce on lending to farm

Descriptive Statistics	N	Minimum	Maximum	Mean	Std. Deviation
Market providers (NCPB, Seed Companies and other markets)					
I have reliable market to sell my produce	96	0	3	2.07	.874
I take a loan with AFC because I have a reliable market for my produce	96	0	3	1.95	.838
Our group is as a result of necessity to get access of market for our produce	96	0	3	1.59	.853

On the aspects of marketing, the study findings show that farmers' affiliation to market providers such as NCPB and Seed Companies has a higher rating (mean 2.07) since they have a reliable market to sell their produce as well as secure loans with AFC comfortably (mean 1.95) because of the reliability to ready market while at the same time their being in group (mean 1.59) necessitates access to ready market for their produce.

4.11.5 Influence of mainstream finance institutions on lending to farmers

To ascertain the questionnaire respondents' views with regard to factors influencing lending other finance institutions like banks in Bura irrigation scheme, the financiers from mainstream finance institutions mainly from management levels i.e. Head Office, Branch management and Credit

Officers at the branches, loan collection and resource mobilization departments were utilized. The bankers' questionnaire was administered and analysed descriptively as shown in table 4.14 below.

Table 4. 14 Influence of mainstream finance institutions on lending to farmers

Descriptive Statistics	N	Minimum	Maximum	Mean	Std. Deviation
The Branch works absolutely with smallholder farmer groups	9	1.00	2.00	1.3333	.50000
The smallholder farmer groups have collateral	9	1.00	2.00	1.6667	.50000
Are there external factors that influenced your choice to work with the smallholder farmer groups?	9	1.00	2.00	1.1111	.33333
Is your experience with the group lending having any effect on transaction cost?	9	1.00	1.00	1.0000	.00000
Were the groups established for the AFC lending purpose?	9	1.00	2.00	1.8889	.33333
Are your transaction costs reduced in relation to group lending?	9	1.00	3.00	1.8889	.60093
Are there any defaulters in the groups	9	1.00	1.00	1.0000	.00000
Would you consider re-financing the same groups?	9	1.00	2.00	1.6667	.50000
Does availability of irrigable farms influence your lending to groups in BISS?	9	1.00	2.00	1.1111	.33333
Does availability of quality seeds influence your lending to groups in BISS?	9	1.00	2.00	1.3333	.50000
Does availability of market for produce influence your lending to groups in BISS?	9	1.00	2.00	1.3333	.50000

From the findings, the bankers unanimously agreed that group lending (mean 1.00), branch works absolutely with smallholder farmer groups (mean 1.33), there are external factors that influence lenders choice to work with the smallholder farmer groups (mean 1.11), there are defaulters in the groups (mean 1.00), availability of irrigable farms influence lending to groups (mean 1.11), availability of quality seeds and market for produce influence lending to groups (mean 1.33) has a great influence on lending to farmers' groups in Bura Irrigation Scheme. However, majority of the banker respondents objected to the fact that smallholder farmers' groups have collateral (mean 1.66), the groups were established purposely for the AFC lending (mean 1.88) and if they would re-consider refinancing the same groups (mean 1.66). This implies that in as much as the finance institutions and AFC work with farmers' groups in raising agricultural production in Bura, there are several factors they consider in lending to farmer groups to ensure safeguard of the resources and finance given out and its repayment.

4.11.6 Correlation between influences of Service Providers on Group Lending

To establish the influence of service providers on group lending, a correlation analysis was undertaken and results presented in Table 4.15.

Table 4. 15 Correlation between influence of Service Providers and Group Lending

		Service Providers	Group Lending
Service Providers	Pearson Correlation	1	-.059
	Sig. (2-tailed)		.487
	N	96	96
Group Lending	Pearson Correlation	-.059	1
	Sig. (2-tailed)	.487	
	N	96	96

A correlation analysis was undertaken to establish the relationship between Service Providers and group lending. Table 4.15; indicate the correlation between the two variables as -.059 implying a negative non correlation. The p value =. 487> 0.05 hence the relationship is not significant. A withdrawal of service providers group lending is hindered as some cannot access credit for their businesses. According to Ackah and Vuvor (2011) the availability of collateral plays a significant role in the readiness of banks to meet the demand of the private sector. Service providers act as a surety for groups that they will repay and offset losses without which AFC and the banks are usually reluctant to offer credit facilities to farmers. In Bura irrigation scheme, farmers are practice agriculture on small scale and most of them do not have the required collateral by the banks hence this further locks them from accessing credit thus a disadvantage to growth and expansion.

4.12 Joint Liability

On liability as a factor of lending for farmer groups, the respondents were asked to rate statements on how peer pressure, assurance, group responsibility and liability influences their accessibility to loans from financial institutions. Their responses were as shown in table 4.16.

Table 4.16 Joint Liability

Descriptive Statistics **Joint Liability**	N	Minimum	Maximum	Mean	Std. Deviation
I know my group members	96	0	3	1.57	.937
I understand financial and legal consequences of defaulting on loan repayment	96	0	3	1.84	.933
I feel responsible for another member when he/she defaults	96	0	3	2.02	.808
My group Officials are my guarantors	96	0	3	1.33	.749

My group members are my guarantors	96	0	3	1.88	.861
My group Officials provide me with reliable information on loans and repayment	96	0	3	1.84	.988
I know my individual liability to AFC (amount I owe to AFC)	96	0	3	1.85	.973

All the obligational dimensions that lenders anchor on while advancing loans to farmers were found to have the highest scores where group members are responsible for defaulters in their groups (mean 2.02), group members are guarantors of each other (mean 1.88), members know their individual liabilities to AFC (mean 1.85), members understand financial and legal consequences of defaulting on loan repayment and their group provide reliable information on loans and repayments (mean 1.84) respectively in addition to group members knowing each other (mean 1.57). However, group officials guarantying members to access loans (mean 1.33) relative to maximum score of 3 was found have no effect on lending decisions and accessibility to loan facilities by farmers' groups.

4.12.1 Correlation between Joint Liability and Group Lending

To establish the influence of joint liability on group lending, a correlation analysis was undertaken and results presented in Table 4.17.

Table 4.17 Correlation between Joint Liability and Group Lending

		Joint Liability	Group Lending
Joint Liability	Pearson Correlation	1	.655**
	Sig. (2-tailed)		.007
	N	96	96
Group Lending	Pearson Correlation	.655**	1
	Sig. (2-tailed)	.007	
	N	96	96

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

The findings of the study reveal that r = .655 thus there is a strong positive correlation between joint liability and group lending. P (0.007) <0.05 thus the relationship is significant. This implied that with formation of groups by AFC, service providers and or banks as a necessity to access services and credit then farmers' agricultural production is increased consequently loan repayment is efficient and reliable and accessibility to credit is guaranteed. It was then deduced that to a larger extent joint liability determines as well influences group lending in Bura irrigation scheme.

4.13 Transaction Cost

Since cost of transaction encompasses all those costs incurred by the bank from screening of farmer to loan recovery, information at every stage is critical for both the financier and the borrower. The

respondents were asked to rate aspects of transaction cost. Their responses were then analysed as shown in table 4.18 below.

Table 4.18 Transaction Cost

Descriptive Statistics	N	Minimum	Maximum	Mean	Std. Deviation
Transaction Cost					
I hold a single (one person) account with AFC	96	0	3	1.08	.451
I hold a joint (group) account with AFC	96	0	3	1.92	.627
I know my account transaction and maintenances charges	96	0	3	2.00	.929
I withdraw my loan more than once	96	0	3	1.33	.777
I know the interest rates charged on the loans I take	96	0	3	2.01	.957
I know my loan repayment schedule	96	0	3	1.85	.951
I benefit from group transaction	96	0	3	1.96	1.035
My Officials undertake some financial services on my behalf as my guarantor	96	0	3	1.83	.959
Being in a group helps reduce transaction charges to my account	96	0	3	2.06	.993

On whether transaction cost as a determinant of accessibility to loans by farmers and lending by financial institutions, majority of the respondents rated being in a group reduced transaction charges on their accounts (mean 2.06), that they know their account transaction and maintenance charges (mean 2.00) and know interest charged on the loans they take (mean 2.01) higher implying that transaction cost mostly hinders individual lending to access and utilize loans from AFC and other financial lenders in agricultural enterprises in Kenya.

On the other hand, members benefiting from group transaction (mean 1.96), holding account with AFC (mean 1.92), knowing loan repayment schedule and the group official undertaking some financial services on member behalf (mean 1.85 and 1.83 respectively) were found to have a slight effect on lending to farmers and accessibility to loans which AFC which the bank has shrouded through reaching the farmers in their farming groups hence enhancing access to credit and agricultural services in the schemes in Kenya. These findings are in harmony with Ghatak et. al, (1999) and Schaefer-Kehnert, (1982) on the transaction cost argument that in many circumstances, it becomes vaguely more expensive to administer a group of a number of loans than to administer a single loan. The rest including a single (one person) account with AFC (mean 1.08) and withdrawing loan more than once (mean 1.33) scored lowly implying that it wasn't factored in lending decisions by financial institutions and other service providers as well as farmers in the agricultural schemes in Kenya.

4.13.1 Correlation between Transaction Cost and Group Lending

To establish the influence of transaction cost on group lending, a correlation analysis was undertaken and results presented in Table 4.19.

Table 4.19 Correlation between Transaction Cost and Group Lending

		Group Lending	Transaction Cost
Group Lending	Pearson Correlation	1	-.019
	Sig. (2-tailed)		.819
	N	96	96
Transaction Cost	Pearson Correlation	-.019	1
	Sig. (2-tailed)	.819	
	N	96	96

The findings as indicated in Table 4.19 show that r = -.019 showing a negative weak correlation between farmer group lending and transaction cost. The significance value = .819 which is > 0.05 therefore there was no significant relationship between farmer group lending and transaction cost. The study shows that there was a negative weak correlation with no significant relationship thus as the transaction cost decreases access to and group lending increase hence farmers are bound to grow. This showed that transaction cost really determines group lending. The individual lending transaction cost is very high contrary to group lending thus farmer groups borrowing and accessing credit from AFC and banks is enhanced. The findings of the study resonates with the works by O liou and Zeller (2001) who noted that in African counties and Malawi in particular, majority of small holders left out of the rural financial systems as a result of poverty that keeps them from benefiting from any kind access to credit.

4.14 Group Lending

The study sought to establish whether group lending was considered over individual lending by finance institutions like AFC in Bura irrigation scheme. The findings were as follows in table 4.20.

Table 4.20 Group Lending

Descriptive Statistics	N	Minimum	Maximum	Mean	Std. Deviation
Group Lending					
I benefit from being a member of a group	96	0	3	1.15	.580
I have a group account with AFC	96	0	3	1.80	.734
I take a loan with AFC because of being in a group	96	0	3	1.45	.893
I know my group Officials	96	0	3	1.06	.455
My account with AFC is in default (in arrears)	96	0	3	1.53	.882
I attend group meetings as planned by the group	96	0	3	1.69	.944

From the findings, it is evident that group lending with the elements of determinants of lending being given high ratings by the respondents and thus scoring highly. Conversely, all other aspects that held minimum scores such group attendance and having an account with AFC were found not to control or limit loaning. The low values of standard deviations indicate that the respondents' ratings did not differ significantly from one respondent to another. Thus, the tangibles of factors influenced group lending in Bura Scheme had great influence on accessibility and loaning by AFC and other finance institutions.

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the main findings of this study together with a discussion of the findings. The chapter also contains the conclusions and recommendations as well as suggestions for further study.

5.2 Summary of Findings

This section presents the summary of the study findings. It is divided into four sub-sections; Respondents background, influence of service providers on farmer group lending by AFC, influence of joint liability of farmers on farmer group lending by AFC and influence of transaction cost on farmer group lending by AFC. Discussions are drawn along the summaries in each category.

5.2.1 Respondents background

Ninety six (96) out of 120 questionnaires that were administered were successfully filled and returned back hence the return rate. Males interviewed were 56 % while females 44%. The majority respondents 61% were above 41 years. 76% were literate 25% having completed secondary education. Majority of respondents 64% were married with 68% as bread winners to a family of between ages 1-5 whereas 47% and 23% live near the farm and their places of residence was near AFC offices respectively. 66% are small scale intensive farmers owning 0.5-1.5 acres of land for agricultural production and 80 of them had taken once a loan with AFC utilizing it for farming while 16 out the 96 respondents had borrowed loans from the bank. Majority had borrowed Kshs.20,000-30,000.

5.2.2 Influence of Service Providers on farmer group lending by AFC

On service providers, majority stated that they were aware of the terms of loans they take of other agricultural lending institutions/banks. However, they preferred taking loans with AFC, NCPB and NIB other than commercial banks due to extreme determinants that govern lending for the purpose of agricultural production. NIB as a service provider helping farmers on productive and sustainable farming practices, majority of the farmers plant similar crop type with other group members. We had a general consensus that even though farmers were not explicitly grouped by NIB they make joint water payment with their neighbours irrigation mainly done along farmer groupings.

Certified seed provision was reliable as the farmer groups' access reliable market to buy them. Consequently, farmers take loans from AFC because they access certified seeds locally although

there were instances where the groups had been formed necessarily to get access to certified seeds most of the groupings were not instigated by service providers. Farmers' affiliation to market providers such as NCPB and Seed Companies had a higher rating since they have a reliable market to sell their produce as well as secure loans with AFC while at the same time their being in group necessitates access to ready market for their produce.

5.2.3 Influence of Joint liability of farmers on farmer group lending by AFC

Joint liability was found to be the major determinant of lending by lenders while advancing loans to farmers where group members are responsible for defaulters in their groups. They guarantee each other as they know their individual liabilities to AFC and understand financial and legal consequences of defaulting on loan repayment. However, group officials guarantying members to access loans was not a determinant to access to services and loaning by AFC and banks. Formation of groups by AFC, service providers and or banks as a necessity to access services and credit increased farmers' agricultural production raised efficiency in loan repayment.

5.2.4 Influence of Transaction Cost on farmer group lending by AFC

Transaction cost was found to be a major determinant of accessibility to loans by farmers and lending by financial institutions, majority of the respondents agreed that being in a group reduced transaction charges on their accounts because they know their account transaction and maintenance charges and are aware of the interest charged on the loans they take. Nonetheless, members benefiting from group transaction and holding account with AFC were not a factor of lending to farmers. In general, there was no significant relationship between farmer group lending and transaction cost though transaction cost decreased group lending.

According to bankers, service providers, joint liability and transaction scored high in determining group lending. All other aspects such as group attendance and having an account with AFC were found not to control or limit loaning. There was a general acceptance that the branch works absolutely with smallholder farmer groups which explores external factors that influence lenders choice to work with the smallholder farmer groups before loaning. In addition, bankers were sceptic of defaulters in the groups where availability of irrigable farms, quality seeds and market influence lending to groups. They further indicated that smallholder farmer groups have no collateral and that the groups were established purposely for the AFC lending in raising agricultural production in Bura, it was also established that there are several factors they consider in lending to farmer groups to ensure safeguard of the resources and finance given out and its repayment.

5.3 Discussion of Findings.

The study found out that in as much as the finance institutions work with farmers' groups in raising agricultural production in Bura, there are several factors they consider in lending to farmer which aim at safeguarding the money they inject into farming activities to ensure its repayment. Most of these factors hinder farmers from accessing credit either individually or as a group from finance institutions by and large due to their inability to provide the requisite requirements set by the lending institutions. The findings echoes the study postulates by O liou and Zeller (2001) who noted that in African counties and Malawi in particular, majority of small holders left out of the rural financial systems as a result of poverty that keeps them from benefiting from any kind access to credit.

Further, in Bura irrigation scheme, majority of the population are farmers who practice agriculture on small scale and most of them do not have the required collateral by lenders hence this further locks them out from accessing credit thus a disadvantage to their growth and expansion. In this case, group lending is adopted to advance loan facilities to farmers. It was deduced that to a larger extent joint liability determines as well influences group lending in Bura irrigation scheme. Most of the tangible factors influencing group lending in Bura Scheme had great effect on accessibility and loaning by AFC and other finance institutions. For instance, transaction cost greatly determined the interventions in terms of lending to farmers by finance institutions which in turn was a determinant to loaning in Bura Scheme. This finding corroborate with research done by Ghatak et. al, (1999) and Schaefer-Kehnert, (1982) that in many circumstances, it becomes indefinably more expensive to administer a group of a number of loans than to administer a single loan. In this context, financiers demand that farmers should be organized in groups to access either credit or agricultural services particularly to guarantee the restoration of monies they provide to farmers.

5.4 Conclusions

Based on the findings of the study, it was concluded that majority of the farmers in Bura irrigation scheme are small holder farmers who do not have palpable collateral to guarantee them loans and that with high level of dependency, their savings cannot allow them access credit. Bank loans attracted very high interest rate thus AFC and other service providers have majorly helped the farmers through group lending. The involvement in group activities by a farmer determined the lending by banks and AFC. High investments guaranteed borrowing money from AFC and the bank.

On the first research question, it was concluded that service providers were major determinants of group lending and their presence in farmer groups encouraged banks and other financial institutions in availing credit to farmers. Many farmers cannot meet the requisite collateral and this was further

worsened by the fluctuating or lack of market for their farm produce which mostly is a surety to lenders on repayment of advanced loans to farmers.

On the second research question, it was concluded that joint liability indeed plays a major role in accessing credit by farmers. The group membership was the most important aspect looked at by banks followed by the service providers and lastly certified quality seeds and market for the farmers' produce. Most farmers are locked out from accessing credit because of the challenges they face due to lack of collateral or going individualistic that is viewed as inadequate by AFC or by the banks.

On transaction cost, it was concluded that being in a group reduced drastically the cost of transacting and processing loans as well as maintaining loaning accounts. This was due to pooling of money together while in group hence not a determinant to group lending by financial institutions and AFC. However, any increase in transaction cost will definitely lead to decrease in group lending to farmers.

The study also observed influence of intervening variables which included policy and political, economic and environmental factors. Foremost, government policy played a key role in influencing group lending by AFC of which under the Kenya Law Chapter 323, AFC Act of 1969, AFC is mandated to offer agricultural loans to farmers at low interest rates as a way of improving the country's food basket and economic status of the farmers. This was to reinforce the World Bank recommendation report on the establishment of irrigable farms in the Tana River Basin to improve on the country's food basket. This also explains the economic factor influencing the independent variable in addition to the fact that the State Corporation was mandated under the Jubilee manifesto to fund farming in the Tana River Basin Irrigation Scheme which involves Hola and Bura Settlement and Irrigation Schemes that targeted up to 2,000 acres of irrigable land. Lastly, the research established that political factors as stated under the Jubilee Manifesto together with influence of politicians on the government to allocate more funding to the farmers at very low interest rates, and to some extent, farmers becoming reluctant to repay the loans hoping that their politicians will ask the government to write them off was clearly identifiable.

5.5 Recommendations

Following the findings, the study gave the following recommendations.

1. There should be a revision of security of loans required by AFC on individual farmers to open up lending to loan famers who cannot be accommodated in farmer groups. This will enable many individual farmers to borrow money with a security none other than land. Furthermore, individuals should act as own securities in which failure to repay should attract

detention and sentencing by the court of law. This will ensure that individuals whether in a group or not re-pay their loans promptly.

2. Farmers should strive to improve on their agricultural production through investing in quality seeds and collaboration with service providers in order to increase collateral that can guarantee individual lending which is more convenient than group lending.
3. There is need of market guarantee by NCPB for commercial maize for the Bura farmers. Farmers felt guaranteed of market for seed maize as compared to commercial maize farming;

5.6 Suggestions for Further Study.

From the study findings, it is evident that there are research gaps in group lending that need to be filled mainly focusing on farmer groups. The following are areas that the study felt needs further research:

1. A study to be undertaken to examine the impact of group lending on agricultural production in Bura Irrigation Scheme.
2. A study should be carried out to look into how lending to farmers can be improved to enhance accessibility to agricultural finance for increased agricultural production in Bura Irrigation Scheme.

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APPENDIX A: LETTER OF TRANSMITTAL

I am a student of University of Nairobi carrying out a research on determinants of group lending by Agricultural Finance Corporation (AFC) in Kenya. You are among my chosen respondents and I invite you to provide your honest opinion of the questions outlined in this questionnaire.

Your cooperation is well appreciated.

Yours Sincerely,

Rose Tum

APPENDIX B QUESTIONNAIRE FOR FARMER

This questionnaire is designed to obtain information for a study on the determinants of group lending by agricultural financing institutions in Bura Irrigation Scheme. Your opinion as expressed in this questionnaire is important and useful for this study. Utmost care will be taken to safeguard it and remain confidential. Kindly fill the questionnaire as freely and honestly as possible.

SECTION A: QUESTINNAIRE FOR THE FARMER

INSTRUCTIONS

Please respond to all questions in all the sections. If there are any questions you do not understand or is not clear, please feel free to ask.

Please tick (√) the appropriate answer in the boxes provided and write down the appropriate answer in the space provided, DO NOT write your name on this questionnaire

BACKGROUND INFORMATION

1. Kindly indicate your gender □Male □Female
2. Please give your age bracket □18-23 □24-29 □30-35 □36-41 □Above 41
3. Are you literate? □Yes □No
4. If Yes, what is your education level?

   □Primary School completed □Secondary School completed

   □Certificate □Diploma □Degree &above
5. State your marital status □Single □Married □Divorced □Widowed □Separated
6. State the number of your dependants:

   Children: Male_____ Female_____

   Adults: Male_____ Female_____
7. Do you reside near the farm? □Yes □No
8. Is your place of residence near AFC Offices? □Yes □No
9. Is your farming field near AFC Offices? □Yes □No
10. What is the size of your farm?

□ below 0.5acres □0.5-1.5 □1.6-3.0 □3.1-4.5 □over 4.5

11. What are your sources of income?

   □From farming

□From other business

□From husband/wife salary

□From other household salary

□Other

12. How many times within the last one year have you borrowed a loan from AFC?

□Once □twice □ thrice □other

13. How did you make use of the loan?

□for farming

□to start/expand another business

□to pay school fees

□to meet household expenses

□Other

14. Have you for the last one year borrowed loans from other banks? □Yes □No

15. If Yes, for what purpose?

□for farming

□to start/expand another business

□to pay school fees

□to meet household expenses

□Other

16. What is the amount of loan you borrowed from AFC (2014/2015) in Kshs? □ Up to 19,0000 □20,000-30,000 □31,000-49,000 □50,000 and above

SECTION B: QUESTIONNAIRE FOR THE FARMER

Please tick appropriately to indicate your response on Service providers, Joint liability and Transaction costs in relation to AFC Loans and your group.

SERVICE PROVIDERS			
Tick in the spaces your response to each of the statement	**Yes**	**No**	**Not Sure**
Agricultural Finance Corporation (AFC)			
I have taken a loan with AFC			
I am aware of different agricultural lending institutions/ banks			
I know the terms for the loan I take			
Our group is as a result of necessity to get access of loans from AFC			
National Irrigation Board (NIB)			
I am a member of a farming group in the Scheme			
I farm with my group members in the same block/unit			
I farm similar crop type with my group members			
My farm is irrigated alongside my neighbours'			
I make joint water payment with my farm neighbour			
Our group is as a result of necessity to get access farms and water			
Seed Providers (Kenya Seed, African Seed and Seed Core)			
I have an idea of farm inputs required for my farming project			
I have knowledge of certified seed providers			
I can access reliable market to buy certified seeds within the Scheme			
I take a loan with AFC because I access certified seeds locally			
Our group is as a result of necessity to get access of seeds			
Market providers (National Cereals and Produce Board, Seed Companies and other markets)			
I have reliable market to sell my produce			

I take a loan with AFC because I have a reliable market for my produce			
Our group is as a result of necessity to get access of market for our produce			
Joint Liability (i.e. the factors attributed to being in a group)			
Tick in the spaces your response to each of the statement	**Yes**	**No**	**Not Sure**
I know my group members			
I understand financial and legal consequences of defaulting on loan repayment			
I feel responsible for another member when he/she defaults			
My group Officials are my guarantors			
My group members are my guarantors			
My group Officials provide me with reliable information on loans and repayment			
I know my individual liability to AFC (amount I owe to AFC)			
Transaction Cost			
Tick in the spaces your response to each of the statement	**Yes**	**No**	**Not Sure**
I hold a single (one person) account with AFC			
I hold a joint (group) account with AFC			
I know my account transaction and maintenances charges			
I withdraw my loan more than once			
I know the interest rates charged on the loans I take			
I know my loan repayment schedule			
I benefit from group transaction			
My Officials undertake some financial services on my behalf as my guarantor			

Being in a group helps reduce transaction charges to my account			
Group Lending			
Tick in the spaces your response to each of the statement	**Yes**	**No**	**Not Sure**
I benefit from being a member of a group			
I have a group account with AFC			
I take a loan with AFC because of being in a group			
I know my group Officials			
My account with AFC is in default (in arrears)			
I attend group meetings as planned by the group			

End of Questionnaire

Thank you for your responses.

APPENDIX C: QUESTIONNAIRE FOR BANKER

Confidential

Please tick appropriately to indicate your response

Tick in the spaces your response to each of the statement	**Yes**	**No**	**Not Sure**
The Branch works absolutely with smallholder farmer groups			
The smallholder farmer groups have collateral			
Are there external factors that influenced your choice to work with the smallholder farmer groups?			
Is your experience with the group lending having any effect on transaction cost?			
Were the groups established for the AFC lending purpose?			
Are your transaction costs reduced in relation to group lending?			
Are there any defaulters in the groups			
Would you consider re-financing the same groups?			
Does availability of irrigable farms influence your lending to groups in BISS?			
Does availability of quality seeds influence your lending to groups in BISS?			
Does availability of market for produce influence your lending to groups in BISS?			

End of Questionnaire

Thank you for your responses